A dynamic theory of personality and emotions

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Abstract

This dissertation presents a dynamic theory of personality and emotions. The theory offered is explicit in its incorporation of an evolutionary-functionalist perspective and suggests that personality and the emotions are dynamic within the limits imposed by the functions of each. The dissertation begins by discussing the ubiquity of goals and goal-organising constructs in living systems. Personality, it is argued, is most validly conceptualised as being a complex goal-organising construct. Specific attention is then given to the consideration of innate motives in a motivational model of personality, the process by which innate motives become representational goals, the place of emotions in the elaboration of innate motives, and the place of consciousness in goal, developmental and emotion processes. Following this, a functional conceptualisation of emotions and conscious emotional experience consistent with the motivational model of personality is developed. Empirical attention is devoted to the relationships between goals and emotions, the nature and measurement of conscious emotional experience, and the place of emotion in generating adaptive behaviour. Overall, the dissertation suggests that emotions and personality are necessarily related phenomena, each contributing to, and reflecting the other in the process of human striving.

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Foreword

Discontent is the first step in the progress of a man or a nation

Confucian fortune cookie (cited in Lazarus, 1999)

In many ways this is an unusual dissertation. In part, it is unusual by virtue of size, and for this I apologise. A work of this magnitude was never envisioned by either my supervisor or myself, although hindsight does suggest that such a volume was inevitable. In part however, size has been necessary given the scope of the theory presented, and for this I make no apologies. As will become clear, my belief is that psychology, particularly personality psychology, is hampered by the continued proliferation of small-scale theories, and an institutional unwillingness to engage in large-scale theory construction.

In explicating my discontent, I would like to briefly draw the reader's attention to a number of interrelated issues that first stimulated my concern. The first of these relates to a philosophical history of dualism and its manifestations in compartmentalised theorising. *Separatism* is now present at the theoretical, methodological and institutional levels (Lykken, 1991), to the point that psychologists perpetually investigate, and thus reinforce, the notion of isolated and competing systems in human functioning. As theorists, we seem to be perpetually discussing the *influence* of one system upon another, rather than considering each a part of a larger functioning adaptive system that co-operatively assist human strivings. At an institutional level, each scientist seems to exhibit an almost pathological need to distinguish their product from that of other scientists. While this practice is no doubt partly a function of the realities involved in academic publication (cf. Wachtel, 1980), I do not see the *necessity* for psychological theories to reflect such a climate.

In any case, small-scale theories abound. Grazing unmolested in the promised meadows of publication, the mini-theory has become the most numerous, resource hungry and destructive inhabitant on the psychological plains. Theory is created to describe and 'explain' the most inconsequential of phenomena, proliferating with a

contemptible disregard for the broader ecosystem of our science. Commentators are not unaware of this problem. For some time, writers like Lykken (1991), Meehl (1978) and Royce (1985) have voiced complaint regarding the state of the psychological sciences. In emotion theory, Scherer (1988) has noted that research reports are scattered throughout the sub-disciplines of psychology, giving rise to a frustrating situation in which it becomes increasingly difficult to perceive the links between research programs.

Kuhn (1962) would no doubt describe this situation as near-inevitable in the context of a pre-paradigmatic science. According to him, the disorganised and diverse activity that precedes the formation of a mature science is structured and directed only when a single paradigm is adhered to by a scientific community. Tomkins' (1981) commentary on the state of the psychological sciences is less forgiving. He reiterates his earlier concerns (Tomkins, 1962, 1963), suggesting that personality psychology has lost both its heart and its mind through a fear of methodological impurity. In his eyes, the latter half of the 20th century has seen the study of personality replaced by the study of personality variables. Methodology, he argues, cannot be a substitute for *theories* about personality.

Such was my mind when I began writing and, to an extent, thus it remains. With some few exceptions, personality psychology has ceased to provide writers who are willing to theorise 'on the grand scale'. This is unfortunate, for as Lang (1994) has noted, the areas of greater interest in psychology show little respect for the conceptual divisions we impose. Rather, they penetrate the formal divisions of science, depositing new intellectual spores. Although my views regarding personality theory (and theorists) have probably softened as I myself discovered the difficulties inherent in theorising about personality, my discontent nonetheless remains.

This dissertation is a first attempt at a large-scale theory of personality and emotion, although it is not only a theory of these. Given my concerns and interests, it shows little deference to the traditional borders of psychology. Instead, it discusses theories from personality, evolution, dynamic systems, emotion, development, philosophy, motivation, self, and consciousness literature. Despite this breadth, the work is not without its themes or without structure.

There are a number of ideas that I find my writing returning to time and again in this dissertation. Foremost among these is a conviction that the framework I describe as *evolutionary-functionalism* is central to an understanding of personality. The evolutionary 'component' of this approach underscores my belief that informed applications of evolutionary theory provide perhaps the only framework capable of explaining why phenomena like personality exist. The 'functionalism' component of the framework complements (and is part of) the evolutionary, intimating that phenomena exist and operate in the way they do for *reasons*. This is not to say that personality and emotion were in any sense 'designed' in order to accommodate these reasons, but rather they were selected and retained *because* they did so. Properly used evolutionary theory serves the additional advantage of keeping us mindful of anthropocentrism. Humans are certainly special in the grand scheme of life, yet we have risen from the same primordial slime, and have yet to transcend it.

Herein lies the essence of the second and third themes. I believe that life is essentially about motivation and the regulation of motivation, irrespective of how these 'motivations' operate or exactly what they are, and notwithstanding whether the organism is conscious or ever experiences such motivation. In operationalising the first component of this belief, the concept of *goal* is employed the length of this dissertation. Within the theory I offer here, goals form the basis for both personality and the self and are central to an understanding of emotion. Emotions are similarly ubiquitous to the theory presented, a theoretical utility I see as paralleling the place emotions hold in development, experience and action.

Finally, and despite my convictions regarding the fundamental importance of an evolutionary view, this dissertation underscores the dynamism of the human personality and the inherent indeterminism of human functioning. Although a theory of personality should be reinforced by an understanding of the evolutionary constraints and purposes of human functioning, I do not believe that it should spend its entire time 'looking backwards' to explain what and why we are. Rather than straightjacket a person through an understanding of their past, a good theory should also acknowledge freedom of action and the inherent potential for change, thus looking forwards to what we might each become.

Structurally, this dissertation is made up of eight chapters, loosely organised into three major sections. These three can loosely be thought of as considering the nature, development, and process aspects of a personality theory. The chapters are presented in order of construction and hence build on one another, although forward seeking references are made.

Chapters one and two consider the nature of personality and the self. In adopting a strong evolutionary-functionalist view, they present two core points. Initially, it is argued that that both personality and the self must be thought of as inherently motivational constructs. In developing this assertion, they further suggest that not only are living organisms about *goals*, but that they are also about the *organisation* of goals and the environment. Taken together, the first two chapters suggest that personality and self are most usefully thought of as complex and dynamic hierarchical goal organisations. Finally, each presents a distinction that runs the length of the dissertation, that between the functional and experiential consideration of a phenomenon. They argue that the mere fact that humans are eventually able to consciously experience motivation and the self does not, cannot, and should not be thought of as changing the functions that goals and self serve.

Chapters three through six then address the development of personality. Despite the importance of genetic factors, particularly those involving emotion, personalities are not instantiated at birth. Individuals develop as a complex interplay of environmental and biological factors. Chapter three begins by arguing that a motivational model of personality must initially look to innateness for the *content* of the initial goals in a personality. The simple reason for this orientation is that without innateness in motivation there is no place to begin the process of determining what matters. It discusses previous theories of instinct and innateness in motivation and personality, and presents a functionalist typology of innate motives.

Moving from this basis, chapter four provides a theory describing how innate motives become representational goals. In doing so, it also reconceptualises the phenomenon of *consciousness* in personality, motivation and emotion, suggesting that consciousness arises in the process of representing the motives that comprise the self.

It reaffirms the importance of consciousness to personality theory, and offers a functional conceptualisation of consciousness. In concluding, the chapter argues that consciousness can usefully be thought of as the ability to represent the personality motive structure, an ability that it has evolved not only as a cognitive meta-manager, but as a critical component in the expansion of our emotional repertoire.

Chapter five provides an introduction to the dynamic systems framework that is then used to examine and describe the elaboration of innate motives. It briefly describes the core assertions of dynamic systems (DS) theory, emphasising DS approaches to development. The DS approach is then critiqued, and it is suggested that while DS theories are well-suited to explaining both stability and change in personality development, that they must make more explicit reference to innate factors in emotion and motivation.

Chapter six develops a theory conceptualising the place of emotions in elaborating and organising the personality. Previous DS theories of personality development are described and critiqued as the chapter offers a new mechanism that describes the elaboration of personality. While most theories of emotion have argued that the emotions serve key functions in an immediate sense, the chapter argues that they can also been seen as serving a key function over longer periods of time. It suggests that the emotions act as inbuilt systems 'elaborate' innate goals and internalise learned associations, thus developing personality. In this theory, emotional responding automatically creates new goals in the personality appropriate to the organism-environment relationship being indicated by the emotion. Over time, the emotionally-indicated meaning of events is instantiated in the personality as new goals.

The final section (chapters seven and eight) discusses the process aspects of a personality theory, specifically considering the place of emotions in personality processes. Chapter seven describes a theory of conscious emotional experience. In essence, this theory suggests that conscious emotional experiences are not *entirely* a part of the biological emotion packages. While constrained in their form by the functions of the emotion, they are also both motivated and constructed at an idiographic level. A study examining the relationships between motivations and

emotional experience is presented, and implications for development and the socialisation of emotions are discussed.

Chapter eight provides a general conceptualisation of emotions in development, experience and action. It draws much from the works of Richard Lazarus (e.g. 1991), Carroll Izard (e.g. 1991) and Michael Lewis (e.g. 1993), and emphasises an evolutionary-functionalist approach to the emotions. Discussion is initially devoted to the necessity for a discrete approach to emotions, and it is argued that discrete theories are more viable from a functionalist perspective. The issues involved in cognition-emotion relationships are then considered and a series of diary studies examining goal-emotion relationships are presented. Substantial attention is then given to the importance of function in emotion theory and a typology of function for the emotions is presented. Finally, the relationships between the components of emotions are considered and two studies examining emotion and behaviour are presented.

Overall, I feel that a work of this breadth provides a coherent and powerful framework that enables complementary analyses at both descriptive and explanatory levels across a large number of heavily interrelated psychological phenomena. My hope is that the theory presented here will demonstrate something of what can be attained when theories about 'different' phenomena are developed simultaneously within a single explanatory framework. In this model of theory development, developments and problems in each particular domain necessitate, but also inform and substantiate, developments in the others.

Given the importance I have attached to emotions throughout my discussion of personality, it is perhaps fitting that the creation of this work has evidenced a near-incalculable variety in my own emotional responses to it. I have had moments of crippling doubt and interminable struggle, as well periods of contentment, surety, and vision. I have variously been consumed, distraught, fascinated, bored, and elated. In introducing this work, it is both my hope and my fear that some of these experiences will be shared by the reader.

Chapter 1: The Nature of Personality 1: Personality as a Motivational Concern.

Chapter 1.1 – Introduction

What do we know when we know a person?

McAdams (1995)

We seem to spend large proportions of our life seeking to understand or explain why things happen. Often, our attempts at explanation involve considering the part played by other people. Imagine for a moment that you are talking to a friend, discussing (for example) the causes of a colleague's eccentric behaviour in the last few weeks. At one point in the conversation you remark "Well you could say that, but I think it's simply *what she's like*."

On the face of it this appears a perfectly innocuous remark, and not one to inspire any great research endeavours. Upon closer examination however, this statement encapsulates several major assumptions that enlighten upon consideration. The first of these regards the nature of 'she.' What is a 'she,' or for that matter, a 'he, 'them' 'us'? When we describe another person or persons, what is it *exactly* that we are describing? Put another way, what is the "stuff" of which people are made?

At this point, we have at least one interesting question. A second assumption implicit in the dialogue is that the 'that' which 'she' apparently is, is somehow related to the way in which she behaves. Now there are two questions. What are people? And how does what or who people are influence the way they behave?

Of course this ad hoc analysis could continue, perhaps indefinitely. Yet already it has generated substantial food for thought. More importantly in terms of the current

dissertation, however, is that a key problem for personality research has been introduced. What is a person?[1]

Chapter 1 will consider something of the nature of personality. It will outline the first major assumption that underlies the current model. Through a discussion of living systems theory and personality theory at the motive-personality interface, it will argue that motivational concepts *of a kind* must form the primary basis for any theory of personality. Put simply, all living systems (including homo sapiens) *must* be motivated in order to survive and reproduce (if nothing else). The chapter will further suggest that there are several reasons why personality psychology should use the goal construct as the particular operationalisation of motivation in personality.

Trait approaches to personality will also be extensively considered and critiqued. It will be suggested that (while important), traits are an inadequate basis for personality theorising. Rather, it is argued, they constitute a heritable, potentially affective (Magai, 1996) 'style' that is analogous to temperament and are more usefully thought of as describing the *manner* in which people pursue goals than they are to describing personality itself.

Finally, a distinction between being motivated and the experience of being motivated will be offered. Although the current theory will argue that all life is motivated, it will also suggest that the capacity to experience motivation is inherently linked to consciousness. Not all organisms have the capacities to experience their motivations as we do, nor do they experience motivations regarding 'themselves'. Overall, the current model argues that homo sapiens possess goals regarding every aspect of functioning. As such, we have goals to do with the way we think, what we believe, the ways we feel, and the manner in which we act.

Given the monumental breadth of the phenomena that a theory of personality is intended to describe, predict, and explain, the field of personality research is

[1] There remains some disagreement as to whether a person is the same as a personality (see e.g. McAdams, 1995). It may for example be that the concept of 'person' includes elements that are not included in the concept 'personality,' say eye colour. The two terms are used somewhat interchangeably throughout the current piece and the term 'person' is typically used to denote a 'personality' when I feel a more 'personalised' description may enliven the text.

understandably complex. Moreover, it is inevitably riddled with a multitude of "core issues" to which any theory *must* attend, even if this attention is given grudgingly, or unknowingly (Pervin, 1993a). Given the aims and domain of this chapter (as outlined above), treatment of these issues will be kept to a minimum. Where necessary, the reader is referred to a fuller discussion elsewhere.

The decision to keep the discussion of fundamental 'personality theory' issues concise is motivated by two considerations. The first is that this chapter is intended to be a discussion of a global organisational backdrop to emotion, motivation, and personality processes, rather than a philosophical treatise on the nature of humanity. The second consideration is of a more pragmatic nature. Put simply, an exhaustive literature review in the areas that this chapter may address is simply not feasible.

Chapter 1.2 – Goal-directedness as the cardinal attribute of life: An introduction to the teleology of living systems.

As noted by Pervin (1993a), a philosophical view of the person, and of human nature tends to underlie theories of personality. From the time of the earliest Western philosophy, our basic assumptions about life have influenced both our individual and our scientific models of the human race. Some theories have stressed the instinctual and causal (e.g. Freud), others the rational and volitional aspects of our functioning (e.g. Rogers). Some have preferred to conceptualise humanity mechanistically, others to consider us information processors par excellence. The current theory is no more isolated from such assumptions than any other.

It has previously been argued that any theory cannot help but be influenced by its author; by their experiences and beliefs, by the culture in which they write - by their own personality (Pervin, 1989). This seems an eminently sensible proposition, and as is the case above, the theory presented here is no exception. Given such 'bias', it becomes necessary to briefly note the contemplations (and assumptions) present in the genesis of this particular author's theory.

Put most simply, the theory of personality presented here takes as its foundation the assumption that life, all life, exhibits *purpose*. According to systems theorists, purpose exists in all systems, at all levels (Skyttner, 1996). It is however, most salient in living systems, from the level of a simple cell through to the level of a complex, multicellular system such as homo sapiens. Miller's (1976) general living systems theory has as one of its central postulates the notion that all living systems exhibit purpose. West Churchman (1971), a professor of business administration, has similarly emphasised the importance of purpose in systems. According to Churchman, all systems are teleological at several levels[2]. Finally, Skyttner (1996) in a recent text on general systems theory notes that systems interact in such a way that an end or final state is being approached. Overall, it can be argued that the presence of purpose is a defining characteristic of life and living systems.

If we can accept that life exhibits purpose, it becomes but a short leap of logic to accept that each living system is goal directed. Putting aside (for now) considerations of awareness or volition, this shift does not seem unreasonable. In all but the most semantic of senses, the notion of 'goal directedness' captures both the sum and substance of purpose. It is important however, that we do not confuse being goal-directed with having goals[3]. As will be expanded upon in Chapter 4, while all life can be regarded as having goals insofar as all exhibit goal-directedness, *having* goals or being intentional (Van Gulick, 1995) is restricted to creatures capable of both representational thought and consciousness.

Binswanger (1991) has recently argued that goal-directedness characterises the actions of all living organisms including those of plants. He suggests that in less sophisticated systems, goal-directed actions are physiologically controlled. The next highest level is present in the lower animals, and entails conscious self-regulation through sensory-perceptual mechanisms including pleasure and pain. According to Binswanger, human beings possess the highest form of consciousness, namely, the

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[2] For the moment, it is only important that the reader be aware of the importance of purpose in a given system at the most gross level of description. However, Churchman's idea of teleology at multiple levels has important implications for the 'personality as goal structure' argument, especially when considering the interactions of goals within a complex dynamic system. Hence, it will be returned to below.

[3] My thanks to James Averill (personal communication, December 1998) for ensuring that this distinction was not omitted..

capacity to reason. Being volitional, humans have the power to *choose* their goals and pursue long range purposes (see also Ford, 1987). Finally, Killeen (1992) has suggested that "the attraction to future events may be a more effective tactic for a functional analysis of behaviour than attempts to reconstruct the contextual stimuli that give rise to it" (p. 442).

In some senses, the lengths to which this discussion has gone to explicitly acknowledge the ubiquitous nature of purpose and goals seems a trifle redundant given that there are few theorists in personality psychology today who would argue against the notion. As will be discussed below however, the implications of considering all life as possessing purpose are extraordinarily profound, and continue to be underestimated. If we *fundamentally* accept that life has purpose, we (should) become logically incapable of conceptualising personality in non-motivational terms. Personality, like life, serves and is part of purpose.

To this point, the discussion of the model's basic assumption about life as exhibiting purpose has primarily considered the relationship between life and goal directedness at an abstract and predominantly non-psychological level. It is hoped that the breadth of the considerations thus far outlined does not bore, nor distract the reader from the essence of the argument being presented. Rather, it is hoped that a context of this magnitude will serve to reinforce the belief that purpose, goals, and motivation *must* be considered pivotal in any model of personality and emotion – for we, homo sapiens, as other organisms, undoubtedly live.

Chapter 1.3 – Motivation and personality research.

Introduction

The precise connections between motivational concepts and major personality frameworks have always been hotly disputed in the psychological literature (see e.g. McAdams, 1997; Emmons, 1997). Not only has the usefulness of the goals-as-motivational-construct itself been repeatedly challenged, but the deployment of such

concepts within personality theory more generally has also been, and remains, a topic of considerable and ongoing debate (Endler & Speer, 1998).

The following section will briefly argue that motivational concepts have historically been considered central within models of personality. It will likewise note that several recent models, while more psychometrically and operationally oriented than their more descriptive predecessors, share a similar emphasis on personality as a motivational structure. In concluding, the section will suggest that the cognitive concept of goal constitutes the most useful operationalisation of motivation in personality. The consequences of non-motivational frameworks for personality research will be considered, as the section will develop the argument above, contending that the goal concept is indispensable, not only for an understanding of living systems, but in an adequate model of personality.

Previous consideration of motivation in personality

As noted some time ago by Pervin (1978), personality theorists have typically not concerned themselves with emotion or motivation, and if they have done so it has usually been in isolation from cognitive and behavioural aspects. Rather than consider cognitive motivational constructs such as that of goal, such writers have tended to focus on constructs like arousal (Wundt, 1896; Duffy, 1941, 1951, 1957, 1962), instinct, or drive (e.g. Freud, 1923/1961). Similarly, and not withstanding recent 'fortifications' (e.g. McCrae & Costa, 1995), the leading edge of current personality research – trait theory – suffers from its non-motivational emphasis (see below).

Historically however, the notion that humankind is characterised by goal directedness or purpose finds considerable support from writers spanning more than 100 years of psychology. William James (1890) suggested that "the pursuance of future ends and the choice of means for their attainment are thus the mark and criteria of the presence of mentality in a phenomenon" (p. 8). Tolman (1932) suggested that behaviour 'reeked of purpose,' while McDougal (1908, 1930) maintained an emphasis on active striving towards anticipated goals. McDougal was in fact so taken with the goal-

seeking quality of behaviour that he declared himself to be a purposive psychologist and defended the view of hormic psychology.

Writing in approximately the same era as McDougal, albeit from a very different perspective, was Alfred Adler (1927/1957, 1931/1958). He placed a similar emphasis on self-selected goals and their role in directing behaviour through expectations of outcome. He replaced the notion of drives with that of values and goals, and introduced such key concepts as the individual's hierarchy of goals. The Gestalt school itself generally emphasised the total action of the organism, goal directed action and the differences between drive-like involuntary action and intentional action (e.g. Kohler, 1929; Lewin, 1935).

Adler (1927, 1931), like Jung (1919/1971), subordinated causal factors to teleology. He did however regard infancy as a time of considerable importance. He suggested that a "real understanding of the behaviour of any human being is impossible without a clear comprehension of the secret goal which he is pursuing" (1927/1957, p. 29, 49). According to Adler, we actively select both our fundamental life goals, and the means of achieving them. (The distinction that Adler offered above, that between the goals themselves, and the *methods* used to achieve them is useful, and will be returned to below when trait theory is considered). Jung (1919) seems to have adopted an intermediate position with respect to this issue, arguing that both childhood determinants (causality) and the purposes or goals (teleology) of behaviour must be attended to.

Abraham Maslow's (1968, 1970, 1971) contribution to the science of personality cannot be overstated. Although most recognisable for his formulation of the 'hierarchy of human needs' (see below), Maslow was singular in his emphasis of the motivated qualities of behaviour and personality. His major work was in fact titled *'Motivation and Personality'* (Maslow, 1970). Maslow offered two groups of motivations, termed deficiency (D) motives and growth or being (B) motives, and suggested that personality could be conceptualised as a conglomerative function of the extent to which these hierarchically organised needs were being met. While the structural details of Maslow's ideas are important, and hence will be returned to below, it is his emphasis on motivation that is most conspicuous here.

Emmons (1997) describes three major contemporary frameworks within which to interpret goal directed action: control theory, living systems theory (see above), and action theory. While each of the theories might better be considered a theory of striving (as opposed to a theory of personality), each has something to offer the personality theorist. Control theory (e.g. Carver & Scheier, 1982, 1998) views behaviour as a discrepancy reducing process wherein individuals act in order to minimise a mismatch between the present and desired conditions (goals). Living systems theory (e.g. Ford, 1987) suggests that people are active organisms who intentionally set and strive for goals. Similarly, action theory (e.g. Freese & Sabini, 1985) provides a highly cognitive framework within which to investigate the processes by which people act in order achieve the cognitive representation of a desired state.

David Buss (1990, 1997a, 1997b) has outlined an evolutionary approach to the study of personality. While the details of his position are beyond the interests of this thesis, Buss does note the importance of motivations, specifically alluding to the importance of cognitive motive constructs, such as goals. Although Buss's ideas are different from those of the theorists mentioned above, he shares with them the notion that humanity is characterised by motivations, and that these motives must constitute the foundation for any discussion of personality.

Chapter 1.4 – Operationalising motivations in personality –units of choice?

Introduction

What units shall we employ?

Gordon Allport (1958, cited in Ozer, 1995)

As is clear from the discussion above, motivation has been considered central in a number of both historical and more recent personality conceptualisations. Thus far however, the relationships between motivation and personality have been discussed at

a comparatively abstract level. Several theorists have linked motivation and personality, but few have operationalised the precise manner in which they are related (e.g. Freud, 1923; Jung, 1919). There are however some notable exceptions to this claim.

Firstly, there are the developments stemming from the seminal works of Murray (1938), the elaborations of these ideas by McClelland and Atkinson (e.g. McClelland, Atkinson, Clark, & Lowell, 1953; McClelland, 1955), and the work of Maslow (e.g. 1968, 1970). Secondly, there have recently been a related series of conceptual and methodological developments more directly aimed at the personality-motivation interface. Researchers such as Klinger (1987), Little (1983, 1995; McGregor & Little, 1998), Cantor and colleagues (e.g. Cantor & Kihlstrom, 1987; Cantor & Zirkel, 1990; Cantor, et. al., 1991; Fleeson & Cantor, 1995), and Emmons and colleagues (e.g. Emmons, 1986, 1996; Emmons & King, 1989) have substantially contributed to a reformulation of modern ideas about *personality as motivation.*

Murray (1938) provided a highly differentiated set of personality variables, including the concepts of need and press. In a manner similar to Freud, Murray concludes that humans are motivated by the desire to satisfy tension reducing drives or needs. Although reluctant to structuralise personality, Murray suggested that a 'need' represents a 'force in the brain' that energises and organises our perceptions, thoughts and actions. He posits a great many specific needs, all of which are either biological or derive their value through a biological need. It was on the basis of Murray's work that both McClelland (1953) and Atkinson (1958) initiated research programs into achievement, affiliation, and power motivation, hence Murray's contributions cannot be overstated (Tomkins, 1981).

A recent chapter by Emmons (1997) details four attempts to operationalise the content and processes of individual goals as they relate to personality. Each is briefly mentioned below. Klinger (1987) has suggested that our experiences are organised around the pursuit of incentives, represented by a collection of 'current concerns.' A current concern is a hypothetical motivational state that guides a person's thinking, feeling and acting during the time they are in it. Current concerns are not necessarily present in consciousness, and there is no assumption that a concern is reflected in on-

line processing. People simultaneously possess a large number of current concerns, with a different concern for each goal that the person is committed to. Concerns may be narrowly or broadly defined, and may last from a few seconds to a life-time.

Current concerns have been the subject of relatively few investigations, research primarily focussing on the role of concerns in motivated thought processes. Klinger, Barta, and Maxiener (1981) for example found that the degree to which concerns are valued, committed to, or threatened predicted the frequency with which they were thought about. According to Klinger, it is the emotional properties of concerns that affects processing. Other research (Klinger, 1989a, cited in Emmons, 1997) has shown that the concern relatedness and emotional 'arousingness' of a word predicted its recall.

A related concept is that developed by Little and colleagues (e.g. Little, 1983) – that of the 'personal project' (see Little, 1995 for a recent discussion). Closely associated with Murray's concept of a serial program, and Nuttin's development of the need concept (Nuttin, 1957, cited in Emmons, 1997), personal projects are considered to be the organisers of everyday activity. The personal project construct has not been as fully investigated as other cognitive-motivational personality constructs, although Ruehlman and Wolchik (1988) reported that social support and hindrance during project pursuit were related to well-being and distress.

Cantor and colleagues (e.g. Cantor et. al., 1991; Cantor & Kihlstrom, 1987; Fleeson & Cantor, 1995) have recently developed the concept of a *life task*. Life tasks constitute the problems that people are currently working on. Among other things, life tasks *organise and give meaning to a person's everyday activities*. In line with the origins of the life task concept, research into life tasks has tended to focus on one of two areas. Namely, either (a) on the ways in which social intelligence is used in strategic problem solving by individuals dealing with life tasks, or (b) on how individual differences in the construal of particular life tasks (e.g. 'being independent' or 'being with others') relate to situational choice, affectual experiences and perceived stress (Zirkel & Cantor, 1990; Fleeson & Cantor, 1995).

Finally, Emmons and colleagues (e.g. Emmons, 1986, 1996, 1997; Emmons & King, 1987, 1989) have developed a cognitive-motivational unit measure of personality termed *personal strivings*. Personal strivings represent what an individual is typically trying to do (Emmons, 1986). Strivings can be conceptualised as supraordinate motivational organising principles that render a cluster of goals functionally equivalent for a person (Emmons, 1997). A striving is seen as a unifying construct, uniting different goals around a common theme. Thus, a given striving can be attained in a variety of ways, and satisfied in terms of any number of more concrete goals[4]. Unlike the constructs discussed above, strivings represent an ongoing concern, and as such rely on doing or being (rather than end-state) criteria for their fulfilment. Most importantly in terms of emphasising motivation in personality, Emmons (1997) has *suggested that each individual can be characterised by a unique set of these tendencies.*

Overall then, recent years have revealed a trend away from tension reduction, drive, and instinct theories of motivation in personality (e.g. Freud, Jung, Murray) toward more strongly cognitive conceptualisations (such as goals) for their understanding (Rueda & Moll, 1994; Pervin, 1983; Cofer, 1981; Emmons, 1997). Theorists appear gradually more willing to incorporate cognitive motivational constructs into their models. So much so in fact, that Emmons (1997) has suggested that this cognitive 'incorporation' is primarily responsible for the "recent revitalisation of the field of personality" (p. 485).

Goals as the cognitive-motivational unit of choice

From the above, it can be seen that personality theorists are making increased use of cognitive-motivational constructs to account for the (teleological) complexities of personality processes. While the present theory is in broad agreement with the cognitive-motivational emphasis of these theorists, the current section will briefly outline the thinking behind a particular digression (see Pervin, 1989 for a recent alternate discussion of the goal concept). Cognitive constructs all share a number of

[4] The notion that particular goals may be represented in, and achieved via, other (lower) goals in an individuals hierarchy is not limited to Emmons' ideas, but is an important concept in terms of the

advantages over internal/external drive/incentive constructs (see below), yet there are several additional reasons to use goals as the *particular* operationalisation of motivation in personality. The current section will thus briefly outline the thinking underlying the choice of the goal concept in conceptualising motivation in personality. For the purposes of this discussion, goals are defined as "internal representations of desired states, where states are broadly construed as outcomes, events, or processes" (Austin & Vancouver, 1996; p. 338).

Ryan (1970) observed that ". . . to the layman it seems a simple fact that human behaviour is affected by conscious purposes, plans, intentions and the like" (p. 18). Locke (1969) similarly observed that the man in the street uses the term "goal", every day to explain why he or somebody else is doing something. Taken together these observations suggest the implicit presence of goal or (at least) motive concepts within lay theories of personality functioning. People seem to organise their explanations and understanding of the world around their own and other peoples' goals.

While the presence of goals within lay theory alone is insufficient justification to use goal concepts within a scientific model, the pervading experience of goals at an experiential or intrapsychic level does indicate a 'preliminary face validity' for the goal construct. Goals are further advantaged over non-cognitive motivational constructs such as arousal (Wundt, 1896; Duffy, 1941, 1951, 1957, 1962), drives (e.g. Freud, 1923), or instincts (e.g. Jung, 1919) through emphasising the importance of a cognitive representation of motives. Kelly (1955, cited in Pervin, 1989) suggests that motivational theories have typically been of two kinds – the stick and the carrot. According to Pervin (1989), both share a common emphasis on the presence of an internal or external stimulus as *necessary* to activate behaviour. However, in representing motives at a cognitive level, the organism is freed from the immediacy of current stimuli implicit in drive and incentive models. Now the organism is able to orient to the future (Pervin, 1989), insofar as its cognitive capacities permit.

Considering the above, the reader may reasonably think that there is thus-far little reason to use the goal construct over other cognitive-motivational concepts.

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current model, and will be returned to in Chapter 2 when the organisation of personality is discussed.

However, goals possess one distinct advantage over and above other cognitive-motivational personality variables – that of organisation. Compared to other concepts, goals provide a more powerful organisational framework for the social scientist. No other construct can organise or explain as vast a compilation of psychological research as that of goal. No other concept has been as thoroughly tested in its utility, and yet been retained. And nothing can truly capture the cohesiveness with which personality appears to function as can the concept of goal.

Put more simply, research examining a vast number of phenomena has implicated individual goals as critical variables (see Austin & Vancouver, 1996 for a comprehensive review). At one level, such 'conceptual congruence' may simply represent the history underlying the goal concept (the goal concept having been used for an admittedly long time). As such, goals may well encapsulate the conceptual maturity that is reached through careful cellaring. Upon closer examination however, this explanation seems unlikely, and even a little ungenerous.

Thus, rather than ascribe the widespread use of the goal concept to unadorned maturity, it seems more reasonable to attribute its continued popularity to simple utility and explanatory power. A vast body of research has shown that goals are systematically related to almost every aspect of our functioning. The goals of the perceiver continue to be demonstrated as important in social cognition. They have been shown to alter the perceptual focus (Showers & Cantor, 1985; Srull & Wyer, 1986), perceptions of intentionality (Jones & Davis, 1965) and what people remember (Moore, Kagan & Haith, 1978; Stein, Liwag, & Wade, 1993).

Relatedly, Bargh (1990) argues that people naturally encode the behaviour of others in terms of their intentions and goals. Citing Brewer and colleagues (e.g. Brewer & Dupree, 1983), Bargh (1990) suggests that what people remember best over time is not the actual behaviours, so much as the person's overall intentions. This immediate categorisation of the other in terms of intents and goals seems to operate as a personality heuristic, enabling people to quickly categorise others in real time. Overall, this suggests that an understanding of goals enables one to quickly predict the action of another.

It is especially notable in respect of the current model, that goals feature centrally in theories of emotions (e.g. Arnold, 1960a, 1960b; Tomkins, 1962, 1963; Lazarus, 1991a; Scherer, 1984; Fridja, 1986, 1993; Izard, 1971, 1991; Plutchik, 1980; 1994). Moreover, the accord among these theories is supported by a huge array of empirical data, indicating the relevance of goal frameworks for the many aspects of many emotions (e.g. Fridja, Kuipers, & ter Schure, 1989), across many cultures (see e.g. Mesquita & Fridja, 1992; Scherer, 1997). Pervin (1990) writes, "social cognition involves actors with goals . . their goals affecting their behaviour, their organisation of information, and their ascriptions of goals to others" (p. 12). In sum, I believe that personal goals constitute the *totality and coherence* of our functioning regardless of (and occasionally despite) awareness or volition.

Not only is intrapersonal functioning experienced and proven experimentally to coalesce around goals, but goals provide a common language for scientists studying diverse phenomena (Dweck, 1996). When one examines the mainstream of psychological writing, the variety of theoretical perspectives making use of the goal concept is quite astonishing. Goals have been used from motivational theory to social learning theory, to emotion and to action theory and psychoanalytic theory; from Tolman (1932), Allport (1937), and McDougal (1908, 1930) to Bandura (1986) and Mischel (1973), to Gollwitzer and Bargh (1996), and to Gedo (1979).

As further indication of the diverse areas within which goal concepts have been applied would serve little purpose, suffice to say that goals matter. Goals are implicated at almost every level of our functioning, from the simply biological to the most abstractly cognitive. The temporal influence of a goal ranges from a short momentary desire to the deep personal goals that can influence the direction, manner, and enjoyment of an entire life span.

A further advantage of the goal concept, albeit one that is shared to a degree with other cognitive-motivational concepts, lies in its ability to adequately represent the complexities of human functioning. The concept of a *hierarchically* organised goal system (e.g. Maslow, 1970; Powers, 1973; Gedo, 1979; Pervin, 1983, 1989; Broadbent, 1985) is the dominant conceptualisation across research domains (Austin & Vancouver, 1996). Hierarchies of goals suggest a heavily interdependent and

interactive pattern of goals, and raise the probability that the attainment of certain goals may be facilitative or incompatible with that of other goals (see Chapter 2).

Similarly, goals at one level may be connected to numerous other motives both above and below that level in the hierarchy. Within the current model, the connections between goals are in no way fixed, rather they are seen as in a permanent state of emergent flux, perpetually shifting *as a function of the totality of the structure* (see Chapters 2, 6 and 7). Hierarchical or network conceptualisations thus add a much-needed element of complexity to our models of an organism's functioning (Pervin, 1989), and enable the extension of goal models to consideration of psychopathology (Dweck, 1996). Similarly, in enabling a distinction between the goals themselves and the plans through which they are actualised, the organism is permitted a more flexible and adaptive functioning[5].

Upon considering the concept of levels, it is thought necessary to pinpoint the level of analysis that is most useful (Dweck, 1996). Previous goal-type, personality theorists (e.g. Emmons, 1986; Cantor & Kihlstrom, 1987) have typically utilised broad motive concepts that represent 'ideographic manifestations of normative goals.' While the current model recognises the necessity of normative goal measures, a normative dominated approach to personality-as-motivation has the ticklish disadvantage of relying on implicit social or theoretical consensus as the sine qua non of whether or not a particular grouping of goals is *actually* important or meaningful (Little, 1995). As a consequence such theories prescriptively limit themselves, and as such may well fail to detect potentially important individual differences or obscure intrapsychically important personality change[6].

Moreover, to examine multiple levels of functioning simultaneously, such models must necessarily incorporate other concepts in order to conceptualise both biological and lower level motives. Using the goal concept thus has the substantial advantage of *parsimony* in that both normative and ideographic, biological and acquired, and macro

[5] While the current model would dispute the utility of a distinction between goals and plans, instead arguing that the choice of plans is no more or less goal oriented that any other aspect of functioning, the flexibility inherent in goal conceptualisations is nonetheless once more underscored. Briefly stated, the current theory suggests that plans are necessarily conscious phenomena whilst goals need not be.

[6] While there may of necessity always be a trade off between psychometric utility and phenomenological validity, the current model advocates that in being able to capture multiple levels within a single concept, that the goal concept offers the most profitable compromise between the two concerns.

and micro level goal representations can be examined within the same terminological framework.

In sum, a goal analysis of personality enables us to make use of all the elements at our disposal (thinking, feeling and acting) in a manageable way (Dweck, 1996). Specifically a goal analysis leads us to see affect, cognition and behaviour as systematic patterns, ones that occur and are organised in respect of people's goals. I have argued that a goal approach holds the promise of allowing us to capture the dynamically motivated and hierarchical nature of personality.

Goals provide a common language, and allow the scientist to express both the coherent cognition-affect-behaviour patterns that distinguish individuals from one another, as well as to portray the more stable and/or shared aspects of personality. Importantly, both are accomplished using a consistent terminology. Finally, of the cognitive-motivational concepts, that of goal contains the fewest assumptions about exactly what the motives that constitute personality relate to, where they are best measured, or the degree to which they may be shared. In this manner, the goal concept provides an unsurpassed motivational concept with which to investigate the complexity and dynamism of personality. To my mind, *goals* constitute the "explanatory concepts par excellence in personality psychology" (Hogan, 1987, p. 80).

Chapter 1.5 – A distinction between being motived and the *experience* of being motivated

In respect of goals, the current model further advocates that a clear theoretical and empirical distinction be maintained between being in *a state* of goal pursuit and the *experience of goal pursuit*[7]. Although such a division might initially appear trifling and against the holistic flavour of the model, there are several excellent reasons for its incorporation.

[7] For the moment this distinction will only be remarked upon in respect of motives. However, the same reasoning can be successfully put to use when considering the distinction between an emotional

The first of these reasons has its roots in evolutionary theory and the psychology of consciousness. Implicit in the reasoning provided by Binswanger (1991), is the notion that phylogenetically less complex organisms do not 'experience' the influence of their motives in the same manner as we do. Rather, they simply perceive certain stimulus conditions (instinctually), and then respond behaviourally as dictated by these same hard-wired biological processes. The understanding and importance of any 'experience' they might have of being motivated is consequently less important to an understanding of their behaviour than it is for humans. Overall, one wonders whether it is at all meaningful to speak of their 'experiencing' a motive, and in any case, the possibility for such organisms to manifest an incongruence between a motive and its experience does not exist[8]. Conceding however the heavy involvement of learning and the development of conscious self-reflection in human functioning requires more careful theoretical consideration.

Perhaps an example will clarify the distinction offered. Few psychologists would disagree that the functional motive *underlying* (to briefly borrow from Murray, 1938) the nSex, the nIntimacy, or even the nPower, is frequently a simple reproductive need (nReproduction). Hence, people frequently engage in behaviour aimed toward, and resulting in, sex, intimacy, or feelings of power without necessarily *experiencing* the nReproduction. They simply experience a motive (whichever, or whatever it might be) and act accordingly. However to claim on this basis that the nReproduction does not continue to operate as a motive for them is simply untrue.

Conceptually, the distinction between a goal and its experience has another substantial advantage. As was mentioned above, goals are commonly conceptualised as existing in hierarchies (Austin & Vancouver, 1996). Within the current model, the goals that constitute personality are believed to exist in hierarchical *goal strands* of related

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state and the experience of an emotion (see Chapter 7), and again between the self as a construct and the multiple experiences of that construct (see Chapter 2).

[8] As will be expanded upon below (see Chapters 6 and 7), the current theory suggests that goals *about* experience are limited to organisms that possess awareness of the self. Although it may be either anthropo or mammallocentric (McGuire, 1993) to suggest that creatures other than homo sapiens do not experience emotions, it seems reasonable to suggest that their motivations are not experienced in respect of a self. Likewise, it seems unlikely that most organisms have the capacities to *develop* motives about any experience they might have. Hence, a motive and its (if any) experience must occur synonymously where there is no conscious self.

goals. For example, we might find that a particular goal (for example, to brush one's teeth) is attached to or part of other goals (say, to have a nice smile). In turn, this motive may be a part of other goals involving attractiveness, which (once more) may be subsumed within broader goals involving acquiring a partner, maintaining a self image and so on. Ultimately, we can unravel a succession of ever broader, frequently more abstract, and most likely motivationally more-powerful goal articulations.

While only some or one of these goals may be *experienced* as motivating, it can be argued (see Chapter 5) that lower level goals (irrespective of experience) can only possess motivational power through their bearing on and connection with higher level goals. While the awareness (or consciousness) of a goal is clearly necessary for it to be experienced as motivating, such awareness is in no way necessary for a goal to influence behaviour, and moreover the two do not constitute the same phenomena. As will be expanded upon during consideration of the phenomenon of consciousness, the degree of awareness one experiences in respect of a particular goal strand may be an important predictor of both success and happiness.

Chapter 1.6 – An Illustrative Capsule: Some consequences of non-motivational personality frameworks – Trait theory

Introduction

Above, it has been noted that the current model (in line with several other theories) considers personality to be primarily a hierarchically networked goal or cognitive-motivational structure. Yet both scientifically and at a lay level we have tended to conceptualise 'personality' in terms of more global units – traits. The following discussion of trait theories of personality is being included for a number of reasons. First and foremost, the discussion is intended as illustrative of the likely consequences of deriving a theory of personality without placing motivation at the core. Secondly, it will seek to integrate trait findings within the current model. There is no doubt that traits exist, nor that traits provide the dominant framework in personality research at this time (Endler & Speer, 1998). Consequently, trait-derived findings must be attended to.

Overall, the section will argue that traits cannot constitute the basis for personality. Within the goal framework being developed, traits (or stable, stylistic goal pursuit differences) are considered to have arisen and to be maintained for the same *motivated* reasons as any other aspect of functioning – namely they represent a goal. Hence, while it is possible that goals relating to a particular trait (for example, its existence or expression) may occupy a central place in a given goal system or personality, this is not necessarily so, hence the trait concept is better considered a practical taxonomic description of *personal style.*[9]

Trait theories of personality

Trait theory (e.g. Allport, Eysenck, and Cattell), and its chief representative the five factor model, share and rest on the supposition that traits are the fundamental units of personality (Pervin, 1993b). McCrae and Costa (1995) argue that traits are made manifest in the typical patterns of motives, attitudes, and behaviours. Support for the model's utility has come from three major areas; factor analysis of trait terms[10] in language, the relation of trait questionnaires to other questionnaires and ratings, and the analysis of genetic contributions to personality.

Unfortunately, traits are notoriously difficult to define (Pervin, 1994; Winter, John, Stewart, Klohnen, & Duncan, 1998), and there is little agreement (even among trait theorists) as to what a trait is (McCrae & Costa, 1995). However, traits have been defined by several leading theorists as 'consistent patterns of thoughts, feelings or actions that distinguish people from one another' (McCrae & Costa, 1995; Johnson, 1997).

A massive range of studies has denoted several key aspects of trait theory, most notably the cross-cultural replicability of the five factor model (McCrae & Costa, 1995; Saucier & Goldberg, 1998), the heritability of traits (Loehlin, 1992, cited in

[9] This position is similar to that offered by Averill (1998, personal communication), who writes, "traits . . . can better be conceptualised as abilities or capacities than as motives."

[10] Epstein (1996) has extensively argued that there is no reason to suspect that factor analysis can determine the most useful and fundamental aspects of personality.

McCrae & Costa, 1995), and the consistency of traits over time (e.g. Costa & McCrae, 1988; and reviewed in Costa & McCrae, 1997). Together these have been taken as not only supportive of the model's psychometric utility, but also as indicative of its explanatory power. Overall, the internal coherence of research in this area, coupled with the sheer press of publication, has lead some authors to conclude that "in the past five years, personality psychologists from a variety of perspectives have converged on a five factor model of personality" (McCrae & Costa, 1990; p. v; see also Saucier & Goldberg, 1998). Perhaps to my own detriment, I do not count myself among them.

A quick critique of trait explanations

Despite the confidence expressed by the authors above, trait theory and the five factor model have not been (Mischel, 1968, 1973; Tomkins, 1981) and are not (e.g. Pervin, 1994, 1996; Dweck, 1996; Magai, 1996) without their critics. The history of psychology has seen repeated attacks on trait psychology (McCrae & Costa, 1995; McAdams, 1996a), and the conceptual consideration of traits as basic building blocks of personality remains heavily questionable. These criticisms have taken a number of forms, and are briefly outlined below[11].

Tomkins (1981) has argued that personality research has failed to produce a theorist of the capacities of Freud or Murray (see also Epstein, 1996 for a similar comment). Given this failure he argues, "the field of personality has become fragmented and partitioned, one wherein concern with the person as a whole has been replaced with the study of personality variables" (p. 445), a "psychology of no one at all" (Lamiell & Weigert, 1995; p. 336). Baumeister and Tice (1996) suggest this may be a reaction to a perception that historical theory development in personality had previously been rudimentary and unsystematic. With a candid degree of self-acknowledged chutzpah, Tomkins (1981) reiterates his previous argument (see Tomkins, 1962; 1963), suggesting that American psychology has lost its heart through fear of methodological

[11] There have been numerous papers on the various inadequacies of trait theory which, although substantial, are beyond the scope of the current discussion which is primarily concerned with trait theory's motivational neglects. For fuller treatment readers are referred to the seminal critiques proffered by Mischel (1968; 1973) and more recently, by Pervin (1994) and Magai (1996).

impurity. He suggests that the dominance of methodological constraints continues to limit, if not impoverish theoretical innovation.

Overall, Tomkins (1981) bluntly suggests that a methodology can never be a substitute for a personality theory (see also Magai, 1996). He decries the fragmentation of personality research, and indeed, the fragmentation of the aspects of personality into part functions: affect, cognition, and behaviour. The current model seeks to rectify this situation by explicitly bringing thinking, feeling and acting together in respect of a construct that can be shown to synthesise them – that of goal (Dweck, 1996).

McAdams (1997) has suggested that psychologists should not be too quick to assimilate every conceptual scheme under the umbrella of the Big Five. He argues that while no description of the person is adequate without traits, that trait descriptions yield little more than *A Psychology of the Stranger* (McAdams, 1994). Reducing a person to five trait scores will not satisfy those who seek a more differentiated portrait. Further, the dimensions do not concern themselves with the issues that have traditionally been of interest to personality psychologists – namely motivations. As with Tomkins (1981), McAdams (1997) notes that there has been little progress in the conceptualisation of the whole person. As is more fully considered below, he suggests that developments in our understanding of *self* should eventually produce a viable construct, although he does note that self-based theories have yet to provide the breadth and depth necessary to integrate the disparate conceptual strands.

In defence of the nomothetic nature of the trait concept and particularly the Big Five model, Johnson (1997) suggests that a science of personality depends on studying consistencies. He notes that traits imply consistent reactions to *similar* situations, not necessarily to different situations, and suggests that a trait does not imply that a given behaviour will occur every single time, but rather on average. Similarly, McCrae and Costa (1995) have argued that traits are universal dimensions that transcend time, place, and circumstance, while goals, beliefs and plans are intrinsically embedded in these same contexts. Overall, they argue that the study of traits alone leads to generalisable knowledge in that "explanatory trait concepts trade idiographic fidelity for nomothetic utility" (ibid, p. 243).

However, while it is true that trait concepts struggle for idiographic validity (Tomkins, 1981), the implication that there should *need* to be such a trade off appears somewhat pessimistic. While it is likely that there will always be some tensions between theorists preferring the nomothetic and those stressing idiographic concerns, to blandly suggest that the two concerns are contradictory or mutually exclusive is unprofitable and unnecessarily divisive. As will be discussed more fully below, the current model suggests that through careful combination of *theoretically* derived goal domains (nomothetic) and their idiographic expression, we can construct a personality framework within which we retain both generality and validity (see e.g. Dweck, 1996; Emmons & King, 1989).

Johnson (1997) argues that a model cannot reasonably be expected to explain or describe everything about a unique person. "A useful model" he writes, "is, by definition, a simplification: it retains only the *important* features of the infinitely complex domain it represents" (p. 87; his emphasis). While this author is in agreement that a useful model should simplify a phenomenon, the notion that simplicity should be the primary grounds upon which a theory is evaluated itself seems simplistic and sadly unambitious. Likewise, the assertion that traits constitute the 'important features' of personality is questionable at best. It would seem more valid to suggest that traits constitute the *most readily measurable* aspects of personality. Thus instead of accepting traits as pivotal in personality per se, we should modify our measures.

Compounding the difficulties above is intradisciplinary disagreement among trait theorists themselves as to what the trait model is a model *of* (Western, 1996). Some are clear that it is a model of the way laypeople think (e.g. John, 1990) while others believe it to be a model of personality per se (McCrae & Costa, 1995).

The major criticism that has been levelled at trait theories is that they are predominantly descriptive rather than explanatory. That is to say, trait theories of personality seem better suited to describing the manner in which a given behaviour is expressed, than they do to explaining why the behaviour occurred in the first place. Counter to the interpretation of Johnson (1997), to say that 'Joe hit Fred because he is

aggressive,' will always remain an imprecise and inadequate explanation of 'why'. It may well describe a tendency (trait) that Joe possesses, but tells you little of *why* this may be so.

As Buss (1997a) has recently argued, a conception of major motives must form the core of any major theory of personality. These motives "specify what energises the organism, what causes us to do something rather than nothing, and toward what goals human behaviour is directed" (p. 327). The failure to sufficiently attend to the place of motives continues to pose the major stumbling block to the validity of trait conceptualisations.

As if attempting to counter such adversity, several theorists have distinguished between two types or meaning of trait (McCrae & Costa, 1995). Variously referred to as surface and source traits (Cattel, 1950), phenotypic versus genotypic traits (Eysenck, 1967) or $trait_1$ and $trait_2$ (Wiggins, 1984, cited in McCrae & Costa, 1995), the former type corresponds to patterns of behaviour and experience, the other to the underlying causes of behaviour.

Although authors such as McCrae and Costa (1995) 'acknowledge' that trait and purposive (goal) explanations exist at different levels, the reasons supporting their particular predilection seem unconvincing, and these authors have ultimately failed to explain the 'why' of traits both distally[12] and proximally. *Why* are the Big 5 important, and *why* these particular five (Baumeister & Tice, 1996)? Developmentally, we must ask *why* is one person an extrovert and another not? *Why* is one individual highly neurotic and another less so? According to Magai (1996) "What trait theory . . has failed to deal adequately with, is the *why,* the *wherefore,* and the *ontogeny* of human personality" (p. 174). Overall, not only are the arguments in respect of the origins of traits frequently a little slippery, but as Eder and Mangelsdorf

[12] There have recently been some evolutionary arguments regarding the adaptive status of traits as summarising the most important features of the adaptive landscape (D. Buss, 1989), and of traits as a distinctively human characteristic (A. Buss, 1997). While the argument of these two authors could be taken as supportive of the trait position, one should note that both authors posit significantly greater numbers of traits than most theorists. Furthermore, applying an extension of D. Buss's (1997a) 'domain specific problem solving' and A. Buss's (1997) 'uniqueness of self-traits' arguments regarding personality, beg the questions as to what (exactly) traits are, and why we should use the concept over that of motivation, which both authors acknowledge to be the basis for their ideas.

(1997) simply note, little is known about the emergence and developmental course of traits.

Interestingly, the most recent formulations of trait theories (e.g. Costa & McCrae, 1997; Johnson, 1997) have continued to engage in what appears to be a series of semantically questionable manoeuvres in order to make the *necessary* subsumption of motives more palatable. Overall, such formulations seem to suggest that the trait concept is sufficiently broad to subsume motivation and emotion. The trouble with this of course is that one wonders where traits come from, how they arise, and what motivates *them*.

Johnson (1997) for example, attempts to circumvent his explanatory difficulty through allusion to a series of unobservable emotional and cognitive traits that underlie and (presumably thus) explain behaviour. Through equating a person's desires with *emotional traits*, and their beliefs with *cognitive traits*, the author seeks to impart the necessary motivational validity to the notion of trait.

For an equivalent purpose, Costa and McCrae (1997) have evolved a similarly extravagant notion of trait and its importance to personality. They write "As dispositions, traits are dynamic, in some respects equivalent to motives and needs," and further, that they are "among the central determinants of the life course and the sense of identity" (p. 270). With due respect, it is the opinion of this author that such comparisons necessitate an unconvincing distension of the trait concept, and appear to have evolved due to an emergent awareness that the concept of trait is inadequate and ill-suited to forming the basis for personality research.

In a equally clever retrenchment of the trait stockade, Wiggins (1997) offers a distinction between the psychometric trait viewpoint and trait theory, suggesting that the trait *viewpoint* has been "judged guilty in virtue of its association with certain personality theories" (p. 98). He further argues that while laymen use trait terms in lieu of explanations, psychologists have used them as explanatory constructs. According to Wiggins (1997), virtually all 'trait' theorists (Allport, Cattell, Eysenck, Murray) consider traits to be causal entities rather than categorical summaries.

In general trait theory (such as that espoused by Costa & McCrae, and Johnson), the behaviour itself is considered phenotypic, whilst the underlying trait is considered genotypic. According to Wiggins (1997), this type of theorising is implausible. He argues that there are too many reasons not to consider traits as explanatory. For example, he suggests that traits may well reside within a pattern of institutional rules, rather than within individuals[13]. Drawing from research in interpersonal behaviour, Wiggins (1997) suggests that the structure of interpersonal behaviour mirrors a set of interrelated social rules for classifying behaviour in terms of its likely consequences.

The position Wiggins (1997) advocates is one wherein trait measures are used and considered to predict future behaviour on the basis of past behaviour. He suggests that once this is realised, attempts to assess underlying motives become beside the point. He follows with a gentle admonishment, suggesting that in our ignorance of the nature of human nature, we have lapsed into the lay tendency to allow trait terms to 'stand in' for genuine explanations. Interestingly, Wiggins (1997) concludes that the trait concept, *interpreted as a facet of a person's self-presentational style*, serves as the best unit of analysis for personality research.

Conclusions: Traits relocated and reconceptualised

G. W. Allport (1937) rejected traditional instinct and drive conceptualisations as insufficiently dynamic and not paying sufficient dues to personality. Ironically, the current model rejects trait explanations as similarly lacking in dynamism, and as not paying sufficient attention to goals, emotion, motivation and (hence once more) to life.

The claim that traits 'transcend time, place, and circumstance' (McCrae & Costa, 1995, p. 243), seems ill-founded and in conflict with other theory (e.g. Wiggins, 1997), while the notion that traits can explain 'non-motivationally linked' behaviours appears virtually inexplicable. Such a claim immediately leads one to reflect on

[13] It should be noted that this position is in direct contrast with that adopted by McCrae and Costa (1995) who argue that traits are more useful explanatory concepts than goals precisely because *the latter* are embedded in the immediate historical, cultural, and personal contexts to the point that they lose generality.

exactly what a non-motivational display of behaviour might look like. As has been noted, homo-sapiens do not possess a global monopoly on living, and by extension, on having purpose or goals. Rather, *all* living systems exhibit purpose, and *all* are goal directed.

Accepting this observation leads to somewhat of a conundrum. If purpose is indeed ubiquitous to life, why then foundation our conceptualisations of ourselves at a place where purpose plays second fiddle to style? Why site ourselves upon a groundwork of semantically-shifting constructs? Why not instead place the goal concept at the vanguard of our frameworks in order that we might realistically place ourselves in appropriate context? To conceptualise ourselves in a manner thus far-removed from our phylogenetic relatives is not only arrogantly anthropocentric, but moreover, is very much mistaken.

The argument above is not intended to suggest that traits do not exist, nor is it to suggest that traits are unimportant. Rather, the current model proposes that traits have arisen, exist, and are maintained, for the same *motivated* reasons as any other aspect of functioning – namely they represent a goal (see e.g. Little, 1995). However, rather than positing these nomothetic, stable, stylistic, 'goal-pursuit' goals as fundamental, the current theory simply considers traits to be but one operationally measurable version of secondary goals dictating the manner in which each system's or each personality's goals will be obtained – a personal style. Such an interpretation is in accord with the personality theory of Adler (1927/1957) who suggested that each developing child responds to the basic dynamics of life by developing its own style of life. This 'style' consists of the child's chosen life goals, *and the methods used to achieve them.*

Chapter 1.7 – Concluding remarks on personality and personality-motive relationships

Given the explanatory difficulties with the argument offered by trait theory, principally the elements involving confused and shifty logic in respect of motivation

and emotion, the current model advocates a less problematic, more probable, basis for personality – *personality as a goal structure*. The emphasis on cognitive-motivational concepts is in accord with several leading theorists, most notably Emmons (e.g. 1986, 1993, 1996, 1997), as well as several key historical figures in personality research.

Moreover, several leading theoretical commentators in the field of personality research have recently denoted the importance of motivation in personality (e.g. Pervin, 1994; Shoda & Mischel, 1996; Epstein, 1996). While the precise manner in which motives are experienced may vary across organisms as a function of phylogenetic and cognitive sophistication, the motive units themselves are indispensable.

Chapter 2: The Nature of Personality II: The Ubiquitous Need to Organise – Goals, Personality and the Self.

Chapter 2.1 – Introduction

Following Chapter 1, the current chapter will argue that personality is not only a motivational concern, but further that it has its roots in life's ubiquitous need to *organise*. The chapter begins with a functional analysis examining the phylogeny of organisational constructs, arguing that every living organism possesses an innate structure within which to systematise information. It is then suggested that the personality or self *is* homo sapiens's organising construct. As such, the fact that we become aware of and can reflectively experience this construct does not, cannot, and should not be thought of as changing the function that self ultimately serves.

The chapter will then briefly consider something of the relationship between the concepts of personality and self. It will outline previous theories of personality and self, drawing out the notion of organisation. It will suggest that while the terms 'self' (experiential) and 'personality' (predictive/scientific) are traditionally used to refer to different aspects of a person, that each is fundamentally concerned with the same phenomenon.

In a manner similar to that offered in respect of motives, it will advocate a theoretical distinction between a structural or organisational self and our many experiences of that structure. In doing so, it will suggest that there can only be one self, although there can be multiple experiences of that self. The chapter will conclude with a characterisation of self that distinguishes between the self as a structure and the experiences of self.

Chapter 2.2 – Organisation as Necessary in Living Systems

If the reader can accept that all life is essentially goal directed, irrespective of exactly what these goals are, whether they are 'experienced,' and how they are acted upon (for the moment), one is naturally led to consider how goal-directedness might best be facilitated. Moreover, if one is to say (for example) that a plant has purpose and is goal directed (at least as far as genetic replication), what *must* the plant be capable of in order to proceed? The popular philosopher of science, Fritjof Capra (1996) has recently argued that the answer to this type of question can be found in the early writings of organismic biologists. Organismic biologists maintain that the essential ingredient needed in any model of life (and thus an essential element of life) is the concept of *organisation.*

Drawing upon and developing on the work of early organicists, systems theorists have taken the concept of organisation to the point where it has become the sine qua non of living systems theory. To the systems theorist, life *is* organised (Skyttner, 1996). At the most simple level, an organism's ability to operate effectively upon its goals, presupposes and ability to distinguish between "that which is me/mine" and "that which is not." To achieve this, the system must be able to organise incoming data[1] (Edelman, 1989).

Evidence suggests that even a simple cell is able to distinguish between itself and 'the other,' and that this capacity is needed for even the most rudimentary immunological functioning. In fact, when this ability is lost the organism (suffering from a now famous auto-immune reaction) frequently dies (Dennett, 1991a). A general perspective, informed by living systems theory (e.g. Ford, 1987) would explain this finding as indicating that every system has a set of boundaries indicating a degree of differentiation between what is included and excluded in the system (Skyttner, 1996). To protect itself from pathogens, the cell clearly needs to be able to identify elements from within and outside its own system.

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[1] As shall be discussed in a subsequent section, the grandfather of attachment theory John Bowlby (1969) addresses a similar conviction. He writes, "Members of all but the most primitive phyla are possessed of equipment that enables them to organise such information as they have about their world into schemata or maps," (p. 74), or " . . something more like a working model of its environment" (p. 110).

Similarly, the common dog would seem to possess a fundamental organisational need[2]. At the most basic level, the dog needs to be able to perceive the limits of its own *physical* self (*that* is my tail, but that's not mine or me)[3]. That the dog seems to be capable of this feat is however more a testament to humanity's essential difference to other organisms, than it is to the dog's heretofore unrecognised capacities.

The current model suggests that as one moves up the phylogenetic chain, each systems' organising construct comes to be progressively more capable, flexible and complicated. Capable, in that the range, the speed, and the abilities of the organism become progressively greater. Flexible, in that the organism is progressively less tightly bound by genetic imperatives or instincts, and complicated, in that the development, the organisation, and (inevitably) the scientific conceptualisations of that organising construct become ever more so.

Support for the ubiquity of organisation can be found in the writings of developmentally oriented theorists. Smith (1990) for example, has recently argued that "We are forever carving nature at its joints . . dividing it into categories" (p. 33)[4]. According to Smith, the process of organisation is fundamental to (mental) life because it greatly reduces the demands on perceptual processes, storage space, and reasoning, all of which are known to be limited. Smith (1990) further delineates a range of developmental evidence, noting that we categorise from a very early age, and that we utilise typicality principles in our judgements.

Importantly, Smith (1990) also suggests that the notion of category is premised on the *belief* that objects belong together, rather than any objective reality as to their shared characteristics. This is important, for it adds an element of complexity to what are simple premises. In considering categories as *subjective* phenomena, we are then in a position to more readily explain the variations in categorisation that people display for

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[2] While the term 'need' may appear to be overly subjective, it will be used for want of a better description. Use of the term is not intended to indicate that a given organism *experiences* need per se, but rather that the organisation of information is an integral part, and defining characteristic of, life. As noted, the distinction between a need, goal, or motive, and the way in which it is experienced is of fundamental importance to the current model.

[3] See Dennett (1991a) for a similar analogy involving a hungry lobster.

[4] A fuller discussion of the systemic nature of development can be found in Chapters 4 and 5.

the same object. Homo sapiens, more so than other species, *learns* to categorise. Consequently, we do so in a more varied manner than most species.

For less complicated creatures, primitive organisational goal-directedness is hard-wired, and made manifest directly through perceptual and instinct systems. Behaviours typically occur in response to the perception of particular stimuli, or according to biological timetables. In response to most stimuli, there are no 'decisions' to be made, rather the organism simply 'knows what to do.' Finally, the organism is near fully functional from the first moments of its 'birth,' and cannot truly be considered self-aware.

As the creature under scrutiny becomes more complex, we can observe a gradual decoupling of behaviours from the strict demands of genetic make-up and instinct. So much so, that by the time one observes homo sapiens, the decoupling is nearly complete. Homo sapiens is barely formed at birth, and adult behaviours are organised and directed by a complex organisational structure that must *itself* first develop (see below). Perhaps most importantly, the organism exhibits awareness of the nature and purposes of the organisational construct itself - *consciousness*.

Nonetheless, it is in precisely this universal life 'need' for organisation or differentiation that the predecessor of the organising construct in homo sapiens appears – the construct we interpret and experience as 'the self' or 'our personality.' An argument of similarly phylogenetic slant is made by Dennett (1991a), who suggests that "there is nothing particularly *selfy* about the primitive precursors of humans selves" but that these same structures "lay the foundations for our particular human innovations and complications" (p. 356).

To state this 'functional similarity' between each of our own selves, and the organising construct of another organism is not however to suggest that interspecies constructs are no different. If the human self simply happened to be the *human* manifestation of some ubiquitous organisational construct, our 'self' would be no different from any other organism's organising system. Other living systems would possess "selves," and any difference would be a question of degree rather than kind. As noted above, it should be made clear that I do not think this the case at all. As is

discussed below, conscious awareness of the organising construct or self is an entirely different matter.

It is nonetheless my belief that organisational constructs are functionally (if not semantically or experientially) equivalent across species, and that each construct has as its primary function the *organisation* of information and motives. In making this claim, I am not attempting to suggest that other aspects of the self or personality, the experience of, and operations upon each are unimportant. Rather, I believe that each 'self' ultimately serves, and is the ongoing product of the organisation of information and motives. Overall, the network of information and goals that constitute the human self appears an innate construct, limited in its particular form to homo sapiens and perhaps our nearest biological relatives, and its emergence inevitably timetabled by a biological schedule (Stern, 1985). The current model thus suggests as we develop we will inevitably develop a self *as* the organisation and regulation of goal operations and information.

Chapter 2.3 – The self in psychology

Introduction

A system is a big black box
Of which we can't unlock the locks
And all we can find out about
Is what goes in and what comes out.

Kenneth Boulding (1956, cited in Skyttner, 1996).

Unfortunately for modern science, the self appears a topic more readily conceptualised experientially than theoretically. There is "a puzzling disparity between the certainty that you are (or have) a self and the difficulty in describing what a self is" (Kolak & Martin, 1991). Moreover, the concept of self is so vast, so complicated, and so intensely personal that the psychological sciences have typically been reluctant to involve themselves (sic) in its study. The study of what 'the self' is and means has typically been the province of philosophers, theologians, and mystics,

and lies at the very heart of philosophical speculation on human nature (Stern, 1985). Some writers would no doubt still argue that this is where it should remain – that *scientific* psychology does not need a self.

However, if the number of papers published on a topic is an accurate indicator of the interest it evokes and the attention it commands, the self continues to hold centre-stage position in psychology (Banaji & Prentice, 1994). At the time of their paper, more than 5000 articles about the self had appeared since the last *Annual Review of Psychology* chapter on the topic appeared seven years prior (Markus & Wurf, 1987).

Perhaps more importantly, the consideration of goal and emotional functioning from a systems perspective presupposes that human strivings are organised in some manner. While the argument above has broadly suggested that the self should initially be considered a form of systemic goal organisation, the following discussion will take this position somewhat further. Through outline of past consideration of the self-concept, especially as bearing on the concepts of organisation and motivation, it will be argued that the self is best conceptualised as a complicated hierarchy or network of goals. Overall, it will be argued that consideration of the self in a light other than that of organisation is scientifically fraudulent, conceptually futile, and therapeutically fruitless.

Previous thought on the self-as-organisation idea

> *Which one of the many people who*
> *I am, the many inner voices inside*
> *of me, will dominate? Who, or how,*
> *will I be? Which part of me decides?*
>
> Douglas Hofstadter (cited in Schwartz, 1987)

As recently noted by Baumeister (1997), the most obvious and common things are sometimes the most difficult to define. This certainly applies to the self (Baumeister, 1997). Social scientists interested in the concept of self have proffered near-innumerable definitions, none of which is entirely satisfactory. Unfortunately, the

concept has invariably been tied either to the experience of self (e.g. McAdams, 1996a; Baumeister, 1997) or to identity, the self-in-relation (e.g. Stern, 1985; Harre, 1991; Neisser, 1991; Brewer, 1991). A plethora of psychological and lay terms such as self-knowledge, self-concept, self-improvement, self-esteem, and the ever-popular 'inner or true-self' and self-actualisation (to name but a few) have resulted, destructively complicating the scientific concept of self.

However, a large number of historical and contemporary models have considered the self as the unifying or organising construct in personality. The models of both James (1890) and Freud (1923/1961) accept the notion that the self operates as a unifying force in a person's strivings toward unity and wholeness. Similarly, McDougal (1908) suggested that while personality could be thought of as a number of different instincts and sentiments, that the master sentiment is self-regard, which makes for unity of self, or what McDougal called *character.*

The concept of self or proprium features centrally in the works of Allport (1955). Allport was deeply impressed with the wholeness and unity of personality, and suggested that the proprium emerges in developmental stages (see below). Henry Murray (e.g. 1938) similarly championed a science of the whole person. Among the influential concepts proposed by Murray, was that of the *unity thema.* Unity thema may be viewed as the central organising motif in a person's life. Overall, despite the complexity evident in many of these models, many of the personality systems proposed during this era share the claim that a person may be viewed as "a unified and organised totality" (McAdams, 1997; p. 12).

Developmentalist Daniel Stern (1985) is supportive of this organisational notion, suggesting that we *instinctively* process our experiences in such a way that they appear to belong to some kind of systematic, subjective organisation that we refer to as the sense of self. For Stern, the senses of the self are the primary organiser of development. The current model would refine, and then take this claim further. The self is indeed the primary organising framework, but not only in terms of experience, and not only of development. Rather, the construct we term and experience as 'the self' is the primary organising and motivating framework across the entire life span.

Recent writers in philosophy share a similar emphasis on the self as an organisational concern, although admittedly their accent typically rests on the self as an organiser of experience, rather than of goals. Harre (1991) for example argues that each sense of identity (self) reflects a particular way of organising perception, thought, memories and so on. Just as society uses the public concept of person to organise social relationships, so (says Harre) the individual uses the concept of self to help unify his or her experience. Similarly, Neisser (1991) suggests that the sense of self allows the organism to distinguish itself from the environment. Finally, as noted above Dennett (1991a) suggests that the self is first and foremost an organisational phenomenon.

Things are quiet . . . . . *too* quiet: An unremarked discrepancy?

Currently, the reader could be forgiven for wondering why the current discussion has gone to such lengths to emphasise the need to conceptualise and define the self as an organisational concern. After all, good rationale to do so can be found within general living systems theory (Skyttner, 1996), and the bulk of psychological theorising about the self has tended to similarly emphasise the unifying/organisational aspects of self.

However, a careful analysis of the psychological literature with regards to the self-as-organising-*construct* principle outlined above reveals an interesting phenomenon – what might be termed an ironic discrepancy between philosophy and structure. The 'grand theorists of personality' appear to have philosophically accepted that humanity strives toward and experiences wholeness, yet *structurally* each has tended to conceptualise us as incessantly struggling to reconcile the fractured aspects of ourselves. So despite writers from this period being enthusiastically touted as champions of the *whole* person (Tomkins, 1981), most developed structural models that explicitly or implicitly fashion us as fractured. As will become evident, this ongoing problem appears to have resulted from a generationally-compounding theoretical confound between the experience and structure of the self.

Above it was noted that Freud (1923/1961) was broadly supportive of the self as unifying in personality. However, his tripartite division of personality (id, ego, and super-ego) as inescapably conflicted has provided the basis for some unhelpful

theorising. Writers such as Carl Jung and Karen Horney (e.g. 1937, 1945), drawing extensively from Freudian theory, have similarly considered the self as fragmentary and conflicted. In turn, writers such as Assagioli (1965), the founder of psychosynthesis who has been strongly influenced by Jung (Schwartz, 1987), view people as made up of many 'subpersonalities.'

More recently, large groups of contemporary writers have continued to advocate postmodern models of self that appear similarly more suited to describing experience than they do structure (see e.g. Markus & Nurius, 1986; Higgins, 1987; McAdams, 1995a, 1997). Markus and Nurius (1986) for example conceptualise a person in terms of a wide assortment of 'possible selves,' each functioning as a semi-autonomous structure.

Likewise, Higgins (1987) has developed a theory in which 'actual selves,' 'ideal selves,' and 'ought selves' coexist in a confederacy of me's (McAdams, 1997). Identity theorists generally have underscored the multiplicity of identity, with extreme deconstructionists such as Sampson (1985, cited in McAdams, 1997) arguing that the self is not unified, but rather exists as a "decentralised nonequilibrium ideal, whose very being hinges on continuous becoming" (p. 1203). In modernity, the self is viewed as a reflexive project that is *made* rather than given, innate, or conferred (McAdams, 1996a). Finally, recent writings from a dynamic systems perspective (e.g. Lewis & Granic, in press a) have stressed the view of an *emergent* self that is "both momentary and developing" (p. 11)[5].

Chapter 2.4 – A distinction between the self as a single hierarchical organisation and the multiple phenomenological experiences of self

Earlier (see Chapter 1.5), a distinction was offered between being motivated by a goal and the *experience* of being motivated by that goal. It was mentioned that a similar division would be applied later in respect of the self and the experience of the self,

hence in respect of the above discrepancy a few words would seem appropriate. Within the model being developed, the self is primarily viewed as an organising construct, that in the case of homo sapiens primarily serves to organise *goals*. The key point is that the current model argues that the self exists as a single goal organisation *irrespective of our (multiple) experiences of that organisation*[6].

In a manner similar to that outlined above, this position is not intended to suggest that experiences of the self are unimportant or not worthy of theoretical consideration. On the contrary, goals regarding our experiences of 'me' are of fundamental motivational impact within the current model. Likewise, this statement should not be taken to suggest that experience of the self-organisation (consciousness) does not have certain consequences for the organisation itself. Rather, the decision reflects a theoretical preference for prefacing our investigation of self with the notion that our self would *function* as a motivated, organisational structure with or without our experience or awareness of that structure.

The current model thus suggests that to conceive of the self as other than an organisational construct is critically flawed. Such a position is not only anthropocentric (as if conscious awareness of the self somehow changed the phylogenetically universal need for, and *function* of, organisation), but moreover is conceptually defective for a number of reasons. Overall, the current model suggests that initial consideration of the self in a light other than that of organisation is experientially bizarre and conceptually futile.

Paradoxically, if we considered the self primarily in terms of its experience, we could never actually fathom that same experience or identity[7]. Taken to an extreme, the self would fluctuate so rapidly from moment to moment, and there would be so little

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[5] The reader should be aware that at the time of writing the paper supporting this reference had not gone to press. Hence, page references will vary.

[6] Tesser (1998) has recently (albeit indirectly) suggested that we must take the notion of a "genuine (biological) self" seriously, and criticises any singular emphasis on experiences of the self (see also M. Lewis, 1997). A similar point is also made by the philosopher H. Lewis (1982) who states that "there is a self or subject directly involved in having all the experiences which it does have *and yet* independent, in its own distinctness, of having any of the experiences which in point of fact it does have" (p. 46, *italics* added).

[7] Strawson (1997) makes a related comment when she writes "Even if a single brain is the site of many experiences that there are many selves present, each such experience is necessarily experience from a single point of view" (p. 9).

consistency, that both as scientists and individuals, we could never know who 'we' were or was (Marcia & Strayer, 1995). 'I' could never think about who 'I' am, because that very thought would itself be nothing more than one 'I' that another (the same?) 'I' adopt in order to ask that question of 'myself'. Moreover, such a position leads to a dilemma when we consider *unconscious* aspects of functioning. To avoid denying 'unconsciousness' in self, such a position must maintain that unconscious *experiences* are possible. As will be expanded upon in Chapter 6, such an assertion is highly problematic.

Ironically then, not only does such a view lead 'one' down a network of conceptual blind alleys, but it also fails to do justice to our overwhelmingly predominant *experience* of unity (McAdams, 1996a). As he notes, "most men and women are still able to function more or less adaptively in daily life, rarely forgetting their names, their histories, and their goals" (McAdams, 1996a; p. 299). Taken together, this single concern effectively undermines the single reason that we might utilise such an emphasis in the first place.

To be fair to many of the above writers, their interests have lain in a different direction than those of the current thesis, hence any disagreement may well rest on a matter of focus. Additionally, authors, like other people, live and write within the *experience* of their own selves. Hence we have been inevitably myopic (or perhaps polyopic) in our visions of what a self might be. Perhaps more importantly, the populations within which past models have been derived (humans), have tended to encourage emphasis on the aspects of self that are uniquely human – consciousness or phenomenal experience of self. Finally, the ongoing emphasis on the self-as-experienced is perhaps partially a result of continual clinical findings that suggest that the multiple and conflicted *experiences* of self are centrally involved in intrapsychic conflict, suffering, and psychopathology.

Horney (1945) for example, argued that the neurotic personality is made manifest in the creation of an idealised image. From this point, and despite its implausible aspects, the 'idealised self' establishes unrealistic standards (which inevitably lead to failure), and increase the hate toward, and alienation of the 'true' self. The process becomes cyclical, with failure leading to the development of ever more grandiose

goals. Thus, she writes, "like Faust, neurotics sell their soul to the devil by abandoning their real desires, in favour of the idealised image; and like Frankenstein, their creation arises to destroy them."

Notwithstanding the obvious appeal of Horney's metaphor, the current model advocates that a singular theoretical distinction between the self as a structural concern and the many selves of experience be maintained. Further, it argues that the self should initially be defined in terms of its structural and functional phylogenetic origins.

Despite what seems to be the ongoing appearance of conceptual complications in our ideas about consciousness or experience of self, two major harmonies can be seen to consistently emerge within the psychological literature. Firstly, in line with the current model, there appears to be an agreement that a motivational framework is the best perspective from which to consider the self (see Banaji & Prentice, 1994). (Above it has been argued that the same emphasis should be maintained in conceptualisations of personality). Perhaps more importantly, one can also discern a further unstated agreement that the self (whatever form it might *actually* take) does exist – as a phenomenon. It is here that the current definition will focus.

> *The self-as-construct is thus considered to constitute the* ***totality*** *of an individual's hierarchical goal organisation or structure. Experience of self is thus nothing more or less than the* ***experienced aspects of this goal organisation.***

Such a characterisation enables us to escape the "know-nothingism" (Marcia & Strayer, 1995) implicit in the postmodern or constructivist conceptualisation of self. Instead, phenomena like identity, esteem, and life-narratives (e.g. McAdams, 1996a), can be seen as a specialised component of the self-concept (McCrae, 1995), constituting little more than a grouping of motives and motive feedback regarding our experience of ourselves and the world. In this manner, the function, origins and (hence) goal-operations of the organising self can be usefully discussed as different (although related) phenomena from the multiple experiences of that goal organisation.

Chapter 2.5 – The self as a single *hierarchical* organisation

There is some intuitive appeal to the notion that the variables of personality (Paunonen, 1998) and self (e.g. Markus & Nurius, 1986) are organised hierarchically. It is, moreover, a common assumption of *motivational* approaches to personality that goals are hierarchically arranged (e.g. Carver & Scheier, 1982, 1990, 1998; Emmons, 1993; Austin & Vancouver, 1996; King, Richards, & Stemmerich, 1998; see Austin & Vancouver, 1996, Averill, 1990 for discussions of alternative goal arrangements). Bandura (1987) simply suggests that "goal systems . . usually involve a hierarchical structure" (p. 53), while Averill (1990) more generally notes that all "systems are typically organised into hierarchies" (p. 388; see also Skyttner, 1996). The simple reason for this consistency in the conceptualisations of goal arrangement is that hierarchies represent the most highly efficient (and hence viable) means of organising phenomena (e.g. Bandura, 1987; Stein & Levine, 1990).

In a personality hierarchy, higher level goals are typically thought to be relevant to a greater variety of situations and events (Fleeson & Cantor, 1995) are typically more important (King, et. al., 1998), and are less predictive of specific behaviours (Paunonen, 1998). They are likewise thought to be more stable/resistant to change (Cropanzano, Citera, & Howes, 1995), are relevant over a longer time frame (Carver & Scheier, 1998) and are thought to be more self-definitional (Carver & Scheier, 1990) and abstract (Carver & Scheier, 1998) than lower level goals.

A major advantage of a hierarchical conceptualisation of goals is that each goal can be considered in terms of the causal conditions that embed and connect it to other goals (Stein & Levine, 1990) and to specific behaviours (Killeen, 1989, 1992; Emmons, 1992). Control theory (Powers, 1973) emphasises the embeddedness of daily goals within a motivational hierarchy (see also Carver & Scheier, 1982, 1990, 1998). In the control hierarchy, the lower levels indicate *how* and what (Pyszczynski, Greenberg, & Solomon, 1997) action is to be carried out, whereas the higher levels provide information on the purposes of the action (Emmons, 1992). Linking goals with behaviour in this way is similar to the dynamic systems model of behaviour presented by Killeen (1989, 1991, 1992) and the 'systems of behaviour' model presented by

Averill (1990). Like the control theorists, Killeen suggests that both actions and incentives are best conceptualised hierarchically in which specific acts rest in hierarchies of other acts and more abstract motivations (see Chapter 6; although see Averill, 1990 for a discussion of the difficulties involved in this approach).

Yet despite the general view that personality goals are arranged within a *single* hierarchy, there has been comparatively little research that directly examines this assumption (King, et. al., 1998; Schultheiss & Brunstein, 1999). In fact, some research has indicated that there is only a slight correspondence between peoples' implicit motives and their self-articulated goals (e.g. Emmons & McAdams, 1991; King, 1995; Schultheiss & Brunstein, 1999; see also Chapter 8). King (1995) for example measured the needs for power, affiliation, and achievement using a TAT procedure and classified self-reported goals with regard to how much each was concerned with these three implicit needs. She found little statistical relationship between goal and motive measures, a finding that has been taken as suggesting that there are multiple systems in human motivation (e.g. Schultheiss & Brunstein, 1999). Recent theory from McClelland (e.g. McClelland, Koestner, & Weinberger, 1989) likewise suggests that implicit and self-attributed or verbalised motives comprise a separate motivational system (see also Biernat, 1989; Shah, Higgins, and Friedman, 1998 for similar views on motivation).

In contrast, the work by King and Emmons (e.g. Emmons, 1989, 1992; King, 1995; King, et. al., 1998) has been explicit in suggesting that "even seemingly trivial pursuits may emerge as means to a larger end" (King, et. al., 1998; p. 714) in the broader hierarchy of the person's life plans. Using a within-subject standardisation procedure, King et. al. (1998) found that importance of a daily goal was associated with its placement in the broader system of life goals. The more closely a daily goal was seen as connected to a life goal, the more important the daily goal typically was[8]. This finding is entirely consistent with the single hierarchy posited by control theory, which has previously suggested that the importance of a goal at a low level in the hierarchy is somewhat dependent on the degree to which its attainment relates to the attainment of higher level goals (e.g. Carver & Scheier, 1990). This view of the

human motivational system implies that the achievement of one goal is contingent upon the completion of each subgoal (Srull & Wyer, 1986; Cropanzano, Citera, & Howes, 1995), so much so that Carver and Scheier (1998) have suggested that implementing high level goals "*consists* of carrying out low level acts" (p. 73; their *italics*; see also Killeen, 1989).

Following these authors, the current theory suggests that personality must be a single hierarchical goal structure, in which low level goals and actions are *always* related to (or part of) implicit, higher level, and more abstract motives (cf. Emmons & King, 1989; Emmons, 1993; King, Richards, & Stemmerich, 1998). Although we know do not know exactly how medium/low level goals relate to the broader, more abstract goals that define a personality (see Chapter 5), the idea that a system could operate effectively from more than one motivational set of priorities appears nonsensical. If there were multiple motivational hierarchies how, and on what basis, would conflicting demands between them be reconciled? Furthermore, new goals can only ever be acquired in respect of, or in relation to, the current goals or values of the system (see Chapters 3 & 4). So while we can reasonably discuss distinct hierarchies within a given motivational system, we should not forget that any separation we envisage is purely conceptual and methodological in nature. The mere fact that goals frequently conflict with one another or that a given action may simultaneously be compatible with one goal while being incompatible with another is not relevant to the basic issues involved in realistically considering how they are likely to be arranged.

Some theorists have argued that the highest levels of motivation in a goal hierarchy are unavailable to awareness (e.g. Emmons & King, 1989). Given that the earlier (and typically higher) levels of a person's goal hierarchy are most often formed prior to representational and linguistic abilities, they tend to be somewhat more ill-defined and inaccessible (see Chapter 4), hence, this seems a reasonable assertion. Much behaviour is no doubt motivated by goals that we only perceive through their effects or lower level correlates. However, there is no reason that any particular goal *must* be unconscious, hence the current model makes no such assumptions (cf. Austin & Vancouver, 1996). People may well differ in the level of abstraction that they use to

[8] Interestingly, their data also showed that the daily goals which "killed two birds with one stone" (i.e. contributed to attaining a desired future *and* avoiding a dreaded future) were likely to be the most highly valued.

describe goals (Emmons, 1992), and the visualisation and consideration of higher level motivations is probably determined by both ability and desire (in the Freudian or Adlerian sense). Nonetheless, when asked "why" they did something, individuals can provide progressively more abstract goals, suggesting that (a) 'higher level' may be more a matter of definition than of substance, and (b) the ability to do this may well be a key personality variable in health and fitness (Emmons, 1992; see Chapter 4).

An obvious difficulty with a hierarchical model of personality is that it suggests the picture of a dictatorial higher level commanding the lower levels (Carver & Scheier, 1998) and begs the question of what exists at the top. In a broader sense, the term 'hierarchy' has been decried as implying a degree of rigidity that does not adequately capture the dynamism of personality processes. Goals exist in monstrously complex arrangements, the intricacy of which we are only just beginning to comprehend. Ortony et. al. (1988) suggest that the goal structure of a person is probably more complex than a simple hierarchy. These authors argue that goals are connected in a complicated lattice, wherein the overall shape remains 'treelike,' but in which each node (goal) is connected with others above, below, and to each side. According to them, most goals have multiple connections for multiple goals both above and below them in the lattice. Austin and Vancouver (1996) discuss this property of goal systems as one of *equifinality*, likewise suggesting that most goals can be achieved through multiple ends, while Averill (1990) describes goal systems as *heterarchical*, noting that goals can have implications for numerous higher level goals.

In addition to this complexity, the current theory suggests that the goal hierarchy of personality is highly dynamic (e.g. Epstein, 1991; Carver & Scheier, 1998). Goal structures are constantly changing as old goals are realised or abandoned, and as new ones are added and emerge – the entire structure is dynamically interdependent. Just as a given goal can be obtained via multiple pathways (Austin & Vancouver, 1996), so can a specific act have consequences for many goals. While personality is a comparatively stable phenomenon at higher levels, and tends to become more so over time (see Chapters 5 & 6), there is always room for emergence and change. A *dynamic* hierarchical conceptualisation does not presuppose that changes in the overall structure of a personality are simple or predictable, but rather that they may be startlingly comprehensive. As is more comprehensively argued in Chapter 8, new

goals *emerge* in a dynamic hierarchy as a function of multiple influences, only some of which may be within the system itself.

Chapter 2.6 – Concluding remarks

The manner in which several groups of theorists have, and continue to, conceptualise the self unintentionally depicts the common person as proud possessor of a split personality. Not only does such a position fail to do justice to the predominant unity within our self-experience, it is of questionable scientific utility and moreover fails to acknowledge the adaptive origins of self as an organising construct. While it may be meaningful to speak of multiple selves in respect of experience or identity, these do not constitute the entirety of the structural self, which would exist in a primitive form were it *never* experienced.

The distinction offered between structure and experience is similar to that outlined earlier regarding a motive and its experience, and in the same manner is not intended to suggest that the self and its experience are unrelated or unimportant affairs. Rather, the division reflects a conceptual preference for prefacing our investigation of both personality and self by assuming that an objective structural phenomenon exists in addition to our experiences of it. Hence in reply to Hofstadter's (cited in Schwartz, 1987) query above, I can only suggest that whichever part dominates or decides, all of them will be 'him,' as each must inevitably be a part of his innate structural self.

Chapter 3: The Development of Personality I: Innate goals

Overview on Development

In sum, the preceding chapters have argued that both personality and the self are best thought of as a very complex hierarchical organisation of goals. However, to this point there has been little discussion as to *what* these goals might be, *how* they are represented at different stages of development, and *how* they are acquired or come to be organised. To address these issues, it becomes both pleasant and necessary to introduce *emotion* to a hitherto dispassionate stew.

Through consideration of past theories of human goals, the following section will outline a theory of *lifespan* personality or goal development and organisation. Due to the complexity of the material, and the number of issues that must be considered, the consideration of development is organised within four chapters (innate motives, representation and consciousness, dynamic systems, and emotions in personality development). It should be noted however that the parsing of the discussion is being undertaken for ease of absorption alone, and must not be taken as indicating any literal distinctions between the content of each chapter for the dynamic processes involved in personality development are inseparable.

Chapter 3 will consider the *content* of the goals that initially constitute the innate self for homo sapiens. It will begin with a discussion of previous theories of instinct and innate motivation, and through discussion will develop a functionalist typology of innate motives as grouped under five headings (Physical Integrity, Reproduction, Social, Organisation, and Emotion). While goals are elaborated before and after the emergence of the conscious self, such motivations can only be acquired in respect of existing motivations. In sum, the chapter argues that without innateness in motivation there is no place to begin the valuing process.

Moving from this basis, Chapter 4 will extensively consider the place of consciousness in theories of personality, and the ontogeny of consciousness itself. It will reaffirm the importance of consciousness to personality theory, and outline a

theory regarding the manner in which innate motives (Chapter 3) become representational goals. It will consider contemporary consciousness theory, and discuss the possible functions of consciousness. In concluding, the chapter will argue that consciousness is usefully conceptualised as the ability to represent a motive structure, and that it has evolved not only as a cognitive meta-manager, but also as a critical component in the expansion of our emotional repertoire.

Chapter 5 will provide an introduction to the dynamic systems framework that is then used to examine and describe the elaboration of innate motives. It will briefly describe the theory that underlies dynamic systems (DS) approaches to development and consider the advantages of an explanatory framework that enables the adequate consideration of both stability and change. Dynamic models of development are then critiqued and it is suggested that many of the weaknesses evident in existing DS models can be substantially reduced through explicit reference to innateness in motivation and emotion. Finally, the potential of the approach developed is examined via the consideration of emotional development and sequencing.

Chapter 6 will then outline a theory conceptualising the place of emotions in elaborating and organising the emerging personality. Previous theories of personality development are described and critiqued as the chapter offers a new mechanism that describes the elaboration of personality. Although most theory in emotion suggests that emotions serve function in a immediate sense, the chapter argues that the emotions act as a personality-elaborating mechanism over time. The chapter suggests that emotions also act as an inbuilt system that serves to elaborate the personality state space by creating new goals appropriate to the organism-environment relationship being indicated by the emotion. Overall, the chapter will argue that *early* interactions between the developing self and its environment, particularly those represented in age-dependent emotional responding have profound consequences for the eventual form of the personality system.

Chapter 3.1 – Introduction to innateness

One of the most fundamental issues in previous personality theory and indeed in philosophy more generally, has involved considering the nature of innateness (Pervin, 1989; Buss, 1990; Ewen, 1993), as well as of innate drives or goals (e.g. D. Buss, 1997a). Although a recent review has noted a general de-emphasis on the role of nature and heredity in personality research (Endler & Speer, 1998), a consideration of fundamental human needs or goals is critical to an understanding of personality. Moreover, if innate goals exist, are they benign or malignant? Are we but learned beasts, cleverly obfuscating our savagery, or are we fundamentally benign at birth, haphazardly corrupted or not by the vicissitudes of fate? If innate motives exist, exactly *what* limits the number and nature of such needs? Are they prescribed by biology, derived through socialisation processes, or do they arrive via some interaction between these two influences that may remain unknowable?

The following chapter is primarily aimed at constructing a function-based typology of innate motives. Although the current dissertation is first and foremost a model of the adult (representational) personality, innateness is nevertheless being extensively considered. As will be expanded upon in Chapters 4 and 5, consideration of innateness is necessary for two reasons, one involving our similarity, the other our dissimilarity to other species. Put simply, all living organisms (including ourselves) are innately motivated in certain (functional) directions. Secondly, although conscious goals comprise a departure from inborn motives, conceptually innateness must nonetheless remain the immemorial soil from which representational goals bloom. In line with the distinctions offered in Chapters 1 and 2, the current chapter will outline a conceptual confound between function, development and experience in past consideration of innate motives[1].

[1] It might be more accurate to speak of innate needs than it is to speak of innate motives. However the distinction between saying that an organism has innate needs and that they must necessarily be innately motivated (to meet them) strikes the current author as unnecessary and unhelpful.

Chapter 3.2 – The Functional Consideration of Innateness

The following section is organised in manner somewhat different from that which might be expected. Rather than engage in a laborious literature review, outlining the ideas of past writers, the discussion will attend to the literature only as it bears directly upon the content of the section. Below, the consideration of innate motives is grouped under five *function*-derived headings (Physical Integrity, Reproduction, Social, Organisation, and Emotions/Feedback). Motives representing each of these groupings are thought to be present in all living organisms, with only the degree of sophistication and the precise nature of each motive's operation varying across species.

The first of these two headings (Physical Integrity and Reproduction) are believed to constitute relatively discrete function-based descriptions of innate motivations. The latter three headings (Social, Organisation, and Affect/Feedback) are to a degree more complex, in that each 'group' of innate motives is linked to multiple functions. It is suggested that the subtlety with which these innate motivations are made manifest precedes, parallels, and results from the increasing complexity of human adaptive functioning (A. Buss, 1997). Each of the five motive groups above are nonetheless believed to be innate, universal, and inescapable. They are structurally present (if not experienced) from the moment of birth, and must form the initial units for any motivational approach to the study of personality.

Before beginning, it may help if the current use of the term 'function' is briefly clarified. In the opinion of the current writer, psychological theorists continue to confound distal evolutionary or proper (Millikan, 1993) function with descriptions regarding the manner in which phenomena function. We have tended to observe the way in which a phenomenon occurs and *on this basis alone* conclude that these interpretations describe 'proper function' (Millikan, 1993). However, the mere fact that something appears to function in a certain way does not mean that this is its function. The ascertaining of distal function requires a more thorough consideration of the adaptive challenges that our species may have faced.

As is expanded upon in Chapter 8, even where a phenomena is demonstrably 'universal' does not necessarily mean that it is either innate or that evolutionary function can be directly inferred via the manner in which it functions. While reasonable inferences regarding evolutionary function *are* possible through a suitably informed examination of proximate functioning (see Chapter 6), the two interests are not necessarily the same. For the purposes of this discussion the term 'function' is used to refer to proper or evolutionary function, except where otherwise indicated.

A functional analysis of innateness in motivation has been undertaken in order to reflect the current author's preference for considering human functioning in light of the context from whence it came. Such an approach is consistent with the view proposed by Brown (1991) who suggests that to consider only the uniquely human characteristics in examining innateness is anthropocentric and unhelpful. According to him, the fundamental challenges that each human organism faces are rooted in adaptive challenges that are shared (to a degree) by *every* living organism. As such, while our innate motives may operate somewhat differently from those of other species, they bear on the same struggles – hence in this respect, we are not so very special.

A function-based description of innateness is further advantaged in that it enables us to distinguish the function of a motive from its multiple experiential manifestations (as noted above). This distinction is similar to that offered by Malinowski (1944) between a 'basic need' and a 'cultural response,' to the distinction between genotype and phenotype, and to that between 'etic' and 'emic' (Brown, 1991) levels of analysis. Notably, Brown (1991) argues that the 'answers' to innateness issues will only be found at the level of function, not in their many manifestations. Consequently, a functional analysis of innateness offers the promise of a level of explanation that will inevitably be lacking in other analyses.

Finally, a functional analysis of innateness allows us to move beyond some of the divisions that have previously been utilised in innateness theory. As will be discussed below, distinctions such as that between physiological and psychological need (e.g. Murray, 1938), have a tendency to obscure function. The current theory suggests that innate motives are systemic, in that they are not readily separable or ascribable to a

particular aspect of the entire system. Rather an innate motive operates at the level of the organism, and may be made manifest or experienced in any, none, or all of the subsystems.

Chapter 3.3 – Physical Integrity

The current model advocates the consideration of a group of innate motivations around the functional need of *physical integrity*. Motives regarding physical integrity are thought to be present in every living organism (including homo sapiens), and relate to a universal need to maintain and protect the body – to live. Included in this list are innate human motives such as that for nutrition (Jung, 1919/1971; Sullivan, 1953/1968; Fromm, 1964; Maslow, 1970; Cattell, 1950), respiration and excretion (Sullivan, 1953/1968), and motivations surrounding the avoidance of pain (e.g. Murray, 1938; Dollard and Miller, 1950). Overall, we can probably assume that there is little dispute regarding such motives, any theorist who failed to list them undoubtedly regarding them as self-evident (Ewen, 1993).

Additionally, the current theory considers the primate phenomenon of *attachment* to be a fundamental manifestation of the physical integrity motive[2]. Based in the theories of ethology and evolution, Bowlby's (e.g. 1969, 1973) attachment theory rests on the premise of an innate 'attachment behavioural system' that regulates infant proximity seeking behaviours with one (or a few) specific caregivers who provide physical and psychological security (Berman & Sperling, 1994). This system generates both proximity seeking and proximity maintaining behaviours, especially when the infant is confronted with danger (Rothbard & Shaver, 1994). The survival value of the attachment 'drive' – namely, its role in keeping the infant alive – ensures that it will be passed on through the process of natural selection (Ainsworth, 1989, cited in Berman & Sperling, 1994).

[2] Readers will no doubt be able to imagine other motivations, functions, and consequences associated with the attachment dynamic. However, for the moment attachment is being functionally considered from the perspective of the neonate. Additionally, attachment research is a domain in which theorists observe the manner in which attachment dynamics occur and improperly call such function.

Chapter 3.4 – Successful Reproduction

Almost every personality theorist who has considered innate motives has attended to the place of sexual or reproductive motivations (e.g. McDougall, 1908; Jung, 1919/1971; Freud, 1923/1961; Murray, 1938, 1959; Dollard & Miller, 1950; Cattell, 1950; Erikson, 1968). Realistically, one assumes such attention has occurred because it is difficult to adequately describe human (or any) behaviour without doing so. Additionally, if one were to posit an organism without innate reproductive motives, one would be left with the theoretically untenable question of asking how the organism evolved. As D. Buss (1997a) has recently stated, "individuals who failed to be motivated in (certain) directions tended to become no one's ancestors" (p. 328). If such propensities are heritable, reproduction must necessarily be one such direction.

However, theorists have not always restricted their consideration of innate motives to the functionalist concept of *reproduction* itself. Rather, they have rarefied the reproductive motive, introducing a plethora of other 'innate' motivations, including those for sex (above), for mutually enhancing relationships (Erikson, 1968), for nurturance (Murray, 1938), and for expressing tenderness to one's offspring (Sullivan, 1953/1968). Such rarefaction appears necessary given the complexity of the behaviours being described in homo sapiens. D. Buss (1997a) for example, has recently argued that natural selection producing (and by implication, our conceptualising of) an organism as possessing global motives, such as reproduction, is the equivalent of telling a chess computer to win (see also Kirkpatrick & Ellis, in press). He suggests that millions of years of natural selection have produced highly detailed, context-specific adaptations that solve specific problems associated with survival.

However, the theoretical process of discerning sub-motives within global motives has been made unnecessarily complex through an ongoing confound between describing a functional motive or sub-motive, and describing the experience of that motive. It was noted earlier (see Chapter 1) that few people directly experience the functional nReproduction, instead experiencing nSex, nIntimacy, nLove, and so forth. At this time it was argued that while such motivations may be *experienced* (hence must be

considered motivating), they do not constitute a *functional* description of the motive or sub-motive grouping. Experienced motives may vary between cultures and individuals as a function of consciousness, values, socialisation practices or learning, reporting biases and so on. Functional motive descriptions do not vary in this manner. Rather, they exist as phenomena notwithstanding such influences.

Overall, it appears unnecessarily complicating, and to a degree invalid, to discuss the many experiential manifestations of innate motives *as if they themselves were the innate motives.* It is the belief of this author that descriptions of innate motivations must be carefully conceptualised in terms of their function, not their experience, and that we must be exceedingly precise with our terminologies. Below, two further innate motive groupings relevant to Reproduction are discussed with this distinction in mind.

James's (1890) parental love, McDougall's (1908) parental instinct, Cattell's (1950) parental protectiveness, Sullivan's (1953/1968) tenderness towards offspring, and Murray's (1938) nurturance motives, are readily seen as functionally related to the universal reproductive motive, more specifically describing a motive relating to the survival of offspring. However, Erikson's (1968) 'need for mutually enhancing relationships' is a more problematic concept. While the current theory accepts that people are motivated to seek a partner for reproductive purposes, there appears to be little additional value in describing such a motive in this particular manner. Not only is it debateable as to whether all people experience this motive, but the terminology obscures function. To my mind, describing a motive in this manner constitutes little more than an embarkation towards a theoretical position where 'innateness' is determined jointly by normative consent, theoretical demand, and reporting bias, and adds little to our understanding of what innateness is, or might be.

A second grouping of 'reproduction affiliated' motivations are those surrounding control over resources, status, securing opportunity, and the ability to provide for offspring. Attracting and retaining mates is the *sin qua non* of successful reproduction (Kirkpatrick & Ellis, in press). Consequently, motivations like aggression or destructiveness (Freud, 1923; Murray, 1938; Erikson, 1968), power (Jung, 1919; Dollard & Miller, 1950), achievement (Murray, 1938; McClelland,

Atkinson, Clark, & Lowell, 1953; McClelland, 1955), acquisitiveness (James, 1890; McDougall, 1908; Cattell, 1950) self-assertion (Cattell, 1950), status (Hogan, 1987), and dominance (Murray, 1938) can be conceptually linked through their functional impact on an individual's abilities to secure the opportunity to reproduce, as well as to provide for and protect resultant offspring.

At this stage, the reader could well be forgiven for thinking that the grouping offered here is as usefully thought of as a sub-motive class linked to physical integrity as it is to reproduction. Indeed, status and resource-oriented behaviours may serve multiple functions for the individual, including but not limited to, physical integrity, reproduction, and social motives. Ultimately the choice may rest on a matter of preference, although both past (McDougall, 1908), and recent (see e.g. Kenrick, Trost, & Sadalla, 1993) consideration of mating behaviour, and mate selection criteria suggest otherwise. Irrespective, it is this author's belief that the function of control, status or provision motives is most profitably linked to the functional need to reproduce. Finally, (as shall be discussed below), there is no good reason to suggest that particular motives cannot be conceptualised as functionally relevant to more than one motive grouping.

Chapter 3.5 – Social motivations

Most personality theorists have considered what might be termed 'social motivations' among their taxonomies of innateness. Below, these motives are described as belonging to one of three categories – a general need for other people, a grouping of motives surrounding identity, and a group of motives relating to societal structures. However, while the social motives proposed by past theorists are relatively easy to taxonomise, discerning the functional significance of these motives is more problematic. Due to the sophistication and complexity of human social motives the discussion of innate social motives argues that social motives frequently fulfil numerous needs simultaneously. Additionally, theorists interested in social phenomena have tended to confound universality with function, hence while the topics below are discussed as 'social' motives, their functional origin is likely to be multiply determined.

General gregarious motives

Several theorists have proposed a very vague assortment of innate motives that can be described no more accurately than as a general motive to be involved with or near, other people. Motives like gregariousness (McDougall, 1908; Cattell, 1950), social interest (Adler, 1927/1957), the need for other people (Sullivan, 1953/1968; Fromm, 1964), obtaining love from others (Maslow, 1970), receiving positive regard (Rogers, 1961), and relatedness (Reeve, 1997) all fall within this umbrella.

Unfortunately, the majority of the theorists positing such general motives have not considered the adaptive function served by the motive. Typically, such writers were interested in functionalism only as it applied to the intrapersonal, and had little interest in the evolutionary context within which such motives were previously selected. According to Fromm (1955, cited in Ewen, 1993) for example, man is the freak of the universe, inextricably bound to his animal heritage, and at the same time existentially isolated by his intellect. For Fromm, it is this existential isolation that creates the drive toward other people.

Similar, although less dramatic reasons for a general social motive are found in Rogers' (1961) discussion of positive regard, and Maslow's (1970) consideration of obtaining love. Overall, many of the writers suggesting general social motives appear more interested in rejecting the 'negative' aspects of innateness made famous by Freud than they do in considering the function that might be served by their replacements.

One exception to this trend is found in the original work of McDougall (1908). Like the above authors, McDougall suggested that the gregarious instinct (or tendency to sociability) is of vital importance to human social behaviour and human societal forms. However, he argued that the gregarious instinct is rooted in the ancient struggle against predation, and the mutually protective affordances of herding-type behaviours (see also Alexander, 1979). Interestingly, McDougall noted that the basic instinct is frequently confirmed by habit, accounting for the fact that groupings are often substantially larger than that necessary for mutual protection, and may occur in situations where risk is low. Overall, a phylogenetic consideration of this grouping of

concepts suggests that the gregariousness motive has at least some of its functional roots in mutually beneficial protection – physical integrity.

However, recent research indicates that people who are lonely do not lack for frequent social contact (and thus mutual protection), but rather lack *intimate* contact with others (Wheeler, Reis, & Nezlek, 1983). Consideration of this finding indicates that conceptualising of gregariousness motives as nothing more than residual herding motivation may be somewhat simplistic. On balance it may be more useful to conceptualise of gregariousness-type motives as being broadly linked to the benefits provided by other people. These benefits may then include mutual protection and support (as above), mating opportunities, divisions of labour and trade, and the internalisation or transferral of social norms (see below).

Group identity or belongingness motives

The second grouping of social motives describes an array of motivational concepts involving the need to create and maintain identity. The concepts were initially formed within existential frameworks, and hence did not purport to describe function (as above). However, the innate need to belong (Maslow, 1970; Baumeister & Leary, 1995; Heatherton & Vohs, 1998), affiliate (Murray, 1938), conform (Dollard & Miller, 1950), or identify with (Erikson, 1968) can be seen a part of an overarching functional need to identify and operate effectively within and between social groups.

Typically, animals have an innate ability (usually via olfactory senses) to identify friends, mates, offspring, and enemies. This enables the organism to 'know' how to behave in respect of other organisms both within and between species. Developing concurrently with changes to the manner in which homo sapiens lives and functions, has been the 'necessary' emergence of a more flexible means of achieving the same functional end – *experienced* as a need to create identity. The current theory considers identity-type motivations to be the psychological manifestation and functional equivalent of in and out-group olfactory identification.

Having and perceiving identity enables one to know who belongs to your group and who does not, who to trust and who not, and moreover to communicate/behave

relatively automatically in a manner appropriate to this relationship. Although the identity motive grouping is considered below in terms of its intrapsychic organisational functions, operating on the innate need to belong (through the subjective need to create identity) has its basic origins in the facilitation of group cohesion, and thus indirectly in mating opportunities, and mutually altruistic behaviour.

Social status/hierarchy motives

The final grouping of innate 'social' motives describes a grouping of motivations that reinforce or maintain the social structure of groups. Groups within most species have some form of hierarchical social structure, which implicitly or explicitly influences both access to resources and the nature of social interactions. In lower animals, the structure is typically upheld through aggressive and deferent-type behaviours. Previous theorists have argued that the same is true of homo sapiens.

Motives like power (Jung, 1919), self-assertion (McDougall, 1908; Cattell, 1950), abasement (McDougall, 1908; Murray, 1938), deference and dominance (Murray, 1938), as well as acceptance and status (Hogan, 1987) appear rooted in an innate regard for what one might term the 'rules of engagement.' One does not challenge a colleague who is more powerful (either physically or socially), unless of course, one has the requisite social support. So while we all seek to maximise self-advantage (power, self-assertion, dominance), the social order (and thus one's own success) is maintained in the presence of a more powerful creature through exhibiting deference or abasement.

Consideration of the three groupings of social motives outlined above suggests a multiplicity in the functional origins of social motivations. Disparate sub-motive groupings in the typology above appear connected to different aspects of individual adaptiveness. Nonetheless, the motives themselves remain linked through their domain of operation – that of the group. So while different social motives may be more or less related to physical integrity, to reproduction, and so forth, they nonetheless remain conceptually connected to one another. Overall, the current theory suggests that the social motives are best described as representing an innate

group of motives that fulfil homo sapiens' need to function within and (thus) maintain[3] the social order.

Chapter 3.6 – Organisation

As was extensively discussed in Chapter 2 (above), the current model places considerable emphasis upon life's ubiquitous need (and hence motivation) to organise information. A biological, function-based consideration of the self as an organisational construct was mentioned in this context. The current section will outline previous theories of motivation, as they bear on the notion of an innate organisational motive.

Several theorists have proposed innate motives which, although predominantly experiential (rather than functional) in interpretation, can be seen as both facilitating and manifesting the universal need to organise. Their concepts are discussed below. Overall, the section will argue that while organisation-affiliated motives operate, are experienced, and made manifest in forms appropriate to the developmental and phylogenetic status of the organism, they remain functionally linked through their bearing on the innate need to create and maintain an effective internal organisation of both the organism's own motives (self) and the world.

Creating organisation – learning motives

Both ontogenetically and theoretically, the most sensible place to begin a discussion of an organisational motive lies in consideration of learning. The current model assumes that as a major part of the general organisational motive, most species, including homo sapiens, are innately motivated to learn. Put simply, information must be *acquired* before it can be organised. Acquisition of information in turn necessitates learning.

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[3] Strict application of individual selection principles might suggest that 'appear to maintain' is a more accurate description of this motive grouping. However, the above section is only intended to provide a basis for theorising as to the functional origins of the innate motivations that foundation personality. As such, it is not the place to consider such issues.

Behaviours indicative of a motivation to learn about both the environment and one's own abilities and skills can be seen in the behavioural repertoire of many species, especially in the behaviour of the young (McDougall, 1908). The innate play tendencies of young animals (e.g. a kitten) are thus seen as an innate means to practice movement, develop the skills they will need as adults, and to learn the physical rules of the environment. It is important to note in this regard that the particular organism need not *experience* such motivation for us to usefully conceptualise it as bearing upon the creation of organisation.

Prima facie, there is no good reason to suspect that innate human play represents a different innate need. Play and imitation behaviours occupy an important place in developmental theory (e.g. Berlyne, 1960; Piaget, 1962; Vygotsky, 1962), which broadly considers play to be central in cognitive, linguistic, and socio-emotional development. Developmental theory generally sees play as central to the child's ability to learn about both the physical and the social world. It is through play that children learn about their own bodies, develop their capabilities and ascertain limitations. Through play children learn about 'real world' concepts like mass, speed and gravity, and begin to learn the social rules that regulate our conduct.

Through use of concepts such as curiosity (James, 1890; Maslow, 1970), curious exploration (Cattell, 1950) and play (James, 1890; Murray, 1938), personality theorists have included learning in their considerations of human nature. Within the current theory, both play and curiosity motivations are considered to represent the first motive-behaviour grouping in functional motive domain that describes an innate learning motive.

However for homo sapiens, motivations bearing on the creation of organisation do not cease to operate with the passing of childhood. In fact, learning is considered by many theorists to be a hallmark of human evolution (e.g. D. Buss, 1997a; A. Buss, 1997). Innate learning-type motives appear to find their experiential analogues in later motives like mastery (Fromm, 1964; Erikson, 1968) and competence (Maslow, 1970; Deci & Ryan, 1985; Reeve, 1997), and ultimately in motivations like that for autonomy (Murray, 1938) and self-determination (Deci & Ryan, 1985; Reeve, 1997). Although such motives have predominantly been described from an experiential

perspective and have been considered part of control motives[4], they can usefully be considered an age-appropriate materialisation of learning motivations.

The current theory argues that the motives described above represent a motive theme that is best described as manifesting an innate learning motive. It further suggests that innate learning-type motives should be thought of as existing principally for the purpose of organisation[5]. As noted above, information must be acquired (learnt) before it can be organised. More importantly, information itself does not assist the organism *unless* it is organised. Innate learning motives are thus seen as a central process in the *creation* of organisation.

Experiential analogues of creation motives

The need to create organisation is also functionally apparent in a large number of motives that professedly describe the *experience* of self. Through discussion of these ideas, the current section will seek to make two further points. Firstly, it will argue that, while varied, motives regarding one's own experience of self (e.g. nIdentity, nUnderstanding) nonetheless remain functionally rooted in the need to create organisation. Secondly, the section will suggest that experiences of the functional need to organise change systematically as a function of ability, environment, and phylogenetic demand. Overall, it will be argued that the experienced aspects of organisational motives do not themselves constitute innate motive groupings, although they are inevitable, and cannot help but approximate functionally innate motives.

In the preceding chapter (Chapter 2), it was argued that the experience and function of self constituted different phenomena. At this time it was suggested that the experience of the self changes as a function of both phylogenetic and ontogenetic capacities, and (hence) may exhibit considerable variability. The functional

[4] The place of learning and its relationship to notions of prediction and control are complicated topics. Theorists such as Kelly (1970) have argued that anticipating the future is the central motive in human nature. However, prediction is readily thought of as the learning and organisation of real world relationships, which can then be contained within the organisational motive grouping.

[5] One could argue that the concept of learning *implies* the organisation of information. However, taken in the context of latter manifestations of the organisational motive (see below), the conceptual subsumption of learning within broader organisational motives appears more useful than the reverse.

motivation underlying the self as an organisation does not vary in this manner, either within or between species. All organisms are innately motivated to organise, but few have the capacity to self-reflectively *experience* such organisation as motivating.

Homo sapiens however *do* possess the capacity to experience the self as motivating, hence experiences of the self constitute an important phenomenon for personality and motivational psychologists. Research indicates that people frequently report being motivated by their experience of themselves (see Banaji & Prentice, 1994; Frijda & Mesquita, 1994), and we clearly possess the requisite faculties for experience. Yet while important, experienced motivation is a different matter from motivation itself. (To borrow from Freud,) I may never experience myself as motivated to please my parents, yet perpetually seek the skills, qualities, or status that will do so. How can this be so? And where is the 'true' motivation found?

One answer is to say that *experience itself* is as much a motivated process as any other (see Chapter 6). However, while experiences and experiential motivations emerge concurrently with the biological advent of consciousness, to describe an experience as *innately* motivating is an oversimplification. While the experience of one's own motivation may be inevitable, there is no reason to suggest that the particular form that such experiences take (or are given) represent *innate* motivations[6]. The need to organise takes many forms, any of which may or may not be experienced depending on the phylogenetic and ontogenetic capacities and history of the organism.

Based on this type of reasoning, the current model views motives such as nUnderstanding and nOrder (Murray, 1938), the need for meaning (Jung, 1919; Fromm, 1964) and even motives regarding identity (Fromm, 1964; Erikson, 1968) and religion (Jung, 1919) as uniquely human, and *experienced* aspects of the more global motive towards creating an effective organisation.

The current theory considers motivational concepts like that of identity motivations to represent a description of experience, one which needs careful framing to avoid

[6] This is somewhat of an oversimplification. As is noted in Chapter 6, some aspects of conscious emotional experience do seem to be comparatively fixed, presumably due to their importance to the function of the emotion.

obscuration of the motive's function. Experience of the functional need to create organisation can take many forms. The precise experience of the organisational motive is likely to be influenced by age, sex, and culture, as well as by other acquired motives within the self-hierarchy. It is possible for example that different experiential manifestations of the global organisational motive vary somewhat consistently as a function of the age and abilities of the organism.

Very young children, for example, do not exhibit great concern with identity. Rather, the organisational motive (at this early stage) is made manifest in learning about and organising the physical world, its rules, properties, and so forth. As they age however, children become aware and begin to organise the social world into ever-more precise categories. Typically they begin with categories like sex and age, and gradually they incorporate more abstract concepts like race, wealth and status into their conceptual organisation of themselves and others. Continued development then sees the ongoing emergence of what we might term "fresh perspectives" in organisational complexity. It is as if the organism is no longer 'satisfied' with the simple organisation of the world it currently possesses, but rather is motivated to create ever more complex (and adaptive) layers of organisational perspective[7].

As should be clear, the above argument is not intended to suggest that the systematic differences in the domain in which organisation motives are experienced is not to a degree innately determined. In fact, the current model fully expects that the experiential manifestations of the organisational motive will be closely related to the capacities and priorities of the developing self. Organisms attend to and thus experience the need to organise in a pattern conjointly determined by (and reflecting) current abilities, environmental demand and phylogenetic history.

Nonetheless, when asking ourselves whether humans are innately motivated to create identity, seek existential meaning and so forth, the answer must be no. That we both do and experience ourselves as doing so is important, and of interest, but does not in itself constitute an *innate* motive description. Rather, motivations of this type represent an environmentally influenced (hence variable), experiential analogue of

[7] The phrase 'as if' has been very deliberately applied in this context in order that the reader be made aware that changes in the levels of organisation are more likely a function of cascading ontogenetic ability and phylogenetic "interests" than of experience.

innate learning or organisational motives. As noted, the fact that such motivations appear universal in no way implies innateness or that the motivation is innate.

Maintaining organisation – enhancement and esteem

The following section will consider a range of concepts that bear on the *maintenance* of the created organisation (self). Several personality theorists have proposed innate motives or mechanisms regarding the maintenance of the self and particularly the self-image or self-concept. Through consideration of past theory, as well as of more recent developments within the literature on self, the current section will make two points regarding innateness in organisation-maintenance motives.

Firstly, the section will criticise the lack of distal explanatory focus in recent research on the self; in particular the continued confounds between the function and experience of self, and (implicitly) between innateness and universality. On this basis, it will argue that there exist no *innate* motives regarding our experience of self. Rather, it will propose that the 'conservatism of self,' as well as such motive-laden terms as self-enhancement, self-esteem, and self-concept represent universally *inevitable* (rather than innate) motivations.

The discussion will further suggest that while self-awareness inevitably develops (see Chapter 4), self-concept or esteem related motivations are best conceptualised not as innate motivations in themselves (sic), but rather as simply representing the proportion of acquired motives regarding how a self wishes to view itself. The section will highlight the scarcity of functional self-theories, and suggest that the global organisational motive offered above is best suited to initially describing both the function and experience of self-related experiential motives.

Most recent research on the self has traced its activity to two general sets of motives that are termed (a) self-enhancement and (b) self-knowledge (Banaji & Prentice, 1994). Self-enhancement is related to innate motivational concepts such as that of self-esteem (e.g. Maslow, 1970), self-preservation (Fromm, 1964), and the desire for a positive global self-concept. Such concepts refer to the desire for positive feedback about the self and include both self-protective impulses (avoidance) as well as the

ongoing drive (approach impulses) to have a positive sense of self (Banaji & Prentice, 1994).

According to these authors, the motivations and strategies underlying the desire for self-enhancement underlie a vast range of social behaviours. Research by Dunning and colleagues for example, (e.g. Dunning & Cohen, 1992) has shown how the way in which people define traits (e.g. those required for leadership) depends on their own strengths and weaknesses. Similarly, Kunda and colleagues (e.g. Kunda, Fong, Sanitoso, & Reber, 1993; cited in Banaji & Prentice, 1994) have shown that subjects who were lead to believe that a particular trait is associated with success rated themselves as higher on that trait than other subjects. Overall, research into motivated attribution processes suggest people's need for, and strength of, esteem motivates many of their thinking processes.

However, while research into self-concept-serving behaviours and thought has demonstrated the universality of self-concept motivations, the literature appears to falter when attempting to clarify the functional origins of them. In a disturbingly off-hand manner, a recent review (Banaji & Prentice, 1994) suggests that the desire for a positive self-concept is "*presumably* rooted in a more basic tendency to seek pleasure and avoid pain" (p. 299, italics added). Such an explanation is evidently unsatisfactory on a number of levels. Not only does it do little to clarify exactly *what* a self-concept is, but it also fails to explicate *why* positive self-concepts should be a motivational force and, most importantly, *what* positiveness is.

Stated most candidly, the current theory views the self-concept as nothing more than a collection of acquired goals regarding how one should (see oneself to) be. As was noted in Chapter 2, selves are essentially an organisation of motivations and the world. Furthermore, experience of self inexorably emerges as the capacity (consciousness) to experience that self develops. Notable however within this formulation of 'structural' self is the absence of any need to experience that structure in a *particular* way. While motivations about the experience of self are near-universally acquired and experienced, they are neither consistent, nor innate.

For better or for worse, most human socialisation processes (see Chapter 7) tend to entail the acquisition of goals about self-experience. "Don't *be* like that, it's not nice," "Try to *be* kind," and so forth. Consequently, the current theory suggests that early experiences lead to the acquisition of motives about who we will (should) be and how we should experience ourselves. While the form that this motive grouping or 'image' (e.g. Horney, 1937, 1945, 1950) takes is infinitely varied, and may be more or less realistic or attainable, the pursuit and systemic response to status changes for these motives will occur in a manner *identical* to any other meaningful motive – no matter what the particular self-concept motives necessitate.

It is in this same functionalist formulation that we find the answer to the question as to why *positive* self-concept, self-esteem and self-enhancement are such *powerful* motivators. Put simply, the developmental epoch within which they are formed, and (hence) the relative permeability of the self at this time (see Chapters 4 and 5), means that acquired self-concept goals come to figure prominently in the motivational structure of self. In some ways these goals could be thought of as constituting a phenomenal index or 'sociometer' (Leary, Tambor, Terdal, & Downs, 1995, cited in Kirkpatrick & Ellis, in press[8]) designed to monitor the success of (and motivate adaptive efforts toward) adaptive goals. Given their phenomenological salience, these goals possess the capacity to effect monumental behavioural and emotional change. As will be expanded upon later in the dissertation, emotions arise in respect of goals, positive emotions following goal 'attainment,' negative emotions following failure or delay. In this sense, goals about how we wish to see ourselves are no different from any other motives, except that their domain of operation tends to be social, and their instantiation may be different[9].

Improving Organisation – self-knowledge, self-development and actualisation

The final section on innate organisational motives will briefly consider a range of concepts under the rubric of 'improving organisation.' Considered under this heading

[8] Parenthetically it can be noted that their notions regarding the domain specificity of self-esteem while explained from a different perspective are conceptually consistent with the ideas of the current author.
[9] This statement is of course somewhat oversimplified. As will be expanded in Chapter 9, goals of an intrapersonal nature may well differ in their 'ability' to provide ongoing/immediate feedback and also in their relative importance. The general point nonetheless remains – goals are simply goals.

are humanistic theories of actualisation (e.g. Rogers, 1961; Maslow, 1970), as well as more recent research from the self literature on motives for self-knowledge and improvement. In discussing this literature, the current section will seek to make two final points.

Firstly, it will suggest that a large proportion of the innate 'actualisation or growth type' motives add little more than a 'humanistic gloss' to the general notion of purpose. Secondly, it will argue that while one *could* construct plausible reasons as to why self-development or self-knowledge motives *might* be innate, doing so would involve the poorest of retrospective theorising. Overall, the current section will argue that homo sapiens does not possess innate motives regarding an 'improvement' of their organisation, except insofar as organisational motivations (above) lead to the increasing complexity of the organisation itself.

In the late 1930s, partially in reaction to the pessimism of Freudian theory (Ewen, 1993), a new school of personality theory emerged. Writers like Karen Horney, Erich Fromm, Carl Rogers, and Abraham Maslow eschewed the Freudian emphasis on the presence of 'dysfunctional' motives, instead choosing to emphasise the positive side of innateness. They introduced a new range of concepts including those of individuation (Jung, 1919), self-realisation (Horney, 1950), 'being in the world' or daesin (May, 1958/1967), and self-actualisation (Rogers, 1961, 1980; Maslow, 1968, 1970, 1971). Broadly speaking, these theorists emphasised the psychological rather than the physiological nature of innateness for humans, and moreover ascribed an innate constructive or growth motive to humanity.

A recent addition to the list of self-motives is the need for self-improvement. This has been defined as the desire to bring oneself closer to what one should or would *ideally* like to be. It is presumably rooted in more basic needs such as the need for control (Markus & Ruvolo, 1989) or achievement (e.g. Atkinson, 1964). Similarly, the concept of self-knowledge has been defined as the desire for accurate and certain evidence of one's traits and abilities that confirms one's self-assessments (Banaji & Prentice, 1994). In a manner similar to that outlined above, the authors suggest that such a need is rooted in a more basic need, variously called consistency, uncertainty reduction, or the need to predict and control the environment.

Although disagreement may forever rest on a matter of emphasis, it is the opinion of the current writer that proposing quasi-innate motives such as those presented above add nothing to the simple notion of purpose itself. Recast beneath the (admittedly) stark light cast by the preceding discussion on the self as a motivational structure (see Chapter 2), the assertion that people are innately motivated to self-actualise or improve can be seen to say nothing more than that they are motivated to organise and act upon the goals that constitute the self, including its experiential components.

Moreover, the current theory explicitly disavows the plausibility of innate benevolence. While acknowledging that the therapeutic advantages of such conceptualisations may be considerable, positing 'goodness' or 'constructiveness' at the core of humanity is itself problematic. Not only do we have to wonder exactly what thoughts, feelings or actions constitute such, but one is left with the unhappy feeling that socio-historical context will determine our criterion. As such, the inclusion of innate growth motives adds little more than unbridled idealism, and contributes nothing to a functional understanding of innateness.

Finally, while one could consider knowledge and/or improvement of the self-structure to be potentially functional motives there is little evidence supporting such a proposition. It may well be true that increased knowledge of one's own self-structure is both functional and adaptive.[10] Increased knowledge of the self might (for example) enable considerably more direct action to be taken in respect of progressively more fundamental goals. However, there is altogether too much evidence to suggest that people do not unequivocally want to know their self. So while the transition to representational goals (and hence the departure from innateness) may forever prevent a definitive answer to these issues, the current model suggests that innate motives regarding the knowledge or experience of the self do not exist.

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[10] The current theory in fact explicitly upholds this notion, suggesting that increased consciousness (self-knowledge) constitutes a functional personality development. However, consciousness and motives regarding conscious experiences are complex topics. As such, they are fully discussed in Chapters 6 and 7. For now, it is only important that the reader consider the poor likelihood that such motives are innate.

Summary.

Overall the needs to create, maintain, and improve an internal organisation of the world and oneself appears as a fundamental innate motive. Such a conceptualisation is consistent with concepts from systems theory, from developmental and cognitive theory (e.g. schema, internal working model), and with the implicit ideas of many personality and self theorists. Moreover, an explicitly functional consideration shows that many motivations can be usefully conceptualised as belonging to this motive grouping. The current model considers a wide range of motivational concepts to be the age-appropriate experiential manifestation of an innate need to create and maintain an effective internal organisation of the world and oneself.

Chapter 3.7 – Emotions/Feedback

The current model assumes that the emotions constitute innate motivations for homo sapiens (see e.g. Tomkins, 1962; Izard, 1971, 1993). Further, in line with differential emotions theory (e.g. Tomkins, 1962, 1963; Izard, 1971, 1993; Izard & Malatesta, 1987), the current model assumes that each discrete emotion serves and motivates unique adaptive functions, coping (see also Plutchik, 1962, 1980, 1991, 1993) and behaviour. Although full conceptual consideration of emotions will be delayed until the chapters on regulation/process of the personality or self-system (Chapters 7 and 8), adequate contemplation of innateness in motivation behoves some consideration of emotions. The following section will thus consider innateness in the emotion-motivation relationship, introduce theory on the necessity for a living system to possess innate regulatory or feedback mechanisms, and briefly describe a conceptualisation of emotion and its relationships with motivation and behaviour.

As will become clear, many psychological theories of emotion have tended to anthropocentrically imply that emotions are motivational at the level of *experience.*[11] In contrast, the current theory suggests that emotions *per se* act as an innate systemic

[11] Solomon (1993) has recently criticised the tendency to treat experience as necessary to emotion as 'subjective essentialism" linking it to a Cartesian view of the world. See also Buck (1985, p. 396), LeDoux (1989, p. 269) and Averill (1994a).

motivator, in addition to this experiential component. As such, the current model argues that emotions are motivating *at all levels of functioning,*[12] and that our ability to consciously experience emotions as motivating is sufficient but not necessary for them to *operate* as such.

Support for this approach can be found in general systems theory. One of the most fundamental premises of any systems or cybernetic approach is that every system is regulated in a way such that its goals can be realised (Carver & Scheier, 1982, 1998). Feedback is a basic strategy which allows a system to compensate for disturbances, and can be defined as "the transmission of a signal from a later to an earlier stage" (Skyttner, 1996; p. 49). While different species (living systems) have differing innate mechanisms for regulation of their goal operations, it is a basic assumption of the current model that homo sapiens exhibits and experiences such regulation as emotion.

Historically, different theorists have emphasised comparatively imprecise aspects of the relationships between emotion, motivation and behaviour. McDougall (1908) for example, organised his original description of instincts in terms of their relationships with emotions (see also Plutchik, 1980 for a similar pairing of emotions with 'survival issues'). He suggested that there were seven core instincts (flight, repulsion, curiosity, pugnacity (see also Cattell, 1950), self-abasement, self-assertion, and parental), each of which was thought to be closely associated with a particular (primary) emotion. Subsequent personality theorists have been even less systematic or precise in their consideration of emotions, typically introducing concepts that described a class of behaviours linked to emotions rather than a class of motive. Motives like that for aggression or destructiveness (Freud, 1923/1961; Murray, 1938; Erikson, 1968) are of this type. Historically then, the consideration of innateness in emotions within personality theory has occurred at a level that blends instinct, drive, and emotion concepts with a consequence that they are lesser utility[13].

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[12] Panksepp (1993) has recently suggested that the basic emotions have widely distributed effects wherein many behavioural, physiological and psychological processes are coherently brought to bear on important life events. Conspicuously missing in this formulation is the *necessity* for experience.

[13] There are some exceptions to this statement. Recent work, particularly by Carol Magai has gone a long way towards addressing this deficit. Magai's theory is discussed below (see Chapter 5).

In emotion theory, Arnold (1960a, 1960b) initially defined emotions as 'felt action tendencies' while Frijda (1986) has suggested that emotions are, first and foremost, states of readiness to engage or not engage with the environment. In Frijda's theory, particular patterns of appraisal lead to particular changes in action readiness and to concomitant changes in physiology which form the core of the emotional responses. For him, emotions are the experience of action readiness (see Chapter 6). They signal the relevance of events in respect of one's concerns to cognitive apparatus and the action system. Basically, emotions are phenomena of readiness or unreadiness for interaction (Frijda & Mesquita, 1994).

A second (although smaller) proportion of contemporary emotion theorists suggest that emotions *per se* constitute innate motivations for homo sapiens (see e.g. Tomkins, 1962, 1963; Izard, 1971, 1993; Buck, 1985). Although these theorists have tended to be less componential in their approach to emotions, instead proposing more integrative constructs such as affective-cognitive structures (Izard, 1991, 1993) or primes (Buck, 1985, 1991), the emotion-motivation-action relationship is illustratively central in their models.

For example within Buck's (1985) theory, motivation is a potential inherent in the structure of the *primes.*[14] According to Buck, primes have evolved to respond to stimuli and events that have proved challenging over the course of evolution. Similarly, although Izard (1993) considers the relationship between emotional experience and behaviour to be a learned phenomenon (to a degree unlike the current theory), a central premise of differential emotions theory is that "each of the emotions organises and *motivates* perception, cognition, and actions (behaviour) in particular ways" (Izard, 1993, p. 639 *italics added*).

Following Arnold (1960a, 1960b), more recent cognitive theories again argued that it is the *subjective* feeling state that motivates a person to behave (e.g. Smith & Pope, 1992). More distressingly however, they have also suggested that the motivational impulse associated with emotions results in a subjectively or functionally equivalent

[14] Although Buck (1985) does not conceptualise of primes as only emotion, his theory of biologically based motivation/emotion systems shares some commonality with the current theory, notably in a shared emphasis on the motivational consideration of emotions.

course of action. Such a position suggests that "There are few, if any, fixed linkages between emotion and overt behaviour and, depending on context, the experience of just about any emotion can result in just about any behaviour" (Smith & Pope, 1992; p. 34).

Prima facie, such a statement seems quite reasonable and indisputable, at least insofar as there is no *one-to-one* correspondence between a given emotion and a given behaviour. Yet the making of such remarks has a number of far-flung theoretical consequences. In the first instance, they make the potentially important investigation of emotion-behaviour links singularly unappealing. The simple reason for this is that the position implicitly creates its own theoretical straw man in arguing that emotion-behaviour links should be measurable to some unspecified, yet almost certainly unobtainable degree, of specificity.

The one-to-one criterion thus implied can of course never be reached, and thus the straw man is contemptuously dismissed. Upon inspection however, it can be noted that the criterion is of a nature that would not be expected in any other domain of inquiry. We do not expect a perfect concordance between emotions and the *content* of appraisal, rather we expect particular *types* of thought (appraisals). Similarly, we do not insist on marked relationships between certain stimuli and the emotional response. Why then should we do so in the case of emotion and behaviour?

It seems clear to the 'man on the street' that people behave in a manner indicative of the way they feel more often than not. This hypothetical fellow does not expect a perfect correspondence, nor does he often receive one. Nonetheless, on average, the inferences he is able to make regarding another's feeling state based on the way that other behaves are typically of at least some assistance to him. Likewise, information he receives about another's feeling states are typically of use in predicting the way they will behave. If there are no links, why does this man continue using his heuristics?

Finally, in considering emotion-behaviour links, most accounts have placed an unneeded emphasis on *felt* tendency in emotion, thus obscuring the functional consideration of emotion *per se* as motivating. By contrast the current theory

suggests that while all emotions are motivating in their conscious experience, that a proportion of emotions (primaries) constitute an phylogenetically more primitive 'prompt' that, experienced or not, motivates a recognisable type of instrumental response. As is demonstrated in Chapter 8, this relationship can be empirically demonstrated to an adequate level of specificity through an examination of the links between emotions and the associated behavioural prototypes.

At this point, the reader may be aware that the thrust of the discussion above could lead to a prolonged philosophical discussion about what emotions *really* are, whether other species have emotions,[15] and whether experience is necessary to emotion. Rest assured, this will not happen, at least not yet (see Chapter 6). The functional consideration of emotions as an innate motivator is only being introduced in order to adequately contextualise the innate motives that emotions are (Izard, 1991), the behaviours that they engender (see Chapter 8), and to distinguish emotional states from experience (e.g. Lewis & Michalson, 1983; LeDoux, 1989; M. Lewis, 1993). That said, a brief example may help clarify the distinctions offered.

Few theorists would argue that a dog has the capacities needed to *experience* emotions as we do. Nonetheless, as those of us who have delivered newspapers are conspicuously aware, dogs sometimes behave 'emotionally' or 'as if' they were emotional. Although the presence of a snarling hound (and the activation of motives concerning self-preservation) tends to preclude in situ consideration of emotion in the dog, a posteriori reflection is illustrative (and to a degree safer).

Put simply, the current theory argues that the emotions are not limited to homo sapiens (McDougall, 1908). Historically, many species (living systems) have faced challenges similar to those we face, and some have responded with a similar means of regulating their relationship(s) with the environment. Being 'thwarted' then, produces a *state* of anger in dog or an infant just as it does in an adult. Anger, or its functional equivalent, is clearly present in the *behaviour*, even though the dog is unlikely to experience as we do.

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[15] For an interesting perspective on emotions in other species, readers are referred to a recent chapter by McGuire (1993).

Nor however do we possess a monopoly on experience. While the dog may not experience emotions as we do, *something* is clearly occurring inside the animal. To say that the dog does not experience emotions at all is not unlike suggesting that the pre-conscious infant does not experience sadness, rage, happiness or contentment. Given the degree of non-reflexivity we can observe in the dog, accepting such a doctrine leads to the vexatious question as to why the dog barked and growled at all. The dog is clearly perceiving something, and this same 'something' appears consistently associated with a certain pattern of behavioural response.

The above accepted, dogs are nonetheless not the same as people. In considering any difference, the current theory suggests that the primary difference between homo sapiens and a dog, and between an infant and an adult, is a matter of consciousness (see Chapter 4 for a discussion of consciousness in the current model). The dog and the pre-conscious infant cannot consciously experience emotions as motivating (see Chapter 7) because they have no representational awareness of 'their' motive hierarchy or 'their' self. "I" and "me" do not yet exist, hence emotions cannot be experienced in this regard.

Yet even this important difference does not change what primary emotions are or what they are about. In this context, the emergence of consciousness is predominantly relevant only in respect of the ability to *experience emotions as motivating*. Given the ontogenesis of consciousness (see Chapter 7), the current theory expects a high degree of learning to influence the experience of emotions as motivating. Different people can be seen to experience an emotion (such as anger) more or less negatively, and as associated with a variety of behavioural urges (see Chapter 6 for an application of this theory). However, changes in the way emotions are experienced do not necessarily always change the behaviour that results from them.

Summary

Above it has been argued that all living systems possess innate feedback mechanisms. It has been proposed that the emotions comprise this feedback system for homo sapiens as well as for other species. In line with differential emotions theory, it has

been suggested that each discrete emotion serves and motivates unique adaptive functions and in some instances behaviour. More contentiously, it has also been suggested that the experience of emotions as motivating is not entirely necessary for them to operate as motivating or to engender behaviour. Rather, it has been argued that a experience is only a part of what is needed for an understanding of emotion and motivation.

In addition, it has been suggested that five primary emotions (anger, fear, happiness, sadness, and disgust) are, *of themselves,* innately motivating notwithstanding an experience of them as motivating. Moreover, each is connected to an innate behavioural prototype that both predisposes and represents a biological likelihood of *behaving* in a manner appropriate to the function each emotion fulfils. Because the function of these emotions is not necessarily linked to social functioning or to the conscious awareness of self (secondary emotions), these 'types' are innate, universal, and (operationally) recognisable as such.

Chapter 3.8 – Concluding Remarks on Innateness in Motivation

In this discussion, innateness in motivation has been considered under five interrelated, *function*-derived headings (Physical Integrity, Reproduction, Social, Organisation, and Emotions/Feedback). Motives representing each of these groupings are believed to be present in all living organisms, with only the degree of sophistication and the precise nature of each motive's operation varying across species. While the discussion in the chapters to follow will consider both how consciousness might influence our conceptualisations of innateness, and how innate motives are elaborated within the representational structure of the adult self, each of the five motive groups above are believed to be innately motivating, universal, and inescapable. They are structurally present (if not experienced) from the moment of birth, and must form the initial motivational units for the study of personality.

Chapter 4: The transformation of biological to representational goals and the ontogeny of consciousness.

Chapter 4.1 - Introduction

An understanding of innateness in motivation appears critical to the understanding of the adult personality. It seems obvious that the complex hierarchy of goals, which I have argued comprises the core of personality, can only emerge in respect of a value or standard that already exists. As will become clear however, the process by which innate motives or needs come to be represented within an adult personality is poorly understood. Historically, this issue has received vague treatment in personality theory (e.g. McDougall 1908; Maslow, 1970) and the emergence of non-specific interactionist perspectives appear as much a pacifier for the oral academic as they do a genuine attempt at describing an important phenomenon.

Recent personality theory has more (Dweck, 1996) or less (Magai, 1996) alluded to a relationship between innate motives and the goals of the adult, although little specific theory has been generated regarding the causal or structural relationships between these concerns, or the processes by which such changes and transformations occur. We know little about *how* innate motives relate to, or eventually become, the representational adult personality, and even less about *why* the change from innate to representational motives occurs. It has however been noted that this is a domain well suited to future research (Dweck, 1996).

In considering the 'how' component of these issues, Chapter 4 will present a preliminary theory outlining the transformation of innate motives to the representational goals. Briefly stated, the theory suggests that innate motive structures are pre-programmed to redescribe themselves in representational form, an endogenous process Karmiloff-Smith (1991) has termed 'representational redescription'.

Consideration of the 'why' aspects of motive representation and the adult personality will begin through considering what can be seen as *the* major consequence of the

representational process - consciousness. Consciousness is a phenomenon infrequently considered in contemporary personality theory, although it was of central concern to the so-called 'grand theorists' earlier this century (Tomkins, 1981; Maddi, 1993). While the developmental correlation of self-representational and conscious processes does not presuppose a causal link between the two, a functionalist interpretation of them suggests that there may in fact be one. Below, it is suggested that the phenomenal awareness or experience of the motivational hierarchy (self) is *the* function of consciousness, enabling an additional source of goal-relevant motivation and an expanded emotional repertoire. It is further hypothesised that the ability to represent and experience the self (consciousness) is a direct result of the representational redescription of innate motivations.

Chapter 4.2 – The transition from biological to representational goals

Introduction

It should be reiterated at this point, that the current thesis is not a general model of infant development, except insofar as general developmental considerations bear on the acquisition, representation and operation of motives and goals, and the development of consciousness. As such, the discussion will attempt to avoid a number of 'core' developmental and conceptual issues even though they can be taken as relevant.

Included in this wholesale caveat are the relative avoidance of issues regarding the domain general versus domain specific nature of development and learning (e.g. Gallistel, Brown, Carey, Gelman, & Keil, 1991; Karmiloff-Smith, 1991), the development of a theory of mind (e.g. Carruthers & Smith, 1996), and continuity versus stage development issues (Fisher & Bidell, 1991; Carey, 1991). Put simply, the topic of infant development is an extremely complicated field, and some limits to the current discussion must be imposed[1].

[1] Some of these topics are briefly addressed in Chapter 6.

In Chapter 3 a working typology of innate motives was outlined. It was suggested that motives representing each of the five groupings were manifest in all living organisms, with only the degree of sophistication and the precise nature of each motive's operation and experience varying across organisms. Finally, it was proposed that each motive grouping was structurally present (if not experienced) from the moment of birth, and (as such) must constitute the *initial* motivational units for personality.

Yet nowhere in the dissertation to date has there been any consideration of precisely how innate motives *become* representational goals. Certainly it seems likely that innate motives are the basis upon which representational goals are formed. But how? What happens? Why? Is the transformation part of some congenital development subroutine (e.g. Karmiloff-Smith, 1991; Spelke, 1991)? What must the organism be capable of to develop representational motives and how does this process unfold in development?

"Representational Redescription" and the transformation of the state space

In considering the representation of motives, the current theory takes it as a starting point that the most obvious necessity involves the ability to represent per se. While we know next to nothing about the place of representation ability in motivation, the development of representation ability has been (e.g. Piaget, 1962) and continues to be extensively researched (see e.g. Spelke, 1991; Karmiloff-Smith, 1991). It thus provides a rich source of descriptive information, and a basis upon which to begin theorising. Although the manner in innate and acquired motives are represented could conceivably differ from representations of knowledge or belief (Bartsch & Wellman, 1995), findings from representation research nonetheless shed light on a plausible process underlying the transformation to representational goals.

In describing the processes of motive representation and the transformation of innate to representational goals, the current model proposes a developmental process similar to that articulated recently in Karmiloff-Smith (1991). Her theory of representational development suggests that all species have innate knowledge structures in their systems. In some areas this knowledge is very detailed, for others skeletal aspects

exist to be filled in by experience. According to Karmiloff-Smith, this innate knowledge is procedurally encoded, and activated as a response to external stimuli (hence the conceptualisation of the human infant as relatively reflexive pre-representation).

In Karmiloff-Smith's (1991) theory, newly acquired knowledge is also represented procedurally (apart from knowledge directly encoded linguistically), and initially knowledge is not available as data to other parts of the system. However, innate knowledge in the human mind subsequently becomes available to other parts of the system. Karmiloff-Smith suggests that this 'availability' is a determined occurrence, orchestrated by the innate processes that drive knowledge acquisition, constraining the content, form, and timing of what ultimately comes to be representational knowledge.

The hypothesised process underlying this transformation is called *representational redescription.* In this process, lower (innate) levels of knowledge are left intact, while copies are redescribed. According to Kamiloff-Smith, a major part of development involves the transforming of special-purpose procedurally encoded knowledge into data structures which then become available to other parts of the mind (Karmiloff-Smith, 1991). The transformation is guided by an endogenous process whereby the mind exploits the knowledge it has stored (both innate and acquired), by representing recursively its own internal representations. In her view, this process can be triggered externally (see below), but may be self-generating.

The current theory suggests that a similar process underlies the transformation of innate motives. Innate motives are initially embedded within the system as procedural structures. As such, motives as well as the associated motive satisfying behaviours, are reflexively activated in response to internal or external stimuli, the perception of which may constitute part of that same structure[2]. During this time, lasting until around 18 months or two years, the infant behaves predominantly as an

[2] As will become evident upon reading Chapter 5.5 (see "Motives as unifying developmental trajectories") the current model explicitly predicts that the timetabling of representational redescription will vary as a function of the motive domain. For example (and notwithstanding the predilections of Freud), the redescription of innate reproductive motives probably does not occur until adolescence.

instinctual creature (see below). However, in accordance with the dictates of innate and emergent control parameters, innate motives are gradually transformed or representationally redescribed[3].

Conclusions and Implications

The current model suggests that the ability to represent innate motives develops universally. While the process underlying this motive transformation may or may not occur in a manner similar to the representational redescription of other knowledge, a working theory has been offered. Alternative explanatory possibilities for this process are of course possible.

For example, it is thinkable that the representation of motives occurs as a function of domain-neutral developments (i.e. through a more general program regarding representation per se), although this would seem unlikely. Similarly, the emergence of certain characteristics (control parameters) is almost certainly necessary for the initialisation of the representational process. While the details of any such theory are beyond the interests of this discussion, procedurally encoded innate motive structures may provide an important source of developmental variable.

To this point, the current theory has said little about how different forms of the same motive may be reconciled with one another. In Karmiloff-Smith's (1991) theory, several forms of the same knowledge may be retained simultaneously. Similarly, in Lewis' (1990b) discussion of the ontogeny of consciousness and intentionality, he suggests that once emerged, that all levels exist at once. He suggests that "what occurs earlier is not destroyed by transformations . . (rather) . . biological primitives interact with experience to elaborate themselves" (p. 282; see Chapter 7).

Essentially, the current theory concurs with the authors above, although it has suggested that other or earlier 'versions' of an ultimately representational motive

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This can be taken to suggest that the processes underlying their conscious acquisition remain dormant until triggered by the relevant internal or external control parameters.

[3] It is acknowledged that this is a strongly nativist position on development. For a different perspective and critique on nativist assumptions, readers are referred to discussions by Fisher & Bidell (1991) and Carey (1991).

become subordinate to their placement in the representation of the motivational state space (see below). The simple reason underlying this theoretical decision was noted in Chapter 2, where it was suggested that possessing multiple motive hierarchies creates an endemic conflict within the motive system that could not be reconciled. However, the current theory does acknowledge that motives may re-emerge in a more primitive form when the organism is placed under extreme microdevelopmental (real-time) duress (e.g. an immediately life threatening situation). Whether this alteration in relative goal priorities represents the activation of more primitive forms of a representational motive, or whether it simply reflects the extreme dynamism of the adult goal hierarchy is however unclear.

Of more immediate interest to the current context however are the implications stemming from the developmental status of the infant at the time of goal acquisition. In the current theory, motives and goals are continuously elaborated via the process described in Chapter 6. Given that representational redescription is thought to occur around 18 months, the infant has already acquired a great number of derived or learned motivations, even though they are non-representational. The current theory assumes that the developmental status of the infant at the time of acquisition is a key factor in the operation, accessibility, and mutability of a particular goal, and (hence) the personality in question. On the basis of the above discussion, it is thus proposed that there exist four possible classes of motive or goal[4].

Type 1 – Innate motives (more or less precise, and well detailed)

Type 2 – Motives acquired in relation to existing motives (see Chapter 5), pre-consciously and pre-linguistically

Type 3 – Motives acquired in relation to existing motives pre-consciously, but stored as linguistic information

Type 4 – Full representational goals acquired post-consciousness and linguistically

[4] Of course, a given motive may exist at one, some, or all levels simultaneously.

While a full discussion of each class is beyond the interests of the current discussion, a brief example may help illustrate the importance of this issue. The goals regarding the experience of a particular emotion (see Chapter 7), which are hypothesised to arise during attachment dynamics, are likely to have been acquired pre-consciously, and non-linguistically. As such not only do they constitute an important part of the personality structure (see Chapters 6 and 7), but they are difficult to consciously access in later life, despite their conspicuous influences.

Hence, not only are these goals pre-conscious in the sense that subsequent self-examination of their ontogeny is difficult, but they are represented in a non-linguistic form. As can be imagined this makes this type of goal extremely difficult to consciously and verbally examine in self-regulatory and developmental processes (see below) and thence to change. A person may be aware (via their affective response) that they do not like a certain thing, but cannot explain precisely what it is that they do not like, or why it is that they do not like it. Overall, the current theory considers issues relating to goal acquisition as usefully conceptualised in terms of the availability of goals to conscious examination.

Chapter 4.3 – The consequence of representing a goal space: Consciousness

Introduction

One of the most important *consequences* of the representation of motives is the development of the abilities to be aware and (thus) experience the self, for it is in this process that we see the development of conscious self-awareness. The theory presented here suggests that when a hierarchy of motives become available as representational data to other parts of the system the organism can be thought of as possessing both consciousness and a conscious awareness of the motivational state space that is experienced as self[5].

[5] At this point, the reader should be made aware that the current theory is not considering all the contents of consciousness (qualia) which may include self, perceptual and sensory data as well as

To this point however, the concept of consciousness has only been broadly discussed. Earlier, consciousness was briefly conceptualised as emerging via organisational complexity (see Chapter 2 and Chapter 3 'Organisation' Section). Above, the process underlying the transformation of innate motives to representational goals has been considered from a representational standpoint. Below, the consequences of this representational transformation (to consciousness) are considered as relevant to the goal and personality processes of self. The phenomenon of consciousness is considered, a working definition is presented, and implications for the model are briefly discussed.

Background to contemporary consciousness research

Today, the problem of consciousness marks the very limit of human striving for understanding (Denton, 1993). It appears to many the last great puzzle and the greatest theoretical challenge of our time (e.g. Metzinger, 1995; Chalmers, 1995; Cairns-Smith, 1996). Unsurprisingly then, consciousness appears a phenomenon of unsurpassed complexity (Revonsuo, 1994). Perhaps as a consequence of this complexity, dozens of philosophical and psychological perspectives have been utilised (see Wilber, 1997 for a recent summary), although few from personality theory.

The phylogeny of consciousness has been tied to the use of fire, to bipedalism and handedness (Corballis, 1997), to language, agriculture and tool use (Oakley, cited in Denton, 1993), and to art (Campbell, 1976). Consciousness has further been considered in relation to evolved asymmetries in the configuration of the brain (Sperry, 1980), and to the size of the prefrontal cortex (Deacon, 1997, cited in Corballis & Lea, 1999). Consciousness has also been linked to both morality (Dawkins, 1993), and its appreciation (Premack, 1978, cited in Corballis & Lea, 1999), and to intentionality (e.g. Searle, 1991) or volition (e.g. Bieri, 1995),

Perhaps as a result of the complexity evident above, some theorists have gone so far as to argue that the phenomenon of consciousness is systematically resistant to

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feelings. While important, contents of consciousness which do not bear immediately on the representation and goal operations of self are not being considered at this point.

explanation (e.g. Nagel, 1974). Jackson for example (1982) joins Nagel (1974) in stating that an explanation of how it is that consciousness fits into the great scheme of things may forever elude us. A similar comment is also made by Fodor (1983, cited in Davies & Humphreys, 1993) who suggests that the mind is 'epistemically bounded' (see also McGinn, 1989) with an understanding of consciousness likely to be forever denied us.

From the above, it appears fair to say that there is not yet any genuine paradigm of consciousness research (Robinson, 1996; although see Wilber, 1997 for a recent attempt). There are no universally accepted core assumptions on which a general theory of consciousness could be built (Revonsuo, 1994), and we remain divided as to whether the phenomenon of consciousness is open to investigation at all. Expressed somewhat more optimistically, "one (still) has to admit that consciousness research is still in its infancy" (Metzinger, 1995; p. 7).

Yet despite the immaturity of consciousness theory, consciousness remains an important phenomenon, and *must* be considered in any model of personality (e.g. Dweck, 1996; McClelland, 1996; Hogan, 1998) or emotion (Zajonc, 1984; Lazarus, 1984). Below, the phenomenon of consciousness is considered within the motive and personality framework being developed.

Functionalism and consciousness

The current model considers consciousness (among other phenomena) from a functionalist perspective. Functionalism being the general view that mental states and processes (including consciousness) are best characterised and explained in functional terms (e.g. James, 1890; Dennett, 1991c; Dawkins, 1993; Niiniluoto, 1994). As such it is argued that consciousness must confer an adaptive advantage such that members of a species possessing consciousness are reproductively advantaged over those conspecifics that do not. Although functionalist approaches to consciousness have seen a high degree of critical attack (e.g. Rudd, 1997; Harnad, 1998), functionalism nonetheless remains the closest thing there is to a mainline view in contemporary ideas about the mind (Niiniluoto, 1994; Van Gulick, 1995).

Implicitly included in this particular theoretical orientation is a minor subscription to an approach that is variously termed physicalism, materialism, or physical materialism (e.g. McGinn, 1989; Searle, 1991; Graham, 1993; Strawson, 1997). This position assumes that mind and conscious mind are nothing more than matter, or at least can be understood at a physical level (Graham, 1993; Revonsuo, 1994; Corballis, 1999). McGinn (1989) for example, suggests that "There just *has* to be some explanation for how brains subserve minds . . . Consciousness, in short, must be a natural phenomenon, naturally arising from certain organisations of matter (p. 353; see also Panksepp, 1994a).

Searle (1992) advocates a similarly realistic interpretation of mental states. His theory emphasises the central importance, reality, and causal efficacy of consciousness. His so-called 'biological naturalism' takes conscious mental processes to be a causally relevant part of neurophysiological processes in the brain. In 1990 he claimed that "brains cause minds", and has recently interpreted the mind-brain relationship in terms of bottom-up causality from neurophysiological causes to mentalistic effects (Searle, 1992; p. 125).

Overall then, the current theory suggests that consciousness must be considered within a functional framework, insofar as consciousness bequeaths an adaptive advantage not found in non-conscious equivalents. However, accepting this premise is not as straightforward a matter as it first appears. If consciousness is indeed a structurally represented advantageous adaptation, what *exactly* does it add (over and above) non-conscious processes of the same type (Revonsuo, 1994; Chalmers, 1995; Harnad, 1998; Ellis, 1998)? Explaining the relationship between phenomenal experience and the function of consciousness is a primary concern for consciousness-research (Metzinger, 1995), and is currently referred to as the explanatory gap problem.

The 'Explanatory Gap' problem

"There's something that it's like to be a conscious thing"

Thomas Nagel (1974)

The consideration of consciousness from a functional perspective exposes a theory to a long-lived family of arguments. Currently referred to as the 'explanatory gap problem' (cf. Levine, 1983), the essential line of thought in such argument is as follows: Even if we gave an ideally complete physical description of a living human being — whether on the levels of overt behaviour, of neurophysiology or of abstract functional organisation — we would still have left something out; that person's subjective conscious experience, what it was like to be that person (Rudd, 1997)[6].

This 'gap' is clearly a problem for function-based accounts of consciousness. According to one critic, phenomenal experience adds nothing within a functionalist framework (Harnad, 1998). Harnad (1998) suggests that if we look at any alleged advantage more closely, it will turn out to be a functional advantage only. He further argues that the exact same functional advantage will remain intact even if one subtracts the conscious experience from it. Overall, he cynically concludes that the 'real' reason we are so adaptationistic about consciousness has to do with our experience with and intuitions about free will (Harnad, 1998).

Put simply, I do not agree. While the phenomenal consciousness must be acknowledged as a phenomenon of unsurpassed complexity, the mere fact that we do not understand exactly what advantage it gives, does not mean that the phenomenal consciousness itself occasions nothing functional. Certainly, it is possible that conscious awareness of self is nothing more than an epiphenomenal consequence of organisational complexity (e.g. James, 1890; Churchland, 1988, see below), yet this seems unlikely. More plausible is that phenomenal consciousness *is* functionally adaptive, but that we simply do not yet understand precisely how. In developing this assumption, the discussion below will outline a tentative theory of phenomenal motivation and meta-goal-management, thereby illustrating the functional advantages of phenomenal consciousness itself.

[6] Readers familiar with the consciousness literature will recognise the essence of the ongoing debate about Mary's experience of 'redness' here.

Chapter 7.5 - Reconciling functionalism with experience: An emotivational perspective

Before the theory is outlined, it must immediately be acknowledged that the current thesis is not primarily a model of consciousness, but rather of personality and emotions. As such, the ideas presented here are noted only briefly, and are intended as an introduction to the place of consciousness in personality development and functioning rather than as a treatise on consciousness per se. Nonetheless, given the importance the current theory attaches to consciousness and conscious experience in goal operations, some attempt must be made to operationalise consciousness within the functionalist framework being developed.

In developing the current position, the reader's attention is briefly returned to the central theses of Chapters 1 and 2. In Chapter 1, it was argued that an adequate model of personality or self must centrally attend to the importance of motives, while Chapter 3 considered the universality of goal-related feedback (emotions) in living systems. Chapter 2 outlined a similar ubiquity in respect of the organisational demands a life form faces. To this point then, the theory has outlined three relevant premises (as follows).

1. Every organism is motivated

2. Every organism has a means of organising its own motives (variously termed a personality (Chapter 1), a self (Chapter 2), or a motivational state space (Chapters 5, 6, & 7))

3. Every organism has a means of ascertaining motive status (feedback or emotions)

Given the overwhelming importance of these three concerns, it seems reasonable to initially suppose that phenomenal consciousness is somehow functional through its impact on motive-organisational systems. But what might this impact be? What does

phenomenal consciousness add to our fitness that establishes phenomenal experiences at the cutting edge of our phylogenetic development?

Ironically, a possible answer to this question is unearthed through more fully considering the relationship between the theoretical difficulties of consciousness research outlined above (the explanatory gap problem), and the effective organisation and operation upon motives. In essence, I argue that consciousness research has been hampered somewhat through pessimistic consideration of phenomenal experience as a *problem*[7] to be explained. In contrast the current theory suggests that rather than a problem, that phenomenal experience is in fact a clear *clue* as to the likely function of consciousness.

Put simply, as consciousness we inherit or develop the capacity to *phenomenally experience*[8] our own goal structure, state space, or self. Phenomenal experience is thus conceptualised as functional for it announces goals and changes in goal status (emotion) with an immediacy, saliency and flexibility that is simply not achievable in the absence of phenomenal experience. Direct, goal-related experience of self is *the* function of consciousness, an adaptive function that simply cannot be achieved in a non-phenomenal system[9].

Acceptance of this idea of course depends on what we think consciousness does. If consciousness is *no more* than a meta-cognitive attention, allocation, novelty, or analogy/prediction tool (e.g. Crook, 1980; Denton, 1993; Shanon, 1998; Calvin, 1998), then experience becomes little more than a theoretical nuisance[10]. Moreover, in adopting a strict cognitive science or information processing view as to the nature of consciousness, one is opened up to the objections above – why have experience at all?

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[7] Within the most recent literature (e.g. Chalmers, 1995; Libet, 1996; Rosenberg, 1996; Hodgeson, 1996; Shear, 1996) the explanation of experience is in fact the 'hard problem' (Chalmers, 1995) of consciousness research.

[8] In some ways the argument here is similar to that offered by Cairns-Smith (1996) when he suggests that feeling is the 'stuff' of consciousness.

[9] Nielsen (1998) has recently made a similar suggestion when she argues that emotional *experience* is one of the key means through which our conception of a unified self and our understanding of others as mental and experiencing agents develops.

[10] In a different context, dynamic systems theorists like Camras (1991), have argued that any form of meta-processor would quickly be paralysed by the sheer number of calculations it would be continually making (see Chapter 5.3).

It is the contention of the current theory that while consciousness is evidently associated with higher brain functioning and is usefully thought of as being built on the development of representational abilities (see below), these abilities in themselves do not constitute the function of consciousness. Rather, the function of consciousness is found rather in the *consequences* of the ability to phenomenally experience (as emotions) the dynamic status of one's own goal structure or self.

Damasio (1994) has recently provided some indirect evidence towards the importance of affect in a functional consideration of consciousness. He describes a patient who suffered a stroke affecting the anterior cingulate. For months after the stroke, this patient lay motionless and speechless in bed, with a full absence of facial expression. Damasio writes:

> "She never became upset with my insistent questioning, never showed a flicker of worry about herself or anything else. Months later, as she gradually emerged from this state of mutism and akinesia (lack of movement), and began to answer questions, she would clarify the mystery of her state of mind. Contrary to what one might have thought, her mind had not been imprisoned in the jail of her immobility . . . Rather, as she recalled "I really had nothing to say." ... It appears she had had no feelings . . . In short, there was a pervasive impairment of the drive with which mental images and movements can be generated and *of the means by which they can be enhanced.*" (p. 73, *italics added*).

Prima facie, this anecdotal data supports the idea that while consciousness *can* occur without emotions (despite her 'flatness' she was aware and could later reflect on her experience), such 'versions' appear comparatively maladaptive in their absence. Such clinical data suggests that any functional conceptualisation of consciousness should consider the relationships between consciousness and emotion/motivation.

Specifically, it can be seen that when an organism becomes conscious a whole new form of goal regulation is acquired. Firstly, multiple goals are now available as

representational data to the system. They can be managed in relation to one another more effectively[11] and an "I" can emerge (Marcel, 1988, cited in Van Gulick, 1993)[12]. More importantly, goal status changes (phenomenally experienced as emotions) are detected and corrected for in an immediately continuous, salient and flexible fashion. Emotions can operate as phenomenally motivating in addition to their operating as motivational impetus to the system per se (see Chapter 3, "Emotion" and Chapters 7 and 8). This new realm of motivation is self-evidently impossible in a non-phenomenal system.

Most importantly, the ability to phenomenally experience emotions and the self enable the phylogenetic and ontogenetic emergence of an expanded emotional repertoire. Emotions that directly bear upon the phenomenal experience of self such as pride, guilt, and shame are thus enabled.[13] As will be expanded upon in Chapter 8, the increased emotional repertoire made possible through the development of phenomenal consciousness has some substantial benefits to the fitness of homo sapiens, particularly given the social nature of homo sapiens. Although this conceptualisation does not directly address the problem of phenomenal experience, emotions bearing directly upon the experience of self (self-evidently) cannot exist in a system lacking a phenomenal consciousness of self.

Overall, the current theory considers the ability to phenomenally experience the status and structure of self to be a functional adaptation imparting goal operation capabilities that cannot occur in a non-phenomenal system. Furthermore, the ability to phenomenally experience one's own motive hierarchy constitutes an operational definition of consciousness. Earlier (see Chapter 2) the self was defined as "constituting the totality of an individual's hierarchical goal organisation or structure". In line with this definition, consciousness is initially defined as the *ability* to represent (and thus phenomenally experience) one's own motive hierarchy and its

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[11] Killeen (1991) suggests that human adaptive flexibility is "based on their unparalleled knack for modifying the local character" (of their state space) "though mentation" (p. 96).

[12] Of course at this point a non-phenomenal meta-goal management system would probably do as well.

[13] At this point it can be inferred that the current theory considers the development of consciousness and the representational state space to subserve these emotions. As such, their development is being conceptually linked to the development of consciousness rather than to cognitive development per se (e.g. Ellsworth, 1991). As will be expanded on in Chapter 8, this notion is directly in line with differential emotions theory (e.g. Izard, 1993; Izard et. al., in press) as well as the theory of Michael Lewis (e.g. Lewis & Michalson, 1983).

operations[14]. As noted above, this ability represents a biological likelihood for homo sapiens, emerging as a function of innate representational developments.

The phylogeny and ontogeny of consciousness

The section above has outlined a functional account of consciousness in which phenomenal experience of self is considered the crowning achievement of human adaptive fitness. While consciousness has been broadly conceptualised as resulting from the innate process of representational redescription, there has been comparatively little discussion regarding why representation is so central to consciousness. The following section will briefly consider both the phylogeny and ontogeny of consciousness, examining the developmental path of phenomenal experience.

The section is broadly divided into three interrelated parts. The first of these further considers the cognitive building blocks of phenomenal consciousness. Literature examining the self-concept in primates is briefly considered as bearing on the cognitive prerequisites of consciousness. Theory regarding the organisation and representation of motives is reintroduced, a distinction between representational abilities and the representation of motives or a motive hierarchy is introduced, and the phylogeny of consciousness is discussed. Finally, the utility of a 'consciousness level' concept is briefly considered, as is the place of the unconscious.

Organisational complexity and consciousness

More than a century ago, James (1890) suggested that "the distribution of consciousness shows it to be exactly as we might expect in an organ added for the sake of steering a nervous system grown too complex to regulate itself" (p. 141). In this statement, he unwittingly augured an entire family of explanation regarding the development of consciousness and its relationship to self.

[14] Once present, consciousness can also be usefully be considered a matter of degree. This notion is expanded upon below.

The dynamical systems principle of emergence considers mental states like consciousness to be inevitable properties of sufficiently complex systems (Skyttner, 1996; see Chapter 5). Within system-based accounts, consciousness can be thought of a causally emergent feature of complexity. Moreover, some accounts argue that consciousness "cannot be derived from the *composition* of the elements, but must be explained in terms of the causal interactions between the elements" (Searle, 1991; p. 111) – their arrangement or organisation.

In a slightly more experiential vein, Marcel (1988, cited in Van Gulick, 1993) suggests that the absence of phenomenal perception (consciousness) would result in the loss of the ability to form an integrated self-concept. Johnson-Laird (1983) likewise suggests that both planning and plan execution require knowledge of goals, their relative priority, as well as knowledge of mental capacities. All of which involves having a model of one's self.

While appealing in their parsimony, and indeed perhaps explanatory to a degree, accounts of consciousness that blithely link the phylogeny of consciousness to organisational complexity appear to fall prey to explanatory gap predation. Overall, there does not appear to be a good reason why a representational model of oneself should *require* phenomenal awareness or experience. The very same processes (and functional benefits) of meta-cognitive processing could be accomplished without phenomenal awareness of them (e.g. Harnad, 1998), though the evolution of non-conscious prioritising cognitions. Hence, while the current model acknowledges a correlational link between a system's organisational complexity and representational ability, complexity need not inevitably lead to or *cause* consciousness. Rather, the current model suggests that representations must be of a particular nature before consciousness is enabled.

<u>All representations are not created equal</u> . . .

In a preceding section, a brief theory was outlined regarding the process through which innate motives may become representational goals. During the discussion it was noted that developmental research has typically not concerned itself with the representation of motives or goals, although an argument regarding representational

redescription (Karmiloff-Smith, 1991) was extended by analogy to describe the representation of motives.

The consciousness research literature shows a similar emphasis on broad representational abilities, rather than on the representation of motive structures (goals) or the state space[15]. Crook (1980) for example suggests that consciousness is best thought of as a form of processing that combines the senses to create an analogue of the exterior (representation). Denton (1993) suggests that consciousness has arisen because it confers spectacular benefits, namely the ability to make the present congruent with the past, and to imagine the future. With this ability, notions can then be tested in the mind, not in nature (see also Shanon, 1998; Calvin, 1998 for similar conceptualisations of consciousness).

Yet many species display behaviours indicative of a capacity to represent the world or exhibit mirror self-recognition (Taylor-Parker & Mitchell, 1994), while failing to exhibit consciousness or a representation of their own state space (self) in a way that we can discern. To clarify this issue, the current theory advocates that a clear distinction be maintained between representational abilities per se, and the representation of an organism's entire motive hierarchy.

Numerous species exhibit behaviours that would appear to require the representation of the external world in some form (Dawkins, 1993). The behaviour of a group of lionesses hunting corralled cattle for example suggests that *each* lion must *at the very least* be able to represent the physical composition of the hunting site. More realistically, they must likewise hold some representation of their 'plan' (motivations), the *likely* behaviour of both their accomplices and their prey, and the combinations thereof.

While it may forever remain a matter for debate, explaining the behaviour of a lion in this situation is achieved more realistically through ascription of representational ability than through instinct. It can of course be argued such behaviour is no more than an instinct. However, the term instinct becomes considerably less useful when

[15] Within the current theory this is a critical (if somewhat speculative) issue. As such, it would benefit from considerable developmental and comparative investigation.

used to describe behaviours that exhibit this degree of flexibility. So let us assume for the moment that the lion (along with a number of other species) represents the world in some form[16].

It is however my contention that not all representations are created equal. As has been noted above, both the exterior world and aspects of the system could theoretically be (and are) represented without conscious awareness or experience of the organisation itself (an explanatory gap). Moreover, not all organisms that are capable of representation display consciousness in a form that we can discern. Consequently, there would appear to be something that differentiates among representations, and as a result among species.

As has been intimated above, the current theory holds that the difference between a conscious and non-conscious system lies in the *content* of the representations, in exactly *what* is being represented. While many species evidently represent the world, and may even be able manipulate symbols,[17] evidence that species other than ours represent their own motive structure is less forthcoming.

One possible exception to this claim is the work examining the development of the self-concept in species other than our own. If it could be indisputably shown that animals possess a concept analogous to that of 'I,' we could (depending on what we consider 'I' to be – see above) reasonably suppose that they were conscious (Lewis et. al., 1989). Unfortunately, evidence from this area remains equivocal (Taylor-Parker & Mitchell, 1994).

Most animals treat an image (in a mirror) as one of a conspecific (Corballis & Lea, 1999). However, Gallup's (e.g. 1975, 1977) classic work with chimps has been

[16] It must be acknowledged that Dawkins (1993) using a similar reasoning suggests that it is simpler and more plausible to think that many other species do have conscious experiences, than it is to think that they do not.

[17] The relationships between language, mind and consciousness are inevitably complex, and unfortunately beyond the scope of this discussion. In a recent review, Byrne (1999) has suggested that the great apes (but not monkeys) are capable of symbolic representation. On this basis, Niiniluoto (1994) has suggested that they *may* be able to think of themselves as an individual extended in time. Unfortunately, even supposing that symbolic language exists in the great apes (see Bickerton, 1995, cited in Corballis & Lea, 1999 for a differing interpretation of the same evidence) does not necessarily answer the question as to whether they are conscious of themselves.

interpreted as showing the awareness of self (e.g. Byrne, 1999). Using a self-recognition paradigm, Gallup (1975) found that chimps could recognise 'themselves' in a mirror with some training. Interestingly, wild chimps (without training) continued to treat the image as one of a conspecific. Macaque and rhesus monkeys, as well as gibbons fail to show awareness *even with* training.

Taken together these results may indicate something of a learned element in the consciousness awareness of the system's motive hierarchy, a point that will be returned to below. Moreover, the evidence may suggest that humanity does not have a monopoly on consciousness or the representation of self. However, prior to the discovery of less contentious evidence (and presumably the development of new experimental paradigms), it seems reasonable to propose that homo sapiens and perhaps our nearest relatives the great apes (Taylor-Parker & Mitchell, 1994) are alone in fully representing a motive structure to the point where it is capable of being phenomenally experienced or manipulated. More importantly in terms of the current discussion, where there exists the suggestion of consciousness in other species, that same species shows not only representational ability, but moreover, exhibits the ability to represent (or operationally to recognise) some form of self.

Implication 1: Distinguishing between pre and post-self selves?

As was mentioned previously, the current model suggests that the motivational state space we term personality or self emerges inevitably, its form dictated by biologically and emergent constraints. The semi-fluid nature of an individual self is thus derived incrementally through the interactions between ongoing socialisation processes and inherited biological constraints (reflexes, innate motives, and temperament). It is a basic assumption of this model that a primitive organising construct (self) exists prior to language, to the experience of that construct (Stern, 1985), and perhaps even to birth.

The current model has also suggested that most human infants will develop an awareness of self – become *conscious*. Cognisance of the organising construct occurs in a manner as inevitable as the presence of the construct itself, no matter how unpleasant, unfortunate, or dysfunctional the experience and process of organisation

may be. Like other species, homo sapiens are predisposed to organise, and the transition to consciousness occurs as the motivational hierarchy is represented.

In addition to affirming the biological nature of self, the model presented here further advocates that a clear distinction be maintained in our conceptualisations of the motivational state space that is self before and after *phenomenal awareness* of that same space emerges. Such a distinction is useful for a number of interrelated theoretical and methodological reasons that are briefly discussed below. Overall, the distinction underscores the current author's belief that the transition to self-awareness represents a critical juncture in the development of personality. More specifically, it is suggested that the orderly development of consciousness is both a parallel and a consequence of a profound developmental transformation in the manner in which the contents of personality (motives or goals) are acquired, represented, organised, experienced and acted upon.

The first reason that we might distinguish between pre and post-self selves is theoretical, and initially involves simply reminding ourselves as to the distal origins of the expressly human self (Dennett, 1991a). According to British biologist D'Arcy Thompson, "everything is what it is because it got that way" (1917, cited in Dennett, 1991a). Dennett (1991a) himself further argues that logic must dictates the presence of a *process* underlying the phylogenetic history of selves – one that eventually yields a being with the self of homo sapiens. The ontogeny of the human self appears to recapitulate the phylogeny of self-like structures in other organisms (see also McDougal, 1908). That is, development gradually transforms the human self from a simple reflexive perceiver, organiser and responder that we might see in any number of other species, to the breathtakingly flexible, representational construct that we can observe in the human adult.

Consideration of the evidence from developmental psychology supports a similar distinction. Prior to the emergence of self-awareness, the self of a newborn appears to *function* much like that of any other (non-conscious) organism. In the early months of development, primitive organisational goal-directedness is hard-wired, and operates directly through the perceptual and reflexive response systems (Piaget, 1962; Eibl-

Eibesfeldt, 1989) that are built into the self. Certain conditions and certain associated responses are hard-wired into the motive hierarchy (see Chapter 3).

Recent writers in the area of cognitive development (e.g. Diamond, 1991) have argued that the presence of reflexive behaviours may in fact *interfere* with the infant's ability to behave both as they desire, and in a way that would be taken as indicating certain representational developments. Nonetheless, prior to the emergence of he conscious self, both the goals and the responses (including emotional responses) of the newborn are best conceptualised as comparatively reflexive. The very young infant reveals that it is hungry, cold, discomforted and so forth via the emotionally-ascertained connections between a given stimuli and existing motivations.

An additional rationale for the distinction relates to the overarching concern of the current theory to separate function from experience(s). It is not a developmental model about experiences of the self, except insofar as changes in experience relate to the manner in which the system functions. So while changes in the experience of self are important, the current model seeks to underscore the utility of a *functional* transformation – that between pre and post self selves.

A final rationale supporting the proposed division is of a methodological nature, and relates to the means by which we might ascertain changes in goal representation (self). Although it may always remain a matter of debate, to discuss whether the newborn *experiences* or is aware of goals in its state space is unnecessarily speculative. Few scientists would argue that an infant is fully conscious at birth, helplessly awaiting the acquisition of the linguistic capacities it needs to communicate its cognisance. Expressed most forthrightly, we may never have a way to inquire *directly* about the experiences of a pre-verbal life[18].

Drawing upon the inferences that *are* possible from the way infants behave, and guided by theories about infant cognitive development (Piaget, 1962) and consciousness (e.g. Jaynes, 1991; Dennett, 1991b), it seems more useful to suggest

[18] Eccles (1989) suggests that this is no reason to presuppose that pre-verbal infants are also pre-conscious. In as far as this argument goes, I agree. However, the manner in which infants behave, as

that behaviours occurring before the presence of self-consciousness are non-reflective and frequently reflexive. That is, infant behaviours occur reflexively in response to the perception of particular stimuli, and according to emotionally-determined connections between stimuli and behaviour. In response to most stimuli, there are no 'decisions' to be made, rather the organism simply 'does.' Pain and discomfort are avoided, food and water are sought, as are warmth and support (see Chapter 5.4 and the discussion on emotion-behaviour links in Chapter 8).

Exactly when the transition between pre and post-self selves occurs will inevitably be a definitional concern. The changes in the self structure that occur across the first two years of life are likely to occur along a continuum, involving the interrelated development of linguistic, emotional, cognitive, and memory control parameters. Nonetheless, the division proffered, and the particular status or nature of the state space during the acquisition of goals has profound implications both for personality and for adult personality change. As noted, it is possible that the goals acquired before the emergence of a self-aware-self are represented in a non-verbal form that persists beyond the transition to representational self-awareness. Consequently, these goals are likely to be retained in a different form, and are likely to be very difficult to identify or change.

Implication 2: A dimensional definition of consciousness?

In the sections above, consciousness has been discussed as a qualitative matter. However, consciousness is also fruitfully conceptualised as a quantitative consideration. According to the current theory, goals and goal processes are not limited to a conscious level (Klinger, 1987; Locke & Latham, 1990; Austin & Vancouver, 1996, see Chapters 7 and 8). Rather, the 'consciousness' of a goal and any goal processes is left open as a dimension of both the goal and the personality structure. Austin and Vancouver (1996) for example, suggest that the level of consciousness may be static for some goals while for others it may be dynamic. Following this, a similar suggestion is readily made at a slightly more global level in order to differentiate between individuals. People vary considerably in the extent to

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well as phylogenetic and ontogenetic theories of representational development, suggest both validity and utility in considering the infant as possessing a pre-conscious (and comparatively reflexive) self.

which they are conscious of their own goal structure (self), and in the degree to which they consciously self-regulate goal-related processes (Locke & Latham, 1990).

The current theory thus conceptualises consciousness in three different ways. Firstly, there is the initial qualitative distinction outlined above, separating conscious from non-conscious systems. The operation of consciousness in individual life is then separated by two further distinctions – one relatively static, and one highly labile. Firstly, individuals appear to differ substantially in the degree to which they are conscious of their own goal hierarchy. Within the current theory, this represents the comparatively static aspect of individual consciousness, and is hypothesised to arise developmentally as a motivated 'decision' in a manner similar to that suggested by Adler (1927, 1931). The degree to which people are able to consciously represent motivations in their personality hierarchy (see Chapter 6) has important implications for health, therapy, and personality change.[19]

The final conceptualisation of daily consciousness (microdevelopment) is more labile, and arises from an application of dynamic systems principles (see Chapters 5 & 6). While individuals are expected to show relatively stable 'degrees' of consciousness, the contents of consciousness and the consciousness of particular areas in the state space also fluctuate rapidly as a function of a number of other factors. As dynamic systems approaches explain, these factors (control parameters in microdevelopment) need not be endogenous, but can exist within the task, the situation, or through the interventions of other people[20].

Imagine for a moment that you are speaking to a friend who has just suffered a major setback in their vocational pursuits. They describe the circumstances surrounding this setback and then wait for your response. In one possible scenario, you empathically touch them on the shoulder, and speak to them, acknowledging the major

[19] Emmons (1992) for example has shown that people who typically describe their goals at more abstract levels suffer a greater amount of psychological, but less physical, distress (cf. Pennebaker) during goal pursuit (see also McGregor & Little, 1998). Although his approach does not directly examine the concept of a consciousness level and its implications for emotions and health, it does suggest that consciousness may be a personality variable.

[20] There is insufficient time for a full discussion of how various factors might lead to changes in the microdevelopment of consciousness regarding particular motives, although the role of emotions in this process is covered in Chapter 8.

disappointment that (you think) they must feel. In response to your intervention, the friend agrees with you and becomes fully aware of their disappointment.

In another possible response, you suggest to them that such an outcome is probably for the best, as it will enable them to undertake a number of projects that they have been interested in for some time. In response to your comments the friend is enlivened and exhilarated, and proceeds to excitedly discuss how these new projects might best be undertaken.

Within the current theory, the difference in the friend's response lies in the particular area of their personality that your intervention directs them towards. In dynamic terms, your intervention acts as a control parameter for the microdevelopmental (real-time) reconfiguration of their state space. In the first case you have (perhaps unwittingly) provided an external control parameter for the microdevelopmental emergence of motivations regarding failure, self-esteem, and the like. Your intervention has made these goal groupings considerably more salient for them, with a consequence that their emotional reactions now occur in respect of this goal grouping rather than another. In the second instance, your intervention has been influential in creating a completely different configuration.

Overall, there are likely to be strong interactions between a number of factors in determining the felt response to goal related change. This list includes (but is not limited to) the friend's general level of consciousness, the relative importance of each motive grouping within their personality system, the relationship between your response and each motive grouping, your relationship with the friend and so forth. Taken as a whole however, the brief discussion above is indicative of the advantages of considering consciousness from a multiplicity perspectives.

Concluding remarks

The current theory has suggested that it is the ability to represent and consequently experience *the entire motive structure* (self) that initially characterises or defines a conscious (or phenomenal) system. More specifically, the theory above has argued that the ability to represent one's own motive structure is a qualitatively different

concern from representational ability per se. Given the current state of our knowledge, it is understandably difficult to make claims regarding consciousness in species other than our own. The multiplicity of perspectives regarding the nature of consciousness, mind, and self, coupled with the methodological limitations inherent in investigating a non-language using organisms mean that it may be some time before consensus is reached. As noted above, new developmental and comparative paradigms will ultimately be needed to resolve this question. Notwithstanding such adversity, the current theory suggests that consciousness be initially defined as the ability to represent the entire motivational state space or personality. Perhaps unfortunately, this definition necessarily involves an unspoken operational criterion, namely the ability to communicate such representation to researchers.

Developmentally, the ability to represent motives appears to emerge sometime between 18 months and two years of age in homo sapiens (Lewis & Michalson, 1983; Lewis, 1990a, 1990b, 1992, 1993, 1998b). While developmental research that explicitly considers *motive* representation as opposed to representation or an understanding of the motive concept is lacking, the data and theory that are available supports the current emphasis on motive representational ability as critical in the ontogeny of consciousness.

Following Karmiloff-Smith (1991), it has been suggested that that the self-representation of a motive structure is an innately determined event for homo sapiens, guided by endogenous processes which systematically transform innate motives to a representational form. While there are almost certain to be many environmental influences on the unfolding of the representational self and consciousness, the theory above has argued that the representation of the motivational state space that we experience as self and consciousness are inevitable and critical developments for the human infant

Chapter 5: The process of infant motive and personality development: Dynamic systems, control parameters, and innate constraints

Chapter 5.1 – Introduction

Thus far, Section 2 has outlined five broad areas in which innate motives are thought to exist. Although the exact listing offered is specific to homo sapiens, it has been argued that motives representing each of these areas are shared by all living organisms. It has further been suggested that the manner in which these motives operate and are experienced vary as a function of both phylogenetic and ontogenetic capacities, but that innate motives must nonetheless constitute the elemental starting point for the development of representational goals and personality.

Moving from this basis, Chapter 5 will provide the beginnings of a dynamic systems (DS) framework within which to consider the post-natal development of personality/motive development. It will begin by offering a brief critique of centralised models of infant development and then outline the basic tenets of dynamical systems theory. DS approaches are then evaluated in terms of their potential applications to motive development, and a 'motivational rinse' is applied to the basic precepts. There will be a broad examination of the domains in which infant development occurs, specifically examining the ways in which motive concerns are relevant to, influence, and constrain developmental trajectories.

Chapter 5.2 – The Rise of Systems Theory in the context of 'black boxes' and linearity in traditional models of development

Introduction

The current section will briefly consider infant motive development through discussion of recent developments in dynamic systems theory. Within current developmental frameworks, infant development appears almost unimaginably complex (Thelen & Smith, 1994). This complexity, coupled with the rise of

information processing as a framework has led to the creation of numerous 'black box' theories of infant development, that consider development as principally directed by centralised developmental processes.

Below, it is suggested that linear, centrist models of infant development were not intended, and are not well suited, to explaining the complexity and indeterminism inherent in the process of development. Assumptions of centrism, linearity and teleology inherent in such models are briefly critiqued in order to indicate the limitations of these frameworks. Following this the basic assertions of dynamic systems approaches to development are presented as a viable alternative.

Attention is drawn to the way in which developmental continuity and discontinuity can be seen to emerge from non-linear interactions between the components of living systems. Concepts from a moderate systems view are presented in the context of infant motive development, and motives themselves are offered as a key endogenous *control parameters* and phylogenetic *constraints* in infant development.

It is then argued that the infant personality system or self is highly *permeable* or *sensitive to initial conditions*. As such, constrained inputs to the developing system of the very young infant have a profound effect upon the eventual form of their personality, while latter inputs must contend with the increasing inertia of the personality system for influence. Overall, the section will suggest that while underdeveloped, that dynamic systems principles can nonetheless be powerfully applied to infant motive and personality development (M. D. Lewis, 1997).

The Rise of Dynamic Systems theories

While dynamical systems (DS) approaches were first applied in the psychological sciences to overcome problems with traditional accounts of motor behaviours and development (Camras, 1992), dynamic systems principles are currently being applied in a much larger number of psychological domains (see Thelen & Smith, 1994; M. D. Lewis, 1996; Vallacher & Nowak, 1997; M. D. Lewis & Granic, 1999, for recent overviews).

Most pertinently, DS concepts are currently being applied to a large number of areas in the study of human development. Beginning with Piaget's and Vygotsky's systemic ideas, dynamic approaches have recently been elaborated in attachment (M. D. Lewis, 1995), motor (Fogel & Thelen, 1987; Thelen & Ulrich, 1991; Thelen & Smith, 1994), communicative (e.g. Fogel, 1990), self-regulatory (Fogel, 1985, cited in Fogel, 1990), cognitive (M. D. Lewis, 1994, 1996; van Geert, 1998), emotional (Camras, 1991, 1992, 1994; Messinger, Fogel, & Dickson, 1997; M. D. Lewis & Douglas, 1998), neuronal (Schore, in press), and personality (Magai & Nusbaum, 1996; M. D. Lewis, in press b) development.

Dynamic systems approaches, especially in their more moderate formulations (see e.g. M. D. Lewis, 1995, 1996, 1997; M. D. Lewis & Douglas, 1998) present a powerful challenge to current developmental frameworks, particularly those operating from an information processing perspective. Overall, the challenge mounted is made at so many levels as to be near-paradigmatic, and has occurred for a number of interrelated reasons. These are briefly described below.

Firstly, DS approaches (e.g. Fogel & Thelen, 1987; M. D. Lewis, 1994; Thelen & Smith, 1994) suggest that many of the major developmental frameworks (maturationist, neurological, nativist, and information processing) are weakened through adherence to a 'centrist dogma' (Camras, 1992) or 'top-down bias' (Camras, 1994). Essentially, this criticism is levelled at assumptions regarding the supposed presence of unobservable *executive* mechanisms that direct development. While the generation of unobservable constructs is inherent in much theorising, the use of *centralised* and *deterministic* developmental mechanisms creates a number of problems.

The major difficulty engendered is to explain how the degrees of freedom in human development appear so very, very large (Thelen & Smith, 1994). Explaining the large amount of same-age diversity between and within subjects is problematical for central models at both macro and micro levels of development (see below). In each instance of activity (microdevelopmental context), it has been argued that a centralised command system would be overwhelmed by the vast number of computations required for adjustment in task demands and action context (Fogel & Thelen, 1987;

Camras, 1992, 1994; M. D. Lewis, 1994; de Ribaupierre, 1994). So for example, the coordination of an activity as simple as reaching to take a pen involves the organisation of a large set of muscles that (in theory) can be combined in a virtually limitless number of ways. Yet at the same time as patterns are enacted with almost infinite minor variations (involving compensation to features of the task and action context), patterns and recognisable commonalities are clearly discernible.

It has typically been argued that development is a sequence of small progressions, that it has "pre-wired" directionality, and therefore an endpoint (Thelen & Smith, 1994; M. D. Lewis & Granic in press). Prima facie, this appears a common-sense position. Infants typically learn to crawl, toddle and walk in the same order, at approximately the same time (although see above). Likewise, the recognition and expression of particular emotions appear at very nearly the same time and sequence[1].

However the mere presence of description-level parallels does not, in itself, support the *explanatory* mechanisms of the centrist position. According to Thelen and Smith (1994), developmental theory began as a descriptive catalogue of development, that has subsequently been reified to the point of becoming explanatory. As is expanded in the following sections (see Chapters 5.4 and 5.5), the ultimate 'why' questions of development are obscured or ignored, rather than explained, in centralised developmental models.

Methodologically, the adherence to centrist models has led to an emphasis on skills and task performance rather than on capacities (Fischer & Biddell, 1991). This confound, between *demonstrable* performance and *inferred* capacity, occurs in circumstances where there exists no practical justification for doing so. Thelen and Smith (1994) for example suggest that the young child might possess considerable cognitive competence, but because of immature memory, attention, or linguistic skills can only rarely manifest these competencies in a performance (see also Camras, 1991).

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[1] The distinction between sequencing and timing in development is important within the current model, and will be returned to below (see Chapter 5.4). Given the overall emphasis of the current dissertation

Overall, the introductory discussion above provides some interesting food for thought, if not an outright challenge to our most fundamental assumptions about development. Centrist models of development appear problematic in many respects, and it appears doubtful whether these shortcomings are surmountable through continued theoretical developments of the same genre. Below, concepts from dynamic systems are offered as an alternative framework better suited to describing and explaining stability and change in personality and motive development.

Chapter 5.3 – Concepts from Dynamic Systems Theory

Emergence, self-organisation and non-linear complexity

> *" . . . life is process, not substance."*
>
> Weiss (1969, cited in Fogel, 1990)

In seeking to solve some of the problems above, dynamical systems approaches (e.g. Fogel & Thelen, 1987; Thelen, 1990; Fogel, 1990; Thelen & Smith, 1994) invoke principles of great generality. These are principles of non-linear dynamic systems, and concern problems of emergent order and complexity, or how structure and pattern emerge from the interactions of many parts (Thelen & Smith, 1994; van Geert, 1998).

Dynamical systems approaches are an attempt to account for the organised coordination of complex systems involving a nearly infinite number of possible actions or states (Camras, 1991). Dynamic systems approaches trace the emergence and stabilisation of novel, coherent structures out of *non-linear* interactions among lower order components. In information-processing terms, DS models could be described as predominantly "bottom-up." When sufficient energy is applied to an open system (living or not), new, ordered structures *spontaneously* appear. More importantly, these new developments may not have been apparent previously and in any case could not have been predicted solely from the characteristics of the individual elements (Thelen & Smith, 1994).

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and the current state of theorising in DS, it is believed that sequencing provides a clearer window to

A central tenet of dynamic systems models then is that "order, discontinuities, and new forms emerge precisely from the complex interactions of many heterogeneous forces" (Thelen & Smith, 1994; p. 37). According to DS theorists, all complex systems are inherently 'noisy' (Thelen, 1990; Killeen, 1992), and thus their behaviour cannot be predicted linearly. In a related vein, Krantz (1998) and Michael Lewis (M. Lewis, 1997, 1998a) among others[2], have recently discussed a notion of similar indeterminacy in theories of infant development. They suggest that *chance* plays a critical role in the developmental process and contrast the traditional view (above) with the idea that developmental changes may be the result of complex emerging connections that are often random, and certainly unpredictable.

In DS approaches to development, this non-linear, emergent creation of new structures is called *self-organisation*, and can be witnessed in molecular change, chemical reactions, biological evolution, morphogenesis, ecology and population dynamics (M. D. Lewis, 1996, 1997). Importantly, dynamic systems theorists like van Geert (1998) have suggested that systemic arrangements can construct higher levels of complexity without being issued new resources or contents by an external source. According to DS, increasing complexity through self-organisation is of central importance in any general model of development (M. D. Lewis, 1996; van Geert, 1998).

From a selectionist view, the inherent variability of any system provides the population of movements or states from which categories are pruned. Contextual sensitivity is the means by which pruning is accomplished (Thelen, 1990). There is increasing evidence that constrained variability – mathematically known as *chaos* – is a major source of adaptive flexibility in biological systems (Killeen, 1992; Skyttner, 1996). Functionally speaking, chaotic activity endows the system with some deterministic patterning, but with sufficient background or inherent variability to be able to instantly reorganise in the face of new demands.

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macrodevelopmental processes than do more labile "timing" measures.

[2] See Psychological Bulletin (1998), vol. 9 for a special issue considering *chance* in the social sciences. Although the volume tends to consider 'environmental' chance or 'fortuitous' events rather than inherent chance elements within living systems, the volume's emphasis on indeterminism underscores the emergent nature of the DS framework within the social sciences.

Marc Lewis has recently suggested that self-organisational processes may be thought of as occurring across either two (M. D. Lewis, 1997) or, more recently, three (M. D. Lewis, in press b) distinct time scales. Firstly, systems self-organise in microdevelopment, responding uniquely to the contextual demands of task, environment, and their current state. Secondly, systems organise across periods of moderate duration (mesodevelopment), as in the emergence of a mood[3]. Most importantly in terms of the current theory however, systems self-organise across what Lewis refers to as 'developmental time' (M. D. Lewis, 1997, in press b). According to Lewis, the systemic configurations that repeatedly emerge in microdevelopment become progressively more stable across developmental time (macrodevelopment). As is discussed below (see Chapters 5.4 and 6), the manner in which developments build upon one another or cascade across timeframes is central to an understanding of personality.

Sensitivity to initial conditions axiom

In dynamical systems, non-linearity is strongly reflected in what is called *sensitivity to initial conditions* (e.g. Thelen, 1990; Fogel, 1990; M. D. Lewis, 1994). Although some interpretations of systems ideas (e.g. Fogel, 1993; Thelen & Smith, 1994) suggest that initial conditions can be defined at any point in the developmental trajectory[4], the current discussion will focus predominantly on heritable initial conditions. Nonetheless, rather than define an endpoint, initial conditions merely set the stage for emergent properties that self-organise under certain conditions.

Within dynamic systems, idiosyncratic pathways and individual differences are thought to derive from the amplification of small differences that cascade and consolidate over time (M. D. Lewis, 1997). Small variations in context, interpretative bias, mood, and other factors affect the initial conditions of self-organising appraisals, such variation being enhanced by feedback (M. D. Lewis, 1996; Skyttner, 1996).

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[3] For the purposes of this discussion, time scale considerations are only considered in terms of micro versus macrodevelopment.

[4] Within strong versions of dynamic systems approaches, initial conditions can be defined at any moment. As such, heritable factors constitute initial conditions only at one juncture. The current theory makes no claims about this matter, accepting that the concept of initial conditions may include genetics and phylogenetic history, intra-uterine environments and experience, and early experiences *depending on the phenomena of interest.*

Thus a great variety of subsequent self-organising processes can emerge from the same (objectively defined) situation, simply on the basis of prior sensitivities.

Such differences can then initiate exponential transformations of the entire system, what is termed a *phase shift*[5] or *transformation of state space*. The most commonly used example of this sort of systemic change is global weather. This is a system characterised by deterministic chaos, wherein the system's sensitivity for initial data eludes prediction (Skyttner, 1996). The so-called "butterfly effect" where the flutters of the wings of a butterfly start air movements which end up as a hurricane has fascinated many and captures something of the unpredictability of complex systems and the magnitude of the changes possible.

Given the importance attached to initial conditions, the next step becomes to identify likely candidates. What are the factors that constitute these critical 'initial conditions' for the human infant? Genetics are one evident factor, although recent theory has suggested that genetic influences cannot be understood apart from the environment (Tooby & Cosmides, 1990a). Additionally, strong positions within dynamic systems theory suggest that genetic information does not contain *any* a priori information as to the precise succeeding patterns. Rather it merely sets the stage for emergent properties that naturally organise under particular conditions (Thelen & Smith, 1994).

In Marc Lewis' (M. D. Lewis, 1996, 1997) recent theory, substantial attention is given to heritable uniformities in behaviour, thought, and emotion. According to Lewis, the potential for intra-system linkages or *couples* (see below) is facilitated by the capacity for elements to communicate with one another. This capacity is determined by the interactive sum of the system's phylogenetic and ontogenetic history. Biological, cultural, and experiential factors may all play a part in that history.

A final implication of the initial conditions axiom is that a system (personality) will become more stable over time, as the structures and arrangements that emerge are stabilised through feedback (M. D. Lewis, 1994, 1996; see also McCrae & Costa,

[5] See Vallacher & Nowak (1997) for a more detailed discussion of types of phase shift.

1995 for a trait-based theory of similar slant) and cascading emergent constraints (M. D. Lewis, 1997). This point is returned to below.

The Emergence of Order

For the scientist, the picture of development painted to this point is bleak, if interesting. Yet despite the complexity of development alluded to above, there is a remarkable orderliness to the process of human development (Thelen, 1990; Thelen & Smith, 1994). Perhaps moreover, development is also progressive in nature. Rarely does an organism revert to earlier forms once new structures or abilities emerge[6]. Given the basic assumption of dynamic systems models that the end state of the organism is not instantiated at the beginning (see above), a primary task for a systems approach to development is to explain how global trajectories can emerge from diverse, heterogeneous and dynamic local effects (Thelen & Smith, 1994).

According to dynamic systems writers, the first part of the answer lies in the same processes that lead to change (Fogel & Thelen, 1987; Killeen, 1989). Fogel and Thelen (1987) for example suggest that stability and change are both fundamental characteristics of biological systems. Fogel (1990) argues that patterned regularities emerge in the dynamic process, not because there is a higher control centre, but because the parts submit to the restraints exerted upon them by the activity of the whole. The self-organising process creates regularities or patterns rather than random associations.

In Thelen's (1990) theory, any stable configuration of a system can be thought of as a *preferred* or *attractor* state. The concept of a preferred state means that although the system contains no prescriptions ahead of time for that form, it nonetheless settles into it under certain conditions. Put another way, the system selects or is attracted to preferred configurations (Thelen & Smith, 1994). Consequently, systems are thought to remain dynamically stable, not fixed, but preferring and strongly attracted to particular configurations.

In DS approaches, the limitations that govern the potential form of the system at a given time are referred to as *constraints*. The notion of constraint used in this sense is not merely genetic, environmental or a linear interaction between the two. Rather, constraints can exist at any and all levels. So for example, the nature of the nuclear and cytoplasmic chemical composition of humans, their growing anatomical structures, their prenatal milieu, and the nature of their physical and social world after birth can interactively define (or constrain) the *state space* in which the developing system can assemble (Thelen, 1990; Thelen & Smith, 1994; M. D. Lewis, 1997). Put more simply, variability must have its limits (Thelen, 1990). While systems retain a good deal of 'noise,' there are genetic, chemical, and physical constraints on development (Thelen & Smith, 1994).

Dynamic systems approaches acknowledge the presence of pre-existing, evolutionary constraints such as survival and reproduction (Fogel & Thelen, 1987; M. D. Lewis, 1994). However, they have tended to be imprecise in their consideration of what these might be, and to unnecessarily emphasise the organism's inherent need to compromise between the specific constraints laid down by phylogeny and those that emerge during development. Moreover, some exponents of DS (e.g. M. D. Lewis, 1997) have recently suggested that pre-existing constraints only exert their impact through emergent (derived) constraints. This notion is more fully considered in the following section.

According to systems theorists (e.g. Thelen, 1990; M. D. Lewis, 1994, 1996) a second source of stability in living systems is found in the hypothesised process of *coupling*. The concept of coupling is essentially similar to the assimilative process originally envisioned by Piaget. According to Piaget, repeated experience of a particular type of activity leads, via assimilation, to an increase in the efficiency in the operation. In dynamic terms, the iterations involved in feedback stabilise over time, and orderliness emerges due to repeated association or coupling among the elements of the system (M. D. Lewis, 1994, in press b).

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[6] This is of course an oversimplification. As will be discussed later in the chapter, there are occasions (usually those involving profound stress to the organism) where a developmentally more primitive functioning may re-emerge.

Within strong versions of DS (e.g. Thelen, 1990) elements simply organise on the basis of their frequent association. No a priori executive mechanisms are necessary to explain regularity, rather categories of the mind emerge because they represent the dynamic association of perceptual invariants and often performed actions (Thelen, 1990)[7]. As noted above, this process constitutes an important element in personality development, as initial biases and beliefs become increasingly articulated and crystallised over a lifetime (M. D. Lewis, 1996, 1997). Recurrent couplings create *attractors* in the system's state space, which then develop in a manner similar to cascading constraints outlined above.

However, more 'moderate' versions of DS approaches to development (e.g. M. D. Lewis, 1997) accept that certain configurations or couplings (say between a certain class of goal relationship with an emotion) may be pre-specified at birth (see e.g. Ackerman, Abe, & Izard, 1998). Although the precise nature of this 'pre-existing couple' remains unelaborated in M. D. Lewis' (1997) chapter, it seems a more reasonable position than that of Thelen (1990), especially given the evidence derived within nativist approaches to emotions (e.g. Izard, 1971, 1991; Magai & McFadden, 1995). As such, the notion that the relationships between elements in a system like an emotion can be more or less constrained will be returned to below (see Chapter 5.4), in Chapter 6, and again when emotions are fully considered (Chapter 8).

Concluding Remarks

Overall, dynamic systems theory is a ripe and fruitful area of theoretical development, highly suited to capturing both stability and change in human development (Killeen, 1989). Through the application of the concepts of non-linearity, self-organisation, and emergence, it neatly sidesteps some of the problematic issues inherent in traditional centrist models of development. The sensitivity to initial conditions hypothesis is almost ideally suited to describing data from both personality and motive development, while the notion that development may proceed asynchronously, as the system simply recruits elements from within itself in order to *function* in context is almost subterranean in its profundity.

[7] The frequent association between elements in a system has important implications for the conceptualisation of emotions, hence will be the topic of considerable discussion in Chapter 8.7).

Although the gap between the tenets of DS and their translation to empirical studies of the developmental process (Thelen & Smith, 1994) is unfortunate, the breadth of the theory creates the possibility of enlightening experimental work. In widening the concept of control parameters to include other than neural, cognitive, or even intrasystemic development, to include peripheral, contextual or task factors, a framework more amenable to ethical experimental manipulation of these same parameters is created.

And yet there is a sense in which *extreme* dynamic systems theorists (e.g. Fogel & Thelen, 1987; Thelen, 1990; Thelen & Smith, 1994) appear unnecessarily reactionary. The near complete denial of innateness or pre-specified connections (or at least the equating of 'innate' or 'heritable' with end state instantiation) is ultimately unhelpful (see Thelen & Smith, 1994, p. 33). Perhaps moreover, such a position does not mesh well with either theory or data from emotion and functionalist-motivational approaches to human development or functioning (e.g. Malatesta & Wilson, 1988), especially that of a cross cultural nature (see Mesquita & Frijda, 1992; Scherer, 1997 for recent reviews).

Similarly, substantial theoretical and empirical work is needed to clarify the concepts of control parameter and constraint. While the tenets of DS are very useful, the applications to date have been particularly inexact in discussing exactly *what* might constitute the important constraints or control parameters in development. Although such vagueness is no doubt partly a function of the asynchronous conceptualisation of development within DS (suggesting that such constraints and parameters vary considerably and may be highly specific or transitory), careful theorising is nonetheless needed to illuminate potential candidates.

In sum, the current shortcomings of DS approaches are nowhere more evident than when we consider motive and personality development. As discussed above (see Chapter 3), some form of motivations must be pre-specified, else we conceptualise of an inanimate, improbable and fitness-impoverished creature. However, a moderate systems approach in which DS concepts are placed alongside conceptually well-developed innate constraints, particularly those imposed by innate motivational

necessity, appears well suited to the exploration of personality and motive development. Some of these possibilities are briefly explored in the sections below.

Chapter 5.4 – Dynamic Systems revisited: Increasing resolution through the application of a 'motivational rinse'

Introduction: The rationale

As has been intimated above, it appears fair to say that the more extreme formulations of dynamic systems (Thelen, 1990; Fogel, 1990, 1993; Thelen & Smith, 1994) flounder somewhat in their application of constraints, phase shifts, coupling, and control parameters. Overall, the concepts are discussed at a highly abstract level, with relatively few attempts to clarify *exactly* what factors might constitute each at particular developmental junctures, in particular developmental domains. Partially, this lack of exactitude appears attributable to the relatively unseasoned status of DS concepts in psychology (Burlingame & Hope, 1997; Tesser, McMillen, & Collins, 1997), and yet (less favourably) it also appears a reaction to the prescriptions of traditional models of development.

Moreover, given the importance of constraints in DS, its proponents have been distressingly imprecise in denoting any innate or pre-existing constraints (although see Killeen, 1989, 1991, 1992). Although this vagary appears to be part of a general reaction to the notion of centralised deterministic constraints (see above), and a consequent broadening of the constraint concept within DS approaches, theoretical derivation of precise, heritable constraints could be of considerable benefit. As is expanded below, innate motivational and emotional constraints provide a theoretically rich and well-researched source of constraint candidates.

This censure becomes all the more pressing when recalling the importance of initial conditions in DS models of development. Although initial conditions *can* be described at any single point in time, heritable initial conditions are likely to exert a proportionally greater influence upon later systemic developments, including an effect

upon the nature of subsequent (emergent) conditions themselves (M. D. Lewis, 1997). Given the plausibility of this 'cascading' constraint approach advocated by M. D. Lewis (1997), attention to heritable conditions becomes all the more pressing. As above, the current theory suggests that innate motives and emotional predispositions or biases (temperament) constitute a well-researched source of potential initial conditions and constraints.

Charges similar to those above (and a similar, albeit inferred, motivation) can be levelled at current DS applications of phase shift, coupling and control parameter concepts. As above and with some small exceptions (e.g. Fogel & Thelen, 1987), DS approaches have been exceptionally imprecise in defining precise manifestations of these phenomena. Rather, they have preferred to emphasise the general applicability of the principles (although see M. D. Lewis, 1997). While further demonstration of the need for specificity would serve little further purpose, the overall point nonetheless remains. The current theory thus envisages the mutually profitable fruits to be derived from the careful union of DST concepts with well-developed theory from emotion and motivational literatures.

The final concern expressed here is of a slightly different nature. DS approaches exhibit what appears a theoretically premature emphasis on developmental *timing* as opposed to developmental *sequencing*. Compared to other approaches in psychology, DS is only just beginning to accumulate supportive theory and data (e.g. Fogel & Thelen, 1987; Camras, Sullivan, & Michel, 1993; Camras, Lambrecht, & Michel, 1996). As such, the emphasis on the minutiae of development (timing) as opposed to the patterns of emergence (sequencing) seems ambitious. Moreover, developmental timings are addressed in a consistently inexact manner, through reference to as yet unspecified individual 'noise' and self-organisational processes. Once more, this emphasis seems as much motivated by a desire to undermine traditional models through drawing attention to their inadequacies, as it does to explain developmental timings. Given the relative immaturity of DS approaches to human development (Burlingame & Hope, 1997), a precise application of systems concepts to sequencing would appear a prerequisite for more detailed theorising about developmental timings.

To summarise the above critique, the current author suggests that DS approaches to development need to be more precise in the application of their concepts to human development, and to realise the limitations of the current knowledge base within the discipline. As is expanded below, the current theory suggests that developmental DS models would benefit considerably from the incorporation of data and theory from emotion and motivational research. The converse is of course also true, and is the topic of considerable discussion in Chapters 6, 7, and 8.

Heritable motivations as initial constraints

Even strong versions of DS (e.g. Thelen, 1990) acknowledge that the ontogenetic pathway of a given species is globally similar. They suggest that 'certain' factors (called constraints) limit the *state space* of the system, a given state space representing the complete range of possible states or configurations in the system at a particular juncture (Thelen & Smith, 1994). While DS acknowledges that constraints may be of virtually any nature – chemical, physical, social or psychological (see M. D. Lewis, 1997), and need not exist by design (Thelen & Smith, 1994) – only rarely do DS approaches make any exact statements about the form or nature of particular constraints.

In consideration of consistent developmental uniformities, Thelen and Smith (1994) have perplexingly suggested that because some "attractor states are so stable they look like they are inevitable . . . it is easy to believe that they are generated by *hard-wired structures or programs* within the system" (p. 61, their *italics*). My contrary suggestion is that when certain attractor states in the system of homo sapiens look 'as if' they are innate, it is precisely because they are[8].

More precisely, it is suggested that motivations provide a fundamental source of initial constraint upon human personality development. Innate motivations such as those offered in Chapter 3, and particularly those regarding emotions (see Chapters 3, 7, and 8), categorically and inescapably limit the initial topography of the system's

[8] The term 'innate' is used in the current dissertation to denote heritable rather than necessarily fixed or reflexive in operation.

state space. Put somewhat differently, innate motivations circumscribe the initial nature and functioning of any living system.

In addition, certain aspects of emotion and motivation constitute a group of inherently (innately) preferred and stable *attractor states.* In fact to equate attractor states with goals might help ameliorate the problems evident in current formulations of DS as applied to human development and functioning (Vallacher & Nowak, 1997; Carver, 1997)[9].

A system's development is thus constrained by innate motivations in at least two ways. For one, an infant (at least initially) *cannot* be attracted to certain classes of state or stimuli. In dynamic terms the current theory would suggest that the human state space can not possess certain attractors, and must possess certain repellors. Loud noises, dampness, pain and negative affect are innately aversive, and the infant *must* inevitably behave in order to avoid them. Conversely, the infant is unstoppably and inevitably attracted to other areas of the state space (e.g. those representing being well fed, warm, happy, and so forth), and will behave in such a way as to attain such states. In this way, innate motivations operate as a broad initial limit to the potential activities and development of the organism, restricting attention, behaviour and development to certain classes that facilitate the meeting of innate motivations.

This is not to say that a particular response must occur in the presence of a certain stimulus, or that behaviours (and the state space) are not quickly modified by learning and emergent development. After all, living systems seek viability rather than optimality, and a developing system may develop *any* conceptual structure or motive that enables it to *function* within a particular domain (M. D. Lewis, 1994, although see Killeen, 1992 for a discussion of 'noise' and behavioural trajectory optimality). However, this 'choice' is a factor of the contingencies that are most immediately compelling and the limits of the system's present structure (see Chapter 6). Within the current theory, both situation and structure must initially be construed within the

[9] This is a singularly important consideration and will form the core of discussion in Chapter 6. Similarly, as will be expanded upon in Chapters 6 and 8, the current theory suggests that emotions (arising in respect of goals) constitute a major source of attractor in human state space functioning.

limits imposed by innate motivations, for there is little else available to the system at this early point.

Upon addition of the 'initial conditions' axiom

The essence of the argument to this point becomes all the more salient when we recall the tremendous potential for the effects of initial conditions in the development of a system. The reasonable notion that a system is hypersensitive to initial conditions suggests that the nature of these conditions, which the argument above has suggested must include innate motivations, is likely to be critical in progressively constraining later forms of the system. Given the overall focus of this dissertation, commentary on such conditions will be restricted to the inheritance of motivations (per Chapter 3), although it is assumed that other heritable influences on system topography (e.g. temperament) operate in much the same manner.

Simply stated, the current theory suggests that innate motivations constitute a major source of initial condition in personality development. As was noted in Chapter 3, motivations (irrespective of their precise operation) must exist in every living organism for it to survive and reproduce. At the very beginning there can be no other means through which to ascertain the value of stimuli and hence to behave or develop. This point has not escaped systems theorists, although they are unclear in their discussion of the manner in which motivations might constitute initial conditions (e.g. Thelen & Smith, 1994), and no theorist has yet attempted to apply dynamic systems theory to infant motive development.

However, it is a relatively simple matter to argue that innate motivations comprise a conglomeration of fundamental proclivities in perception, attention and action that form a key initial condition for personality as a motive structure. Moreover, not only do innate motivational constraints help delimit the initial state space of the system, but they are fundamental in the further development and elaboration underlying the adult personality system. Within the current theory, this issue is most fully addressed in consideration of the relationships between biological motives and derived representational goals. This topic has been discussed in Chapter 4 and is revisited in Chapter 6.

Marc Lewis (M. D. Lewis, 1994, 1996, 1997) is the theorist who most directly addresses the way in which constraints *build upon one another.* He argues that self-organising systems are individual (precisely) because they evolve in response to the accumulation of specific *individual* constraints. So while each system obeys general constraints, such as those imposed by maturation and culture, each outcome in the individual history also constrains subsequent development, and each interacts with the general constraints imposed by phylogeny in unpredictable ways.

In a more recent discussion, Lewis (M. D. Lewis, 1997) refers to this process as one of '*cascading constraints.*' Within his theory, "emergent constraints cascade down the developmental stream, each influencing the formation of the next (constraint), guiding and narrowing the flow through increasingly refined outcomes" (1997; p. 195). Each constraint then is both the product and the source of individual development. A theory outlining a similar progression is found in the work of Killeen (1989, 1991, 1992). According to Killeen, new attractor states (which have been described above as motive-satisfying states) form within old ones or grow up next to them, increasing their specificity as the state space becomes increasingly articulated (Killeen, 1989).

Interestingly, the process of motivational constraint development as described here bears a striking likeness to the hypothesised process underlying motive elaboration presented in detail in Chapter 6. However, for now it is only important that the reader appreciate the likelihood that innate motivations (including affectual states) operate as a ongoing factor in constraining the changing state space of the human system. The importance of innate valuing mechanisms cannot logically be denied, nor can the likelihood that such motivational constraints build upon themselves to ever more precisely define the global topography of the motivational state space or personality.

There is little *direct* evidence sustaining this supposition although the notion is evident in the work of early personality theorists (e.g. Freud, Jung, and Adler), in Bowlby and Ainsworth's work on attachment (see Chapter 7), as well as in the discussion of goals presented in Chapter 2. In Chapter 2 it was argued that goals were more than simple endpoints, and that they could constitute states or processes (Austin

& Vancouver, 1996). Moreover, it was noted that an individual's goals direct attention, are influential in memory, and in emotional responding and regulation. As such, the early presence of particular goals is likely to engender a cascading influence throughout the system, progressively influencing all aspects of functioning, including the acquisition of later goals.

Overall, the notion that innate motivations (as initial conditions, attractors or constraints) are expressed, elaborated and increasingly consolidated via personality transactions across a life span seems plausible (see Chapter 5.5). As such, the current model suggests that innate motivations (be they emergent or not), temperament and early childhood experiences relevant to such motives are of fundamental importance to an understanding of the adult personality. The analysis above suggests that DS approaches to development would benefit considerably from a more careful analysis of the constraint concept, especially the plausible role of innate motivations in providing a source of initial and cascading constraints.

Motives as control parameters and their role in phase shifts

In dynamical systems theory, the components of an organised pattern (such as an emotion), may exist prior to their functioning as a part of the coordinated system (Camras, 1991, 1992, 1994; Fogel, 1990; Thelen & Smith, 1994). In DS approaches, the absence of a coherent syndrome (while aspects of that syndrome may be in place) is assumed to be the norm, rather than the exception, in development. According to the DS approach, most development proceeds *asynchronously* or *heterochronically* (Fogel & Thelen, 1987; Camras, 1991). This means that not all structures, capacities, and functions develop apace or as a whole, and elements of a behaviour may be present but not yet available as part of a concerted syndrome.

However, systems periodically exhibit comprehensive reorganisations of their state space topography when new capacities and ways of functioning emerge (Thelen & Smith, 1994; M. D. Lewis & Douglas, 1998). In DS terms such qualitative changes constitute a *phase shift.* In macrodevelopment, the reshuffling of emotional habits or the emergence of new emotions at developmental junctures (e.g. the defiance of the two year old) appear as qualitative changes of this sort (M. D. Lewis & Douglas,

1998). Similarly in microdevelopment, the 'moment of indeterminacy' preceding a response (for example, a child who falls and responds *depending* on the observable presence of a caregiver) may qualify (M. D. Lewis & Douglas, 1998, see Chapter 4 on this issue in the context of consciousness).

One way in which to conceptualise of phase shifts (at either micro or macrodevelopmental levels) is to suggest that there has been a marked change in the nature and positioning of attractor states within the state space. In DS, the comparatively stable state of the system immediately preceding a shift is explained in the heterochronic nature of development. Critical elements of the system have not emerged yet, or have not yet reached the values necessary to catalyse the system's re-organisation and functioning (Fogel & Thelen, 1987; Fogel, 1990; Camras, 1994).

In dynamic systems terms, this missing 'fifth element' is usually described as the absence of the needed *control parameter* (Fogel & Thelen, 1987; Fogel, 1990). A control parameter is the element that drives the system through a qualitative phase shift[10] (Thelen & Smith, 1994). Because the resultant change is holistic, a small change in the control parameter can reverberate and result in major consequences for the entire system[11] (Fogel & Thelen, 1987). These major reorganisations need not be regulated by centrist directive mechanisms, but occur only when all the necessary components become available *and* when the task recruits and coalesces those components (Thelen & Smith, 1994).

At one level, the concept of a control parameter sounds similar to that of a genetic blueprint. However, given the emergent nature of systemic functioning, all that is needed for recognisable forms to emerge is the specification of components linked *preferentially* (Fogel & Thelen, 1987), rather than deterministically. Moreover, the particular control parameters may exist within the organism or within the task context,

[10] The systems concept of a phase shift is most readily thought of as akin to more traditional stages in developmental theory, and can also be described in mathematical terms as a 'bifurcation' or 'catastrophe' (Molenaar & van der Maas, 1994).

[11] In some ways the emergence of control parameters and the consequent reorganisation or the system constitutes a "resetting" of the systems initial conditions. Within the current model such a revision only occurs within the limits prescribed by the current totality of innate and emergent constraints.

as dynamic systems theory does not posit a formal difference between endogenous and exogenous sources[12].

Dynamic systems approaches further suggest that the control parameter underlying a specific aspect of functioning may well shift as the components of a system grow and differentiate (Fogel & Thelen, 1987; Camras, 1994). Through development, new components may emerge and change, or themselves assume, the role of control parameters (perhaps in the manner suggested by M. D. Lewis, 1997 above). As Fogel and Thelen (1987) note, the striking changes in the first few years of a human life suggest that different structures and processes drive the behaviour of the system at different times.

Even a particular behaviour (for example stepping in infants) may appear and disappear as the result of changing control parameters. In the early months the control parameter for stepping appears to be a muscle/fat ratio, while later in the first year a combination of strength and balance. More generally, a cognitive development may control developmental reorganisations at one time,[13] while at another age reorganisations may be controlled by a motor advance, a social interactive skill, or the learning of a display rule (Thelen & Smith, 1994). Overall, it is probably likely that no single control parameter orchestrates behaviours, but that a number of core and peripheral parameters change their inputs and influence over time (Fogel & Thelen, 1987).

Despite the intuitive appeal and potential utility of such theorising, it is extremely difficult to actually identify control parameters[14] (Fogel & Thelen, 1987), and they have predominantly been identified in (relatively) more simple areas of functioning like motor development (Thelen, 1990; Thelen & Smith, 1994). In many ways then, the lack of specificity in the application of the control parameter concept is no

[12] In DS approaches, the notion of an exogenous control parameter is similar to the Vygotskian zone of proximal development (Vygotsky, 1962; van Geert, 1998) and may exist in the task or in the environment in which the task is enacted. So parents can enhance performance beyond a level that the child is capable of alone through framing

[13] As in the case of consciousness (see Chapter 4).

[14] This is acknowledged as part of a more general weakness in dynamical systems theory (e.g. Fogel & Thelen, 1987), although they suggest that this is an empirical issue, and eschew resort to black box explanation.

different from that described in the context of initial conditions and constraints above. Consequently, my criticisms are similar, as is my suggested remedy.

Most bluntly, the current discussion suggests that innate motives (and eventually goals) may operate as key control parameters in coordinating microdevelopmental phase shifts. Although a given motive may conceivably emerge only following the ongoing emergence of still other control parameters (see below), motives appear a plausible candidate for this organisational role in development.

At a macrodevelopmental level, we can see parallels between the phase shifts that characterise adolescence and the emergence of sexuality as a motivation. Similarly, the birth of a child (and the contextual activation of accompanying innate motivations) is likely to lead to comprehensive changes throughout the system of the new parent. At a micodevelopmental level, the activation of a particular goal (say, to enjoy the esteem of an attractive new colleague) may prompt a reorganisation of the state space, such that a number of changes occur. Particular affective routines may become increasingly active or likely, thoughts may change, and particular behavioural responses to eventual success or failure may become more likely.

The current theory is not suggesting that motives or goals constitute the only source of control parameter. Clearly, other sources of systemic change are equally important. Certain physical developments must occur before the infant can walk, certain cognitive faculties must develop prior to consciousness (see Chapter 4) and so on. Nor is it being claimed that motivational control parameters are not themselves dependent on the prior emergence of other control parameters. For example, one can hardly hold motivations regarding the self, prior to ability to experience the self. Finally, no claims are being made about the specificity of motivations as a control parameter to particular domains of development.

Yet despite the complexity, lability, and asynchronously interactive nature of control parameters, the current theory maintains that both innate and derived motives operate as key control parameters in human development. While the influence of motivations is particularly notable in microdevelopment (the moment to moment functioning of

the personality system), there is good reason to suspect that motivations are similarly important in more global aspects of development.

Concluding remarks on the motivational rinse

Overall, the above argument has suggested that dynamic systems approaches would benefit from a careful consideration of motives and goals in both macro and microdevelopmental personality processes. While the concept of motivational control parameters appears predominantly useful in microdevelopment (see Chapter 8), innate motives offer a powerful explanatory basis at a macrodevelopmental level.

Additionally, innate motivations are likely to operate as a key initial condition/constraint upon personality development, systematically limiting the system topography or state space. As is briefly expanded in the following section, innate motivations may well elaborate in a cascading manner, progressively limiting (constraining) the system's state space in an increasingly specific manner, broadly commensurate with the primary abilities and developmental tasks of the infant.

Chapter 5.5 – The cascading nature of motive constraints and the sequencing of emotional development: A possible synthesis?

Introduction

To date, both traditional and dynamic systems models of development have been criticised. The former model has been criticised predominantly on the basis of its implausible centrist doctrines, while the latter has been reprimanded for its lack of conceptual specificity. Ironically, these latter criticisms themselves have been offered at a predominantly non-specific level. Consequently, the following section will offer a domain-specific synthesis of the above criticisms through an application of the cascading constraint and control parameter concepts to the sequencing of emotional development.

Briefly stated, the section will argue that innate motivations emerge and develop as constraints and control parameters in the cascading manner suggested by Marc Lewis (M. D. Lewis, 1997). More specifically, it will be suggested that innate and emergent motives progressively limit and unify the macrodevelopment of personality in this cascading fashion. The section begins with a broad critique of maturational models, expanding on the manner in which motivational *function* unifies (both explanatorily and intra-systemically) the changes observable across the various domains of infant development. Following this, attention will turn to the importance of sequencing in infant development, and it will be argued that innate and emergent motive patterns act as key constraints in emotional development.

Motives as unifying developmental trajectories: A tentative explanation

Typically the maturational processes of infancy are considered within models that examine only one or a few areas of development. Moreover, such models have tended to restrict themselves to descriptive or proximate explanatory analyses of these changes. Overall the first part of the section will expand on the above suggestion that the many facets of infant development can be powerfully *explained* both proximally and distally through their bearing upon infant motive concerns. Brief examples of how infant development might be considered as bearing on motive concerns are given.

As noted above, theories of infant development both historically (e.g. Piaget, 1962), and more recently (e.g. Karmiloff-Smith, 1991) have tended to avoid the *why* of infant development. Why is the infant developing in this way? Why do certain developments occur at a particular time? To be sure, infants develop x, y, and z capacities along relatively consistent timetables. But to what end? Why are they developing?[15] As is expanded below, the current theory suggests that developments occur in a pattern linked to the emergent operations, constraints, and influences of motive systems.

[15] Thelen & Smith (1994) have made a similar point regarding information processing approaches to development. They suggest that the information-processing perspective is "rich in detail but lacking in illumination of the bigger picture" (p. 38). Interestingly, their implicit solution to this involves the belief that development is characterised by the search for information "in order to make a functional match between what the environment affords and what the actor . . wants to do" (p. xxi).

Contemporary developmental theory does not typically concern itself with motive or goal development (Lazarus, 1994b), except indirectly through the apperception (see e.g. Harris, 1996) or linguistic expression (Bartsch & Wellman, 1995) of intentionality (Bartsch, 1999, personal communication). This is surprising given the contemporary emphasis on motivational constructs in personality research (e.g. Emmons, 1986, 1993, 1996, 1997). Even where relevant to motive development, research has tended to focus on the ability of the child to represent (and demonstrably understand) *another* person's motives, and (even here) has somewhat confounded the representation of desire in another with the representation of knowledge or belief in that same other (e.g. Bartsch & Wellman, 1995).

It is notable however that the research conducted thus far within theory of mind frameworks has shown that young children find desires easier to understand than beliefs. They talk about desires earlier than beliefs (Bartsch & Wellman, 1995) and may understand desires with little or no understanding of beliefs throughout the third year (e.g. Harris, 1996).

More relevant to the development of an infant's own representational motives, Smiley and Huttenlocher (1989, cited in Bartsch & Wellman, 1995) have suggested that an understanding of internal states is evident for self considerably in advance of any attribution of such states to others. They propose a sequence of representational development "where instances at first involve internal states of the self, then the perceptually available aspects of others' experiences, and finally internal states of other people" (Smiley & Huttenlocher, 1989, p. 44, cited in Bartsch & Wellman, 1995).

Nonetheless, when taken as a whole, the data and theory from theory of mind research are of questionable utility in considering the representation and development of an infant's own motives. Yet while the apparent absence of a theoretical interest in infant motive (as opposed to motive-concept *understanding*) development is frustrating, the sequencing of development as applied to motive-related,

representational concepts indicates something of the primacy of motivational concerns to the infant[16].

It is the initial contention of the current theory that the ultimate reason for *all* infant developments is to enable an increasingly complex, precise, and effective goal system. As such, it is being argued that not only are personalities and self inherently about motives (see Chapters 1 and 2), but that the changes occurring in infant development can be seen to occur in a pattern constrained by innate and emergent motive concerns. Put another way, the current theory suggests that the cognitive, emotional, linguistic and physical developments that appear in maturation can be usefully thought of as functionally-interrelated components or control parameters in the ongoing development of an increasingly comprehensive and precise motive system (e.g. Gibson, 1969).

More specifically the current model suggests that infants develop skills, competencies, capacities or abilities (including consciousness and the ability to phenomenally experience themselves) at a rate and pattern commensurate with the primary developmental tasks, motives, and abilities of the infant. While full explication of these ideas is beyond the scope of the current dissertation, a brief example of how examining the cascading nature of motive development might add to our understanding is given below.

Motives as unifying developmental trajectories: The sequencing of emotional development

Although it remains debated whether infant experiences can be considered analogous to adult emotions (Camras, 1991, 1994; Lazarus, 1994b; Izard, 1997; see Malatesta-Magai & Izard, 1991 for an extensive discussion of this issue), the *sequence* in which emotions (or at least *expressive behaviours indicative of emotions*) develop can be readily interpreted within the motive-constraint framework being offered.

[16] I am not (at this point) making any claims about the infant's experience of being motivated. Within the current model the distinction between a motive and its experience (see Chapter 1) is being

While a final "sequence of emergence of emotions" has yet to be fully articulated (Lewis, Sullivan, Stanger, & Weiss, 1989), it seems that the ability to recognise basic or primary emotions (fear, sadness, happiness, and anger) appear very early in life[17]. Haviland and Lelwika (1987, cited in Magai, 1996) for example, have shown that infants as young as 10 weeks are capable of differentiating sad, angry, and happy affect in the mother. This ability suggests some "prewiring," at least for these emotions (Nelson & De Haan, 1997). Overall, the ability to recognise facial expressions of emotion is reasonably sophisticated within the first year, although the ability continues to develop through childhood (Nelson & De Haan, 1997).

However, infants do not only manifest the ability to *recognise* emotions in others. Michael Lewis and colleagues (e.g. Alessandri, Sullivan, & Lewis, 1990) have also shown that infants between two and eight months of age display a facial configuration (joy, sadness, anger) similar to that of the adult, in a theoretically predictable circumstance (see Magai & McFadden, 1995 Chapter 5, for a recent review). Similarly, Izard, Fantauzzo, Castle, Haynes, and Slomine (1995) found that full-face expressions of interest, joy, sadness, and anger were present at 2.5 months. Additional within-subject analyses showed no developmental trends across the next half-year. Describing this type of data, Izard (1994a) suggests that no postnatal developments are necessary for the expression of these emotions.

Given the relatively early and predestined emergence of the primaries, it appears interesting that it is not until the middle of the second year that secondary emotions (such as shame, guilt, embarrassment, or pride) are observed (Lewis et. al., 1989; Dunn, 1994). *Why* should this be so? *Why* this particular division or sequence? Is this sequence itself also pre-wired? (cf. Darwin, 1872; Izard, 1994a) Unfortunately, not only are the psychological sciences lacking in agreement as to whether the human infant displays represent 'true' emotions, but moreover, we are sadly lacking in adequate speculation as to why the emotions emerge in this consistently particular order.

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conceptualised as dependent upon the development of a representational motive hierarchy (self) and consciousness (see Chapter 7).

Some theories explain emotional sequencing through reference to the cognitive prerequisites of the particular emotion. Cognitive capacities either are necessary for (e.g. Scherer, 1984; Ellsworth, 1991; Lazarus, 1994a[18]; M. Lewis, 1995), or at least occur prior to (M. Lewis et. al., 1989), the emergence of secondary emotions. Shame for example, necessarily follows the apperception of inadequacies in the self (Izard, 1993; Izard, Ackerman, Schoff, & Fine, in press; Einstein & Lanning, 1998). In this type of theory, the emergence of secondary emotions is thus tied to the ontogenesis of self-referential behaviour (Kagan, 1984, cited in Malatesta-Magai & Izard, 1991), and consequently to cognitive developments.

Certainly we can take it as given that the human infant (in ethological terms) is *altricial* or born in a highly underdeveloped state (Eibl-Eibesfeldt, 1989; Corballis, 1999)[19]. Consequently, it seems reasonable to suppose that certain cognitive capacities must be acquired before certain emotions can follow (see Chapter 8 for a fuller discussion of this relationship). Alternatively, a referential self *must* develop before emotions can be experienced in respect of it (M. Lewis, 1992).

My contention then is not that such theorising is incorrect per se, but rather, that it is misleadingly complete in that it obscures additional explanatory issues. Concerns regarding this 'blinkering' can be summarised as follows. Firstly, there is something of a conceptual restriction in the reasoning supporting the cognitive conceptualisation. For example, the proof that secondary emotions are more complex than primary emotions is found in the cognitive prerequisites. These prerequisites (in turn) are tied to sequential developments which, arising later, are *a priori* considered more complex. In this consideration then, complexity and sequencing become virtually one and the same phenomena, each 'explaining' the other. It is my contention that centrist frameworks lead to premature explanatory satisfaction (theoretically speaking). We simply stop explaining or attempting to explain before we have truly started asking.

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[17] See Nelson & De Haan (1997) for a recent theoretical and methodological review of infant emotion-recognition literature.

[18] While tying emotional experience to cognitive development, Lazarus (1994b) does suggest that we may be forced to consider infant and adult "anger" as slightly different (albeit related) phenomena.

[19] Interestingly, the relative underdeveloped nature of the human neonate is highly pronounced in the brain. The infant brain is only 24% of its ultimate weight compared to 60% in the chimpanzee (Corballis, 1999). This suggests a disproportionate degree of post-natal cerebral (and mind) development in the human infant, a fact that has important implications for consciousness (see Chapter 7).

This comment is not intended to dispute the idea that certain cognitive developments do not act as a control parameter for emotional sequencing. Rather, it is to suggest that the relationship between cognitive and emotional developments thus far outlined is indicative of nothing more than the relationship itself[20]. Put most simply, even if cognitive maturation can explain or predict the sequencing of emotional development, the theory does nothing to elucidate the reasons underlying the emergence of the cognitive capacities themselves. Do we become progressively capable of particular thoughts *in order* to enable particular emotions? If so, why? Alternately, are cognitive developments part of a domain neutral developmental path, and emotional sequencing simply a consequence? Again, if so, why? Overall, nobody seems to be interested in asking why particular cognitions (or any other developments) emerge at a particular time?

The theory offered here suggests that while infant emotional sequencing *can* be conceptualised as dependent on either cognitive developments (Ellsworth, 1991; Scherer, 1984; Lazarus, 1994a) or as a function of unspecified intersystem connections (e.g. Camras, 1991; Izard, 1991, 1994a; Izard et. al., in press) that an examination of the relationship between emotional sequencing and the infant's current motives would nonetheless be of considerable benefit. Considering *all* infant development as bearing on the infant's current motive concerns and abilities would enable us to begin answering some questions that we are not even asking at the moment.

Most bluntly, the current model assumes that sequential patterns in infant emotional development occur for a reason. The pattern of infant development is not simply, "the way it is" as seems to be implied in 'black box' cognitive and extreme DS considerations of emotional sequencing. Nor is the pattern only a function of the complexity of *cognition* required for each subsequent emotion, although this provides one explanatory framework. Rather, later emotions and thought capacities do not appear earlier precisely because they are irrelevant to the challenges, motives and capacities of the infant at this time. In DS terms, the innate and emergent motivations

[20] As will be expanded upon in Chapter 7, the application of systems principles to development suggests that "infant emotional development should not be wedded to any one factor" (Camras, 1988; p. 21).

of the infant interactively constrain the processes and experiences that are possible within the developing system at each point in time.

In their classic DS treatise, Fogel and Thelen (1987) note that developing organisms are faced with conflicting demands. On the one hand they must grow and differentiate, while on the other, they must have adaptations sufficient to ensure their survival at every point in development. Their discussion of this conflict uses infant temperature regulation as an example of how motive concerns may act as systemic control parameters and constraints.

At birth, the infant can survive within a limited range of temperatures, yet has poor ability to self-thermoregulate. Fur or feathers might help, but these are not available. Hence compromise must be reached within the limits of phylogeny and the finite energy resources of the infant. To achieve this end some systems are plausibly developmentally retarded while others are accelerated. In the case of thermoregulation, the deposition of subcutaneous body fat takes precedence over the development of muscle tissue. Thermoregulation in this case is a more important motivational consideration than strength (and presumably movement). As Fogel and Thelen (1987) succinctly state it "Ontogeny is organised so that the infant can (only) be engaged in necessary adaptive tasks of the moment" (p. 759).

As noted above however, these authors are singularly inexplicit in their consideration of how this 'organisation' might occur or what these tasks might be. Similarly, it appears that dynamic systems theory is weakened somewhat through an emphasis on *timing* rather than on *sequencing*. While the emergence of particular capacities may vary considerably across individuals (timing), such capacities still tend to occur in a very particular pattern or sequence. To my mind, this indicates something of the cascading manner in which infant developments build upon one another, perhaps to the point of each successive development acting as a control parameters and constraints for the emergence of still other developments[21].

[21] In some senses the argument I am making here is similar to that advocated by Maslow (1968, 1970, 1971) who suggested that phylogenetically lower level motivations must be satisfied before higher

The current theory thus suggests that secondary emotions do not emerge until 18 months because the control parameters needed for the consolidation of certain intra-systemic arrangements (i.e. the secondary emotion) are not yet present. Given the current relative immaturity of dynamic systems approaches to development and the absence of theory regarding infant motive development, the precise nature of such parameters can only be a matter for conjecture. Moreover, the emergence of each parameter is likely to depend on the emergence of prior parameters in the manner suggested by M. D. Lewis (1997).

Nonetheless, it is plausible to suggest that motives and goals constitute a fundamental source of control parameter in infant development. Consider the case of embarrassment. Embarrassment follows transgressions of conventions that govern social interactions (Keltner, 1995; Keltner & Buswell, 1996), and does not appear until at least 18 months (Lewis et. al., 1989; Lewis, 1995). Why should this be so? Cognitive theory such as that above suggests that the answer lies in the development of certain representational capacities, such as the ability to represent or remember said social norm, or to experience the self.

Yet, surely transgressions would be best prevented through a more precocious internalisation of social norms. Why then is the infant not born capable of these representational comparisons, conscious, or with a self? While the example chosen is less than perfect, I nonetheless suggest that such a development, rather than advantage the infant, might actually *interfere* with the infant's ability to deal with more pressing environmental challenges.

The young human cares nothing (and consequently can care nothing) for social-norm related emotions *precisely because* they are otherwise occupied securing food and shelter, maintaining bodily integrity, forming attachment relationships and so forth. Experiencing motivations or holding cognitions regarding self at this time, rather than benefit the infant, could plausibly interfere with the innate motivations (and responses) that the infant needs to survive and develop at this time (Fogel & Thelen, 1987; see also Sroufe, 1984). Indirectly then, the current theory is suggesting that

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level motives can emerge. However, I am suggesting that this is only relevant insofar as we consider the sequencing of development, not their operation or final state (which is considerably more fluid).

innate and emergent motives act as both constraints and control parameters in emotional development. If the emergence of a conscious self requires the ability to cognise in certain ways, then the emergence of these cognitions is in turn constrained or controlled for by current motive operations[22].

A number of authors have noted that the stimulus conditions that elicit emotions change substantially across infant development (Davidson & Ekman, 1994). The elicitors of *early* infant expression of emotions are more likely to involve physical than psychological stimuli (e.g. Campos, Barrett, Lamb, Goldsmith, & Sternberg, 1983). They suggest that primary emotions are "evoked in relationship to biological goals, although they eventually are evoked in relationship to socialised goals as well" (p. 820; see also Izard & Malatesta, 1987). Prima facie, this can be taken as indicative of the *types* of motives infants are, and are attending to.

Similarly, Camras, Oster, Campos, Miyake, and Bradshaw (1992, cited in Camras, 1994) have found that older infants became upset more quickly than young infants when restrained. Perhaps more importantly, these authors interpreted their finding though an analysis of how much *value* the infant places on arm control at different ages. In some senses, it appears that the authors allude to the age-differentiated presence of a particular motivational control parameter in the precursors to anger.

Concluding Remarks

Dunn (1994) has suggested that when asking the question "what develops in emotional development?" that one answer must be the *circumstances* that elicit the emotions. Although implied (or perhaps inferred), the author appears to be addressing an issue of goal development. Finally, Richard Lazarus (1994b) has recently become singularly explicit on this issue. He writes: "It seems to me that the task of understanding emotional development is best served by examining the acquisition . . of the key individual difference variables that antecede the generation of emotions . . .

[22] For example, the current theory would predict that the ability to represent the self (consciousness) is likely to be constrained by the satisfaction of innate motivations. As such, it is expected that children from deprived environments in which current motive satisfaction is low will develop a representational self at a later time than children for whom current innate motives are being consistently satisfied.

The antecedents of greatest importance are *goal commitments* and *how they are organised* in the person" (p. 366, his *italics).*

Interestingly, advocates of the extreme systems position have recently begun attending to the importance of motives in their models. In the final chapter of their comprehensive systems text, Thelen and Smith (1994) write "We have tried hard to do away with the ghosts in the machine" (p. 312). However, developmental processes "cannot take place without some *value* on behaviour" (pp. 312 – 3, their *italics).* Ultimately, they concede that a 'successful' dynamic systems account will need to pay more attention to the questions of needs, drives, and the values of the system.

Without belabouring the point then, the current theory is broadly suggesting that the dynamic organisation of development can be powerfully explained with reference to innate and emergent motivational considerations as well as in relation to proximate cognitive developments. It is not suggesting that the emergence of particular motives, concepts, emotions, and so forth are not interdependent on other developments, but rather that we could consider *all* such developments as part of a bigger picture (e.g. Izard, 1991, 1994a). My argument is that this portrayal should be one in which infant capacities develop multi-factorially across domains in a manner commensurate with the current tasks/needs, motives and abilities of the infant.

As will be discussed in Chapter 6, the current theory is not suggesting that there is not considerable variation in motive acquisition. It is however suggesting that there are sufficient constraint and control parameter commonalities, made manifest in normative developmental *sequencing*, that relatively powerful frameworks can be constructed.

Chapter 6: The Elaboration of biological motives: Emotions in the development of the personality state space.

Chapter 6.1 – Introduction

To this point, it has been broadly argued that the motivational state space of the infant personality develops multifactorially through the emergent operation of cascading constraints and control parameters. It has also been suggested that the innate motives discussed in Chapter 3 constitute critical starting elements in this dynamic process. Overall, the dynamics of infant development have been conceptualised as inherently related to innate and emergent (derived) motivational concerns.

However, little has been said that might explain the wealth of differences that characterise individual personalities. Most pointedly, it could be claimed that the dissertation thus far has done little more than discuss the likelihood that restrictions (constraints) on the motivational state space cascade from innate motivational restrictions. Consequently, the theory thus far introduced is better suited to describing the ontogeny of what a person is not and cannot be, than it is to describing how they come to be the way they are[1].

Chapter 6 will build on the ideas thus far outlined, introducing further theory regarding the process by which biological motives (initial attractors) are built upon or elaborated. Initially, the role of the innate motivational structures outlined in Chapter 3 and discussed as constraints in Chapter 5 will be reiterated and reconceptualised. It will be suggested that in addition to constraining the shape of the developing state space, innate motives provide the initial values or attractors for a system's functioning. As such, they must provide the basis for the development of all subsequent attractors in the motivational state space.

Following this assertion, the chapter will describe a mechanism that may advance our understanding of how this process of motive elaboration and differentiation occurs.

In doing so it will offer a theory regarding the role of emotions in the process of motive elaboration. Put most simply, the chapter suggests that emotions serve two purposes in state space development. Firstly, they act as an inbuilt means to ascertain the relationship between 'new' stimuli, and existing attractors/motives. In addition, the emotional response leads directly to the development of new attractors and the elaboration of the state space. In some ways, the newly developed motives are 'designed' to accommodate or represent the relationships between these new stimuli and existing attractors.

In support of this notion, Chapter 6 will draw from three major theoretical bodies. Initially, it will discuss something of the ubiquity of affective processes in infant development. Consistent with several contemporary theories of development (e.g. Magai & McFadden, 1995; Magai & Nusbaum, 1996; M. D. Lewis, 1996, 1997, in press b; Lewis & Douglas, 1998; Lewis & Granic, 1999), it will suggest that the emotions enact a role of singular importance in the organisation and development of a personality/state space.

Secondly, the chapter will introduce theory from a recent behavioural-dynamic systems approach to development that purports to explain the macrodevelopmental elaboration and rarefaction of state space attractors (Killeen, 1989, 1991, 1992) and the development of acquired attractors or goal-states. Finally, the chapter will consider something of the known roles played by emotions in neurological models of learning and development (e.g. LeDoux, 1989, 1993; Schore, in press).

In combining these theoretical bodies, the first half of the chapter will argue that emotions act as an innate means through which to ascertain the relationship between a 'new' stimulus and existing attractors. Following this, the chapter argues that a key part of the function that emotions serve in personality development involves the reflexive generation of a new attractor or goal representing the emotionally-indicated relationship. As such, emotions are heavily implicated in the process through which

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[1] Marc Lewis (M. D. Lewis, in press a) has recently argued that most DS developmentalists have 'restricted' themselves to examining normative development. The current chapter seeks to go some way towards redressing this inadequacy.

innate motives are elaborated within the state space, and in developing the relationships between goals/attractors within that space.

Chapter 6.2 – Setting the scene for personality development: Considering the relationship between goal and attractor concepts

It was noted in Chapter 5 that DS approaches make extensive use of the concepts of state space, attractors, and repellors in discussing development. While the potential macrodevelopment of the state space is increasingly limited by the operation of innate and emergent (cascading) constraints (see Chapter 5), personality development is also usefully conceptualised as resulting from the development of new attractors in the state space (M. D. Lewis, in press b). However, to this point in the dissertation there has been little comment on exactly what an attractor is or (more problematically) how attractors relate to goals[2].

In its most dispassionate applications, an attractor is simply a region of the state space that is preferred by the system (Thelen, 1990; Thelen & Smith, 1994)[3]. As such, an attractor can represent virtually any aspect of functioning from physiological states, to emotions, to precise patterns of thought or behaviour[4]. In the gravitational metaphor favoured by DS theorists, an attractor is portrayed as a well or valley upon a surface (the state space). The region surrounding the attractor (the basin) includes the set of states from which the system can or tends to gravitate towards the specific attractor. The depth of the attractor represents its strength, whereas its breadth can represent an attractor's comprehensiveness. Attractors are also gainfully considered as more or less fixed (static) or periodic (cyclical), while the link between two attractors is usefully thought of as a *saddle*. In addition to attractors, systems also possess

[2] The inconsistent use of terms within dynamic systems approaches remains a widespread problem for the approach (M. D. Lewis, in press a). This variation appears equally a function of the immaturity of the field and the breadth of its concepts, and can be expected to improve with time. Where possible the current dissertation will reference definitions and/or use the most widely accepted versions.

[3] It is the view of the current author that the notion of 'preferred' regions is unnecessarily (although unintentionally) agentic, volitional, and experiential in its connotations. Consequently, attractors will be considered as areas of the state space that the system is 'drawn to.'

[4] Some writers such as Schore (in press) have suggested that attractors represent homeostatic areas particularly in respect of affect. The current author eschews this interpretation of 'attractor,' the reasons for which will be explained in the latter half this chapter, and again in Chapter 7.

repellors, which can be portrayed as a hill rising off a surface. As one might expect, repellors are areas within the state space that the system veers from or avoids (Carver, 1997), and like attractors may have complex relationships with other attractors or repellors.

As is frequently the case with the domain neutral language of DS (M. D. Lewis, in press a), the vocabulary outlined above could as well be used to describe the manner in which a carrot's nutritional needs interacts with soil content and the nutritional demands of its fellows. Within this framework, a carrot's root growth pattern could be described as emerging in accordance with existing constraints and attractors. That said, personality is not the same thing as a carrot. In Chapter 1 it was extensively argued that personality must initially and primarily be viewed as a motive or goal system. Consequently, it is necessary to recast the concepts above in motivational terms.

The current author considers the concept of goal to be equivalent to the terms of attractor and repellor in the conceptualisation of personality. Goals may be to attain (approach) or avoid a certain event, state, experience, or process. As such, they translate readily to DS concepts of attractor (approach goals) and repellor (avoidance goals). Like both attractors and repellors, goals may be more or less precise or diffuse, corresponding to the DS description of basins (see below). Similarly, the depth or height of an attractor or repellor can be readily taken as equivalent to the importance of a particular goal. Finally, goals (like attractors and repellors) can be cyclical or static in their influence or operation.

Additionally, the manner in which some DS theorists (e.g. Killeen, 1989, 1991, 1992) have conceptualised the relationships between attractors and repellors is consistent with the traditional hierarchical manner of describing goal relationships (see Chapter 2). As is discussed more fully below, Killeen (1989) has described a coordinated hierarchy of attractors, in which the state space topography is dimpled with many large basins. Each basin is in turn composed of more precise basins corresponding to more precise attractors, and so on. This conceptualisation is virtually identical to conventional consideration of goal hierarchies. Overall, goal and attractor concepts

bear a striking resemblance to each other. As such, the two terminologies can usefully be combined in describing personality as a motivational state space.

Perhaps unfortunately, an in-depth consideration of goal-attractor equivalence cannot cease at this point. If goals are to be considered literally synonymous with attractors in personality theory, we must be able to account for both theory and experiences that suggest that a system's functioning is more literally drawn to states *that satisfy goals* rather than to the goals (attractors) themselves. Below an example is outlined to explicate the difficulty here.

Assume for the moment that the attractor at the bottom of the 'valley' representing motivations affiliated with eating behaviours is nutrition. By this I mean that ultimately most 'eating' behaviours are motivated by a need for nutrition[5]. Given this however, one wonders whether it is true to say that the system's functioning is drawn to nutrition, or whether it is more valid to suggest that the system is attracted to regions of its state space representing either food, eating, or satiation? While one response to this potential distinction is to argue that it is little more than an unnecessary semantic quibble, consideration of the issue does ultimately lead to some useful theoretical developments.

For the purposes of illustration, imagine that the term 'system' represents the physical body, while the term 'functioning' represents actual behaviours. Bearing this distinction in mind, we can then conclude that the system (body) is indeed drawn to or attracted to nutrition, but that its behaviour (functioning) is made manifest in food seeking, eating and the like. Importantly, these more precise attractors can only hold value for the system via their connection with other attractors, perhaps in the hierarchical manner described by Killeen (1989).

In some senses then, the distinction offered here runs along two lines. The first of these relates to a distinction between distal and proximate goals or attractors. Ultimately, most eating behaviours and experiences draw their motivational impetus

[5] This is of course an oversimplification. As will be discussed below, a system's functioning is frequently an overdetermined phenomenon, representing the influence of multiple goals or attractors.

from a need for nutrition (attractor). However, while the proximate motivational manifestation of this attractor may be the need for food, food seeking behaviours, or the like, the distal (ultimate) motivation will always remain that of nutrition. As will be expanded upon below, attractors in the motivational state space are frequently nested in complex hierarchies.

The example used here also provides a useful opportunity to reinforce a second distinction that has previously been mentioned – that between motives (attractors) and the experience of being motivated (feeling attracted). In several of the previous chapters, the current dissertation has extensively argued that structural/functional aspects of the human system must initially be considered distinct from the experience of that structure or function, even though the two concerns overlap on occasion. More specifically, it has been suggested that social scientists should distinguish between motives and the experience of being motivated (Chapter 1), between the self and the many experiences of the self (Chapter 2), and between emotions and the experience of emotions (Chapter 3, see also Chapters 7 and 8).

Overall, it seems reasonable to consider attractors to be synonymous with goals so long as we remember both caveats above. Firstly, we should remind ourselves that function and experience do not always meet. As such, the fact that a particular goal or attractor is not experienced as motivating does not, *prima facie*, mean that it is not. Secondly, we should remember that attractors-as-goals exist within complex hierarchical networks of relationships with other attractors and repellors. Thus, we must also remember the difference between proximate and distal attractors in the state space.

In DS terms, one would say that the human state space is characterised by multistability. Nonetheless, the point will serve for the purposes of illustration.

Chapter 6.3 – Recasting the role of innate motives: Motivational state space development as inescapably stemming from 'innate attractors'

Having described the relationship between goals and attractors, it is time to begin the more interesting task of outlining a theory of motive development. In Chapter 3 a working typology of innate motives was outlined. During the discussion, it was suggested that motives representing each of the five groupings were manifest in all living organisms, with only the degree of sophistication and the precise nature of each motive's operation and experience varying across organisms. Finally, it was proposed that each motive grouping was structurally present (if not experienced) from the moment of birth, and (as such) must constitute the *initial* attractors in the personality state space.

In Chapter 5, it was briefly suggested that certain heritable aspects of emotion and motivation could be thought of as constituting a group of inherent and stable *constraints.* The current chapter further suggests that the state space of the infant personality is similarly possessed of certain innate attractors and repellors, and that together, these factors operate as a broad limit or influence on the future development of the system state space (see below). As noted, the simple reason underlying this particular conceptualisation of development is that without innateness in motivations (innate attractors), there is no place to begin the valuing process.

To my mind this is not a contentious claim but, irrespective, is readily supported through argument. One can logically argue that there must be some innate attractors that create or exist as a basis against which new stimuli can be valued. A life form must 'know' which things are good/to be strived for and which things are bad/to be avoided (Thelen & Smith, 1994). To have no way of knowing 'what to do' would leave this impossible organism frozen in a short-lived primordial funk.

The creature will not move, for there is no reason to. It will not breathe, and thus simply suffocate within minutes of birth. Stimuli (or mating partners) that happen across its evanescent path (or are fortuitously delivered directly in its lap) may or may not be perceived, and in any case the creature will not do anything in respect of them.

Ever. Bearing this maladaptive absurdity in mind, I think it can be safely assumed that innate motivational attractors exist, in all creatures, including ourselves.

To this point however, the reader may be struggling to imagine why the paragraphs above have been presented. Do they actually exemplify anything useful? In answer, I believe that a similar, if less melodramatic, reasoning can be provided as to why structuralised, innate attractors must (in turn) provide the initial evaluative yardstick for the elaborated representational goals that characterise the motivational state space for homo sapiens. Prima facie there appears no good reason why the processes underlying the acquisition of derived, learned, or emergent representational goals or attractors should not similarly require a basis against which to compute value.

Imagine for a moment a scenario wherein this claim is *not* true. An organism (albeit possessed of certain innate attractors), moves into the world. Perhaps it is a baby human. Time passes. Later in its development it informs you that 'conceptualising of itself as a generous person' is very important to it. We cannot realistically deny that this is in fact motivating the organism, for both scientific observation and our own experiences tell us that such motivations occur. We can however wonder where such a motive could come from. What function does it serve? How was it derived? Was it acquired post-natally, and if so, *on what basis?* As above, the current theory contends that this basis is initially provided through reference to innate attractors. Nothing else initially holds value for the organism, and no other scientific conceptualisation makes sense. Hence, in line with the theory implicit in both the personality theory of Dweck (1996) and the behavioural theory of Killeen (1989, 1991, 1992), I suggest that innate attractors must be thought of as providing the initial basis for valuing.

In a recent application of DS principles, the noted behaviourist Peter Killeen (e.g. Killeen, 1989, 1991, 1992) has recently suggested that contingencies that do not respect *pre-existing* action tendencies will be ineffective or (at best) diversely effective. According to Killeen (1991) behavioural shaping *must* respect the order of activation energies of the organism in the context of the relevant incentives. He also notes a strong tendency for motor patterns 'invented' by a trainer to drift towards more innate forms, a tendency described by him as 'instinctive drift'. While the details of Killeen's (1989, 1991, 1992) theory are beyond the interests of the

immediate discussion (see below), his papers illustrate the importance of innateness in motivations and development.

Additional support for the premise offered above comes from within other DS theory. As Thelen and Smith (1994) have recently noted, one issue that must be considered in future DS research is to establish how specific or general the motivational component must be in order to set the system on the trajectory of learning. In a preliminary answer to their own question, Thelen & Smith (1994) propound that infants come into the world with a small set of adaptive biases. According to these authors, such biases include the motivation to suck and seek nourishment, motivations for contact and warmth, preferences for certain levels of stimulation and so on.

In their theory, certain internal states and external stimuli are endowed with a particular hedonic tone, thus constituting the infant's motivational primitives (attractors). Taken together these biases dispose the infant to pay particular attention to certain aspects of the environment and their interactions with it. Overall however, Thelen & Smith (1994) appear to suggest that what is needed is an (apparently unmotivated) sensory system with some relatively unspecific tuning parameters and a 'value wash' that keeps the organism preferring certain stimulus configurations over other values.

It is at this particular juncture that the current theory and that of Thelen and Smith (1994) part ways. While they have advocated a general adaptive system containing little in the way of specific motivational attractors, the current theory suggests that the attractors innate to the human motivational state space are far more comprehensively and specifically developed at birth. More specifically, it has been argued that the five motive groupings (physical integrity, reproduction, social, organisational, and affect/feedback) outlined in Chapter 3 represent a more probable description of our innate motivational attractors.

Suggesting that innate attractors in general, and the innate aspects of emotions in particular, constitute the starting point in the developmental process is not intended to suggest that a particular response must occur in the presence of a certain stimulus. Nor is it meant to indicate that behaviours (and the state space) are not quickly

modified by learning and emergent development. After all, living systems appear to seek viability rather than optimality, and a developing system may develop *any* conceptual structure or motive that enables it to *function* within a particular domain (M. D. Lewis, 1994, although see Killeen, 1992 for a discussion of 'noise' and 'behavioural trajectory' optimality or *geodesics*).

Nonetheless, developments within the motivational state space must be a function of the contingencies that are most immediately compelling and the limits of the system's present constraint and attractor structure (see below). Within the current theory, both situation and structure must initially be construed within the precinct of innate motivations, for there is little else available to the system at this preliminary point.

Chapter 6.4 – Previous theories of state space attractor development

Introduction

As is discussed below, while unpredictability and sensitivity characterise self-organisation early in ontogeny (Thelen, 1990; Thelen & Smith, 1994), the recursive (M. D. Lewis & Granic, 1999; M. D. Lewis, in press b) or autocatalytic (Killeen, 1989) nature of developmental processes eventually leads to increasing coherency and consistency within the state space (see also Vallacher & Nowak, 1997; Izard et. al., in press). As Lewis and Granic (1999) note, *all* the potential states comprise the system's state space, yet some states *are* more probable than others. Moreover, development sees the system become increasingly, and more precisely, attracted to ever-more specific attractors within its state space.

Yet thus far, the current chapter has done little more than stress the importance of innate attractors as the starting element in motivational state space development. If the discussion were to be left at this point the reader could be forgiven for asking what the current theory adds, other than some criticisms of highly worthwhile theory. Consequently, it becomes necessary to consider how innate motives are elaborated.

Previous explanations for the development of attractors

Although there have not yet been any attempts to describe the development of personality as a *motivational* state space, several other theorists have described mechanisms that purport to explain the development of attractors in state space (see e.g. Killeen, 1989, 1991, 1992; Fogel, 1993; M. D. Lewis, 1997, 1998, in press a, in press b; Lewis & Douglas, 1998; Lewis & Granic, 1999). Each approach to attractor development is briefly described below, although considerably more attention is devoted to the theory of Marc Lewis and colleagues, it being both the most relevant to personality and the most highly developed.

Fogel (1993) suggests that developmental changes in the infant's state space occur through the communication and co-regulation of individuals (see also Stern, 1985; Schore, in press). In Fogel's (1993) theory, attractors are called *consensual frames,* and are created within the reciprocal adjustment dynamics between the preverbal infant and the caregiver. According to Fogel's (1993) theory, all self-organisational processes are thus inherently relational[6]. The interpersonal attractors are the states towards which participant's cognitive-emotional systems jointly gravitate.

A second theoretical body on personality development is found in the recent work by Carol Magai and colleagues (see e.g. Magai & Hunziker, 1993; Magai & Nusbaum, 1996). Their earlier work (Magai & Hunziker, 1993) is comparatively underdeveloped, quite simply suggesting that "emotions are the critical force behind life course personality individuation" (p. 258). However, Magai's later work (e.g. Magai & Nusbaum, 1996) has become both more highly developed, and more explicit in its incorporation of DS principles.

In discussing the ideas presented by Magai and Nusbaum (1996) it is important to note that their model is primarily a model of personality *change* rather than of personality development. However from a DS perspective, the terms 'change' and 'development' represent essentially the same phenomenon, hence can be used

[6] Fogel's more recent writings (e.g. Fogel, 1993) have similarly stressed the relational dynamics underlying the self-organisation of the self. While the details of his theory are beyond the interests of

interchangeably. Perhaps moreover, their theory is one of the few theories available that considers the place of emotions in personality change/development processes.

The essential thesis outlined in Magai & Nusbaum (1996) is that highly charged episodes of emotion characterise episodes of both precipitous and gradual personality change. More specifically, they argue that strong affects and the emotion of surprise are invariably present at phase shifts in both emotional and personality development (see also Stein & Levine, 1990, p. 51 for a similar conceptualisation). In explicating their 'mechanism,' they note that surprise has a channel-clearing effect (cf. Tomkins, 1962), and that it is associated with sudden increases in stimulation, particularly with the sudden awareness of a connection between previously unlinked internal events of concepts. According to these authors, "the emotion of surprise may be pivotal in the change process, precipitating the breakdown of defence, the ungating of negative emotion, and the kind of surge of energy that appears essential to change" (p. 410)[7].

However as seems common in DS approaches (see Chapter 5), the mechanisms through which developmental forms organise and stabilise in the theories of Fogel (1993) and Magai and Nusbaum (1996) are not clearly spelled out (M. D. Lewis & Granic, 1999). Lewis and Granic (1999) suggest that part of the difficulty evident in Fogel's (1993) account is a reluctance to acknowledge any distinctiveness amongst sub-systems. As these authors note "A complex systems account should be able to accommodate parts and wholes without ignoring process" (p. 17; see also Izard et. al., in press).

A more comprehensive (and less problematic) theory of state space development is found in the recent work of Peter Killeen (Killeen, 1989, 1991, 1992)[8]. In Killeen's 'behavioural state space' theory, unconditioned attractors are innate (i.e. are reinforcing and attract behaviour in their own right). Killeen (1991) further suggests

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the current discussion, his emphasis on development as emerging from relational dynamics is again underscored.

[7] It is acknowledged that the theory in Magai and Nusbaum (1996) is not being done justice here. As is discussed below, their theory also devotes considerable attention to the importance of more stable personality characteristics and social networks in personality change.

[8] Killeen's (1989, 1991, 1992) theory is strikingly comprehensive and cannot be fully explicated here. Additionally, his emphasis on behaviour (rather than functioning) is slightly at odds with the interests of the current dissertation. Nonetheless, the mechanism he has proposed regarding the development of attractors within state space is directly relevant, hence will be briefly described.

that these reflexive or innate attractors are limited in number, and that they cannot be increased.

However, a few reflexes – in particular movement away from noxious stimuli (repellors) or toward pleasant stimuli (attractors) – are subject to extensive elaboration. According to Killeen (1991), this process of elaboration can be usefully described within the framework of behavioural conditioning. While unconditioned attractors influence (attract) behaviour in their own right, conditioned attractors can only exert influence through their place in the trajectory leading to an unconditioned attractor. According to Killeen (1992) then, classical conditioning establishes a previously neutral stimulus as a new behavioural attractor. In a combination of DST and classic behavioural terms, the process of conferring attraction (and thence development) is termed conditioning. While the details of Killeen's (1992) description of this developmental process (see also Killeen & Bizo, 1998) are beyond the interests of the current discussion, three further comments seem pertinent.

Firstly, the reader should note the similarity between Killeen's (1991) conceptualisation of the relationship between innate and conditioned attractors and that of the current theory. Both models suggest that the attractors that emerge post-natally can only hold value (or attract behaviour) through their relationship to innate attractors. Moreover, Killeen's description of the macrodevelopment of attractors is very similar to that undertaken here. As was mentioned above, Killeen's (1989, 1991) theory of state space conditioned development conceptualises of the state space becoming increasingly dimpled with ever more precise attractor basins. In a similar vein, the current theory sees the innate motivational state space topography become ever more precisely delineated in multiple attractors as described below.

Secondly, Killeen (1992) goes some considerable distance towards describing the conditions under which attractor developments of this type are likely to occur. According to him, the greatest opportunity for the process of conditioning (conferring attraction) is where (a) target behaviours are proximate in the activation spectrum, (b) where stimuli are proximate in similarity, and (c) where innate and conditioned stimuli occur in temporal proximity. Importantly, Killeen's discussions of state space development place a key emphasis on the subjectivity of state space. By this he

means (for example) that stimuli can only be considered 'similar' in a subjective, psychological sense. Again, this idea will be returned to below.

Finally, Killeen (1992) devotes considerable discussion to the notion that multiple attractors may exert an influence upon behaviour simultaneously in the same context (see also Hull, 1943 and his second postulate, that of 'interaction'). This concept equates nicely with the current theory's notion that human behaviour and emotion are frequently a response to multiple attractors. Killeen (1992) suggests that trajectories through the state space are highly flexible. More specifically, he describes an experiment by Catania (1975, cited in Killeen, 1992) in which it was shown that organisms prefer behavioural trajectories that provide multiple subsequent paths to an attractor, a preference for 'keeping their options open' (p. 457). Although the implications of both these points will not be considered until later (see below), Killeen's (1992) paper helps illustrate the dynamism and overdetermination inherent to human behavioural, motivational, and personality functioning.

Overall however, it is the theory of Marc Lewis and colleagues (e.g. M. D. Lewis, 1997, in press a, in press b; M. D. Lewis & Douglas, 1998; M. D. Lewis & Granic, 1999) that has most precisely outlined a mechanism describing the development of personality state space attractors. Their theory begins by offering the concept of self-organising *emotional interpretations* (EIs) as representing attractors in the personality state space. Importantly, they suggest that "an individual's overall repertoire of attractors defines his or her personality as a set of coherences" (M. D. Lewis & Granic, 1999; pp. 13[9], see also pp. 21 & Magai & Nusbaum, 1996).

Lewis and colleagues have also gone a considerable distance towards outlining a comprehensive description of how this hypothetical process might occur (M. D. Lewis, in press a, in press b; M. D. Lewis & Douglas, 1998; M. D. Lewis & Granic, 1999, in press). In a manner similar to Magai et. al. (Magai & Hunziker, 1993; Magai & Nusbaum, 1996), and drawing heavily on work from emotions theory (e.g. Oatley & Johnson-Laird, 1987; Izard, 1991), these authors argue that emotions lie at the core

[9] The page reference for this quote may not be strictly accurate as the book has not yet gone to press, and the copy read is a pre-publication draft. The same apology holds for all other quotes from this particular source.

of state space development (see also Izard et. al., in press). In brief, what Lewis et. al. suggest is that emotions serve to promote *coupling*[10] among diverse conceptual structures, acting as a catalyst or control parameter for the emergence of larger organisational units (M. D. Lewis & Douglas, 1998; M. D. Lewis, in press b). Emotions achieve this end by favouring particular combinations of elements that fit a general class of situations related to that emotion (M. D. Lewis & Douglas, 1998) or by influencing the coupling of cognitive elements with one another as it reciprocally selects their totality (M. D. Lewis, 1997). It follows from this premise that self-organisational processes cannot proceed without low levels of emotion (M. D. Lewis & Granic, 1999).

Coherence over time amongst elements derives from recursive or iterative adjustments, in which the discrepancies among mutually co-activated elements are gradually eliminated (M. D. Lewis, in press b; Izard et. al., in press). Over several iterations (cycles) a stable state of self-consistency emerges as the resultant organisations (EIs) become progressively consolidated in personality through self-consistency and emotion-related selectivity. Additionally, Marc Lewis (M. D. Lewis, in press b) suggests that the specific characteristics that emerge in self-organisation influence the nature of subsequent self-organisations – they *cascade* (see also M. D. Lewis & Douglas, 1998).

Macrodevelopmentally, each transition in the emotionally-driven coupling process further constrains the ways in which elements can fit together on subsequent occasions. Particular concepts, images, and connections become increasingly congruent with one another in the form of motivational concepts such as scripts, plans, and goals (M. D. Lewis & Granic, 1999). Thus in both normative and individual development, the increasing refinement of cognitive connections and the real-time coupling of cognitive constituents and emotions allow for a crystallisation in the personality state space (see below). As attractors become more refined, they also emerge more frequently, emerge with fewer contextual cues, and extend further across the state space.

[10] Coupling can be described as the reciprocal selection among elements (M. D. Lewis, in press b), and can be either cooperative or competitive.

A quick critique

Broadly speaking, the approach to the development of personality advocated by theorists writing from a DS perspective (e.g. M. D. Lewis, 1996, 1997, 1998; in press a, b; Lewis & Granic, 1999; Magai & Nusbaum, 1996) is consistent with the broader DS theories of Thelen (e.g. 1990; Thelen & Smith, 1994) and Killeen (1989, 1991, 1992). All of these theorists suggest that elements in a system self-organise on the basis of their frequent associations (see Chapter 4.3), with some pre-existing couples or associations specified in some theories. Overall, such theorising has underscored the importance of mutual activation and recursion within DS models of development.

While the mechanisms involved in the theories of Thelen and Killeen are perhaps less relevant to theories of personality development, the underlying processes described by Lewis and Magai have been constructed with personality in mind. Although the theory of Lewis and colleagues is considerably more comprehensive and developed, both 'schools' nonetheless share the belief that personality development occurs through a wedding of cognitive elements with emotions.

Moreover, both theorists have stressed the importance of a discrete approach to emotions (see below, and Chapter 8), and have begun to delineate the manner in which different levels of the personality system may be more or less flexible (e.g. Lewis, 1997; Magai & Nusbaum, 1996; Izard et. al., in press). In sum, the DS approach to personality development, particularly that exemplified by Marc Lewis and colleagues (e.g. M. D. Lewis, 1997; Lewis & Douglas, 1998; Lewis & Granic, 1999) represents a novel, comprehensive, and formidable theory describing the development of attractors within the personality state space.

And yet the approaches taken are not without their weaknesses. Hence, while it is beyond the interests of the current dissertation to engage in a prolonged critique of these ambitious and important theories, some brief commentary and criticism will occur. The reader should note that the criticisms outlined below are directed predominantly at the theory of Lewis and colleagues. This is perhaps a little unfair given the importance of their theory, but occurs for the simple reason that their work provides the only framework sufficiently developed to enable precise evaluation.

Initially, it seems problematic that little or no attempt is made to acknowledge or discuss the topic of personality or its operationalisation. Although the limits of space are no more apparent than within the immediate dissertation, Lewis and colleagues appear uninterested in debating the nature of personality. Rather, they have tended to suggest (in passing) that their chosen 'personality variables' "are similar to Izard's affective-cognitive structures and Tomkins' ideoaffective structures" (Lewis and Douglas, 1998, p. 162), or Magai's (Malatesta & Wilson, 1988; Magai & McFadden, 1995) notion of emotion traits (Lewis & Granic, 1999). With the basis for their theory and mechanism implicitly assumed, one is left wondering about the face validity of this particular approach to the study of personality.

Secondly, it is possible that some of the 'cognitive constituents' that are purported to form part of an EI might not yet exist in very early development. In discussing "images, associations, propositional forms, script elements, and concepts" Lewis and Granic (M. D. Lewis & Granic, 1999, p. 12), the authors have introduced scientific concepts which presuppose certain capacities in the newborn organism, an assumption that appears unverifiable at best. As such, the cognitive constituents of an EI appear somewhat unsuited to accounting for the development of the cognitively simple newborn, or to describing how development of a personality state space might occur in organisms lacking such (see Chapter 1). Overall, the mechanism for personality state space development offered does not appear basic enough, requiring as it does, a contentiously high degree of cognitive sophistication in order to operate.

Notably in terms of the current theory, the mechanism of Lewis and colleagues fails to discuss or differentiate the elaborative processes involved in personality development prior to and following the emergence of a representational (conscious) self[11]. As was discussed in Chapter 4, the emergence of a conscious self (at around 18-24months) necessitates some substantial revisions in our conceptualisation of human functioning and development. More generally then, their mechanism pays little attention to the manner in which post-natal developments may act as control parameters for the mechanism itself, and (thus) implies that the elaborative

[11] Although it is not discussed in their writings, the model as currently advocated by Lewis and Granic (1999) appears implicitly experientialist. They suggest for example, that we learn to "make sense of

mechanism underlying personality development operates equally across macrodevelopment. This omission appears ironic given the substantial attention devoted to time scale considerations in Lewis' work (see e.g. M. D. Lewis, in press b).

Most salient however among the difficulties with the theories of state space attractor development outlined thus far is the absence of an adequate consideration as to why any of these real time developmental events occur at all. Most DS theorists who examine personality, as well as the preponderance of cognitive theorists accept the functionalist premise that emotions arise in respect of goals (although they will argue the degree and nature of cognitive involvement and the precise motivational, cognitive, and behavioural consequences of emotions). Yet in describing a mechanism for development, writers like Lewis, Magai, and Izard have focussed on cognition-emotion self-organisation without an *explicit* discussion or examination of these *goals* that the emotions or cognitions are arising or organising in respect of. Goals are simply treated as one of a number of cognitive variables.

Consequently, there appears somewhat of an inconsistency between the developmental mechanism they offer and the manner in which they conceptualise emotions. More generally, is that despite adopting a functionalist approach to emotions, these writers appear to have forgotten what the whole business is about. The current writer respectfully submits that emotions, development, personality, and indeed life itself, coalesce and occur first and foremost around motives and goals (see Chapter 1). As such, not only do I suggest that personality must be considered a motivational concern, but that in real time development, cognitive elements occur and are relevant only in respect of existing innate motives. Stated more fully, cognitive and emotional constituents must all occur in respect of innate motivational concerns else there is no reason for them to occur at all.

Overall, the current theory suggests that the same initial degrees of emergent flexibility and development are enabled in a system in which the only cognitive elements to operate are those that occur in respect of or are already innately wedded

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situations in particular ways" (p. 19). It may be that they mean 'interpret' situations, yet commentary on consciousness in personality development is altogether absent.

to emotions and goals[12]. This is not to say that other cognitive elements do not become part of the mechanism underlying personality state space development, but rather that these elements are incorporated at later developmental junctures.

Chapter 6.5 – Explicating the *mechanism* for state space attractor development: Emotions recast as innate elaborators

Emotions appear to constitute fractals in the stream of life experience

Magai and Nusbaum (1996, p. 418)

Introduction

Having outlined and critiqued the major frameworks that describe attractor development in dynamic systems, the following section will outline a model of attractor development consistent with the current conceptualisation of personality and emotion. The section will draw ideas from the section above and from three additional sources. Evidence will be drawn from theories of infant development and organisation, from emotion theory, and from learning theory to support the proposed mechanism. Taken together, this literature will be used to suggest that emotions are usefully conceptualised as an innate means to ascertain the relationship between existing attractors and novel stimuli. Additional neuroanatomical evidence suggesting that that emotions, but not cognitions, are responsible for early personality development will be presented. Overall, it is argued that early state space elaboration proceeds via the emotion system alone, with cognitive elements being 'recruited' into the elaborative mechanism as they emerge.

[12] It is acknowledged here that some substantial assumptions are being made regarding the degree of fixedness in the subsystems within emotions. Although this topic will not be discussed until Chapter 8, the reader should be aware that the current writer views the links between primary emotions and associated cognitions as highly fixed (see M. D. Lewis, 1997; Izard et. al., in press).

Laying the foundations I: Affect as organiser in infant development

The current theory takes as its starting point the observation that infants are ubiquitously affectual creatures. Notwithstanding issues of whether infant experiences and expressions are analogous to their adult counterparts (see Chapters 4 and 8), the idea that emotions are pivotal in development is central to an enormous number of developmental models (e.g. Bowlby, 1969, 1973; Tomkins, 1962, 1963; Izard, 1971, 1991, 1993, 1997; Lewis & Michalson, 1983; Sroufe, 1984; Stern, 1985; Malatesta & Wilson, 1988; Magai, 1996; Magai & Hunziker, 1993; Magai & McFadden, 1995; Magai & Nusbaum, 1996; M. D. Lewis, 1997; M. D. Lewis & Douglas, 1998). As shall be demonstrated however, while recent writings have stressed the functions of emotions in personality organisation, they have predominantly done so at a broad and descriptive level.

Izard and colleagues (e.g. Izard, 1971; 1993, 1997; Izard et. al, in press) for example, have long suggested that infants are primarily affective beings, being particularly sensitive to, and dependent on, emotional information, notably vocal and facial (see also Nelson & DeHaan, 1997). More importantly, several recent theories derived from within the differential emotions 'school' have suggested that a major function of the emotions and emotion systems is the organisation of traits and dimensions of personality (e.g. Izard, 1991; Magai & McFadden, 1995; Magai, 1996).

Izard (1993) himself has argued that emotions are organisational in that they organise and motivate perception, cognition, and action. It follows from this premise that emotions and heritable differences (see below) should affect the characteristic ways in which an individual thinks and acts, and thus, his or her personality. Differential emotions theory generally suggests that specific emotions shape particular traits, and the particular patterns of emotions help shape broad areas of personality (Izard, 1993). However, like many of the DS approaches outlined above, the precise manner in which this organisation occurs is (self-admittedly) unclear (Izard, 1993), although see Izard et. al. (in press) for a recent attempt.

However, while Izard et. al.'s (in press) description of state space (personality) development suffers from a lack of precision, their theory has gone a considerable

distance towards outlining how heritable differences in emotions (as initial conditions) may influence the functioning of emotion in self-organisational processes (see also Ackerman, Abe, & Izard, 1998). Izard (1993) initially suggested that personality is influenced by genetic thresholds in the activation and stability of emotionality, while Izard et. al. (in press) more comprehensively argue that "a person's profile of emotion thresholds sets the stage for the self-organisation of a particular pattern of emotions" (p. 15)[13].

Izard et. al. (in press) also suggest that individual differences are rooted in neurohormonal, sensorimotor, affective, and cognitive differences regarding the activation of discrete emotions (see also Izard, 1993). According to these authors each emotion system constitutes a source of individual differences in the patterns of self-organisation of emotion-cognition relations. While these ideas will be more fully discussed below, the immediate discussion only seeks to underscore the idea that small heritable differences in arousal, reactivity, and proneness to particular emotions (e.g. Izard, 1994a) are likely to have important consequences for the organisation of personality systems around particular emotions (Magai & McFadden, 1995; Izard, et. al., in press).

Overall, Izard (1993) suggests that individual differences in emotion activation thresholds lead to differences in the frequency of emotional experiences. These in turn lead to emergent self-organisations around particular patterns of cognition, emotion and action, leading towards characteristic manners of responding and the individual personality (Izard et. al., in press).

While further discussion would serve little further benefit, the twofold thrust of the section above nonetheless remains. While the precise manner in which emotions contribute to the development of personality appears a little unclear in the theories above, the involvement of emotions in personality development per se seems indisputable. Additionally, it also seems plausible to suggest that heritable aspects of

[13] It should be noted that while recent papers examining the personality-affect interface (e.g. Gross, Sutton, & Ketelaar, 1998) have provided theoretical support for the notion that elements of both tonic affect and emotional reactivity may be heritable, extension of these ideas to specific emotions has not yet been forthcoming.

emotionality (Gross, Sutton, & Ketelaar, 1998) or emotional proclivities (Izard et. al., in press) are likely to produce highly recursive and cascading effects in personality self-organisation.

Determining exactly what such propensities represent in terms of the initial form of the personality state space is a key issue for future research in this area. If we consider discrete emotions as heritable attractors in the personality state space, it seems reasonable to suggest that individuals may inherit marked differences in the arrangement and strength of the attractors for particular emotions. Furthermore, differences in these critical initial conditions are likely to be consolidated through the iterative nature of human state space development (Killeen, 1989, 1991; M. D. Lewis, 1997; Izard et. al., in press).

Laying the foundations II: The importance of innate feedback mechanisms

The trick is to know the good from the bad

(Pugh, 1977, cited in Brown, 1990)

The second premise from which the current chapter draws its impetus from is a broader conceptualisation of emotion in personality processes and development (see Chapter 8 for details). Earlier, it was suggested that every living system possesses feedback mechanisms for regulating its behaviour in respect of goals (see Chapter 3.7). More specifically, it was argued that every living system possesses a means by which to detect goal-significant events/stimuli, and to promote adjustments in respect of them (Skyttner, 1996). In line with differential emotions theory (e.g. Izard, 1971, 1991), it was also suggested that the emotion systems can be thought of as representing this mechanism for homo sapiens[14] (see also Rolls, 1990, 1995 for a learning approach). As such, the current theory views primary emotions as innate motivational processes through which the system is initially able to ascertain the

[14] There are of course other sources of feedback in human development and functioning, although most of these tend to disappear within the first few months of life. So while human infants are born with upwards of 20 reflexes (Eibl-Eibesfeldt, 1989), the data likewise suggests that most of these reflexes

'meaning' or goal-relevance of new events and stimuli (e.g. LeDoux, 1989, 1993, 1994c).

Aside from its palpable heuristic value, there is some support for the notion being developed here. Panksepp (1994a) suggested that conscious human feelings are the subjective aspect of evaluative activities, while Brown (1990) has argued that feelings constitute heuristic devices for reducing the search space when formulating action. In fact, Brown (1990) begins his chapter 'The Biological Significance of Affectivity,' by arguing that living systems can only maintain their organisation through compensations, and that ultimately such compensations must be affectual or value-driven in nature (see also Zajonc, 1980, 1984[15]). According to him, theories of habit formation or behaviour (e.g. Skinner and Thorndike), as well artificial decision systems must ultimately converge upon a value-driven account (Brown, 1990).

Lewis, Sullivan, and Michalson (1984) have previously suggested that affect may serve both to energise performance – to direct the infant's attention to the contingency and motivate their focus – and to insure that they learn and remember the contingency through positive reinforcement (see below). While agreeing with this conceptualisation, the current theory also suggests that there is no good reason to assume that the manner in which a particular emotion functions to indicate goal relevance is qualitatively different at different stages of development.

Anger for example, is innately indicative of thwart, whether the organism be an infant, a child, or an adult (Campos & Barrett, 1984). Certainly, the classes of stimuli that come to elicit an anger response will change dramatically across development (see below), and similarly the organism's awareness, experience, and response to this process will vary (see Chapters 7 and 8). However, the basic function served by anger and the other primary emotions in any instance, conscious or not, remains the same. The emotional response indicates to the system that something of significance is occurring, more precisely describes the organism-goal relationship, and motivates behavioural and cognitive adjustments in respect of such changes.

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attenuate over time. Overall, instinctive behaviours/reflexes strike the current author as a source of feedback insufficiently flexible to account for the immensity of developmental variance.

[15] The now-famous Zajonc-Lazarus debate will be more fully discussed in Chapter 8.

Laying the foundations III: The role of emotions in neurological models of learning

The final leg on the tripod supporting the current mechanism for state space attractor development is found in theory and data from neurobiological models of learning. Although the interests of writers in this field are typically somewhat removed from that of the current author, theory regarding the bases of learning[16] is singularly consistent with both the model being advocated here and the criticisms outlined above. The current section argues that personality development can usefully be thought of as the process in which new motives regarding different classes of internal and external stimuli and response are acquired. As such, it suggests that state space development can be considered a *learning* process in which emotions figure centrally.

The section above suggested that organisms require an innate means to ascertain the implications that novel stimuli have for the organism's goals. This idea is consistent with many theories in the literature on animal learning. Hammer (1997) for example, suggests that animals must learn which stimuli are predictive of biologically (innately) meaningful stimuli, while Gray (1995) similarly argues that the organism must have some inbuilt means of establishing a 'goal gradient'. In Gray's (1995) theory, establishing a goal gradient necessitates ascertaining the relationships between unconditioned and conditioned stimuli, and responses.

In implicating emotions in this evaluative process, LeDoux (1989) has argued that "regardless of whether one favours a cognitive, feedback, or central theory of emotions, the core of the emotional system is . . a mechanism for computing the affective value of stimuli[17]" (p. 271, see also Panksepp, 1994a). As such, he considers the emotion systems to fulfill this vital evaluative role. In a comprehensive model of stimulus perception, evaluation, planning and action, Halgren and Marinkovic (1995) call this evaluation component of learning 'event encoding.' Like LeDoux (1989, 1992, 1993, 1994c), they suggest that event encoding represents a

[16] The astute reader will notice that the current dissertation discusses 'learning' from a classical (associative) perspective. There have however been some recent indications that this approach may not accurately represent the manner in which species learn. Evolutionary biology for example has recently advocated a more domain specific, problem solving approach to learning (see e.g. Gallistel, 1995).

[17] LeDoux (1989) suggests that a stimulus may include events occurring in the environment (exteroceptive), within the body (interoceptive), or within the brain (thoughts and memories).

primitive affective evaluation of an event in terms of its significance for well being (see also Rolls, 1990 on this issue).

In 1937, Kluver & Bucy (cited in LeDoux, 1989) reported that large temporal lobe lesions in the monkey produced a 'psychic blindness.' While the animal was not blind to the sensory properties of a stimulus, they could not ascertain its *affective* significance, and hence did not know how to behave in respect of it. Research since this time has consistently shown that it is damage to the amygdaloid complex that was associated with impairments to this affective-evaluative system (LeDoux, 1989, 1992, 1993, 1995; Gallagher & Chiba, 1996).

In support of this premise, researchers have shown that amygdaloid cells respond preferentially to affective rather than neutral stimuli (Rolls, 1995), that stimulation of the central nucleus of the amygdala produces 'emotion-like' behaviour in rats (Kapp, Pascoe, & Bixler, 1984; LeDoux, 1992; Davis, Walker & Lee, 1997, Davis, 1997), that lesions to the amygdala render the animal incapable of guiding behaviour through affective information (LeDoux, 1989), and that damage to the amygdala impairs associative learning (Good & Westbrook, 1995).

These animal research findings are paralleled by clinical data. For example, the amygdala is implicated with recognition deficits in facial expressions of fear and anger (Heilman & Gilmore, 1998) and perhaps disgust (Adolphs, Tranel, Damasio, & Damasio, 1994, 1995; Broks, Young, Maratos, Coffey, Calder, Isaac, Mayes, Hodges, Montaldi, Cezayirli, Roberts, & Hadley, 1998), as well as with general learning deficits (Clark, 1995; LaBar, LeDoux, Spencer, & Phelps, 1995). Additionally, fMRI research with non-brain-damaged subjects has also indicated a heightened activation in the amygdala during associative learning (LaBar, Gatenby, Gore, LeDoux, & Phelps, 1998).

More importantly, several researchers have *interpreted* these findings in terms of affect-evaluation or affect-learning relationships. Kapp, Pascoe, and Bixler (1984) for example, suggest that damage to the central nucleus of the amygdala (CNA) attenuates emotional responses and *thus* produces learning deficits, particularly in aversive learning (see below). LeDoux (1993) suggests that lesions to the amygdala

interfere with the ability to learn the associations between rewards/punishment and stimuli (see also Weiskrantz, cited in Rolls, 1990), while Rolls (1995) interprets the changes associated with amygdalic lesions as a "deficit in learning stimulus-reinforcement associations" (p. 1097). Although there are difficulties with this type of research (see below), evidence from animal studies does suggest that emotional responding/evaluation in the amygdala is necessary for associative learning to occur (Phillips, Blaha, Pfaus, & Blackburn, 1992; Lee & Kim, 1998).

It must be acknowledged that the theorising of writers like LeDoux (1989, 1992, 1993, 1995) represents an ambitious interpretation of the data given the state of knowledge about neural circuitries in emotion. Most importantly, it must be acceded that the role he assigns to the amygdala has only been comprehensively demonstrated in respect of the emotion of fear (LeDoux, 1995), although it has been less convincingly implicated in anger (Heilman & Gilmore, 1998) or disgust (Adolphs, Tranel, Damasio, & Damasio, 1994, 1995). Similarly, research has also shown that amygdalic damage interferes more consistently with avoidant than appetitive behaviour learning (Halgren & Marinkovic, 1995), and that lesions to the CNA interferes with the learning of associations between neutral and primary stimuli, but not between two secondary reinforcers (Rolls, 1995). Nonetheless, when taken as a whole the pattern of activations and deficits associated with the amygdala are consistent with the idea that the amygdala is a general center for emotions (LeDoux, 1995; Clark, 1995), and that emotions are fundamental to learning.

Yet even if we accept that the amygdala is centrally involved in learning *for the reasons suggested above*, this would not in itself support a model of state space attractor development that emphasised the *primacy* of affective over cognitive processes. It is known for example, that the amygdala receives huge afferents from the hippocampus, one of the most important cognitive structures in the brain (LeDoux, 1989). Such a pattern of connections might thus be taken as supportive of cognition-emotion mechanisms for personality development (cf. M. D. Lewis, 1997; M. D. Lewis & Douglas, 1998). However, additional support for the primacy of affective mechanisms in the elaboration of personality is found in an examination of the relative ontogenies of the two brain structures.

LeDoux (1989) notes that the hippocampus receives modality integrated information from the association cortex. He then suggests that while this information is more comprehensive than that stemming from the amygdala, that it is also considerably slower (see also Moreland & Zajonc, 1977, 1979, 1982). More specifically, he argues that thalamo-amygdala connections are monosynaptic and several synapses shorter than information based on cortically mediated information (LeDoux, 1989). When one considers the importance of initial conditions in the microdevelopmental emergence of a response, it seems reasonable to suggest that very quick (albeit unelaborated) *affective* information from the amygdala will have some powerful effects through neural networks. In some senses then, affective information may be more primary than hippocampal data in the cycle of perception, evaluation and response.

Phylogenetic analyses of these brain areas suggest that the subcortical thalamo-amygdala projections are a more primitive system that has been embellished with the evolution of the neocortex and cortico-amygdala projections (LeDoux, 1989). Research also indicates that phylogenetically more simple animals, and possibly young humans, use slightly different neural circuitries than adult humans. While adults appear to use cortico-amygdala and thalamic circuits, primitive vertebrates and young infants rely exclusively upon subcortical processors (see Rolls, 1995).

In considering a possible distinction between affective and cognitive information (cf. Zajonc, 1980, 1984; LeDoux, 1989), developmental evidence suggests that the hippocampus matures more slowly. In the rat, the amygdala is possessed of most of its neurons by embryonic day 15 or 16, and no further neurons are added beyond day 17 (Ten Donkelaar, Lammers, & Gribnau, 1979, cited in LeDoux, 1989). By contrast the hippocampal neurons do not even appear until embryonic day 14 and only a small proportions of hippocampal neurons are present at birth (Cowan et. al., 1981, cited in LeDoux, 1989). While the preponderance appear within the first week, neurogenesis continues up until 3 months (LeDoux, 1989). In humans, it has been suggested that the hippocampus is likewise immature at birth (Jacobs & Nadel, 1985). Paranthetically, they suggest that this late development explains infant amnesia, in that declarative memory is not available for the period (18 – 36 months) in which the hippocampus is maturing.

Overall, the literature outlined above can be taken as consistent with the idea that emotional responding is central to any associative mechanism purporting to explain personality state space individuation through learning. Specifically, the establishment of contingency, particularly with regard to avoidant behaviours, seems to require the functioning of an amygdala-based, hence emotional, evaluation system. Importantly, the amygdala is fully developed at birth, and is thus ready to begin evaluating the significance of stimuli from this time.

Moreover, developmental aspects of the animal learning literature are consistent with human research in suggesting that the cognitive aspects of stimulus information may well not be available either solely or for integration in the first two years of a human life (Jacobs & Nagel, 1985). This finding casts some doubt on the assumption that state space elaboration mechanisms must initially include cognition. Instead, it indicates that infant state space development may be completely affectively driven in the first two years of life.

By the same token however, the growth of connections between the amygdala and the hippocampus, as well as the gradual incorporation of cortical links to stimulus evaluation activations, suggest that stimulus evaluation mechanisms may themselves change across development. Initially, there seems to be a predominantly affective evaluation and elaboration mechanism, predominantly sited in the amygdala. This mechanism may then couple with more cognitive aspects of stimulus evaluation (in the hippocampus), perhaps producing a mechanism like that offered by Lewis and colleagues (M. D. Lewis & Douglas, 1998). Finally, this evolving mechanism may continue to interact with later cognitive capacities as they become available. Ultimately, the developing system is possessed of a mechanism in which complex cognitive capacities such as declarative memory, planning and self-representational capabilities (cortical), interact with other cognitive and affective information about stimuli to elaborate the state space.

I + II + III = An emergent mechanism for state space attractor development

The current theory thus proposes that the mechanism underlying the development of personality state space attractors[18] evolves over time. Initially, this mechanism appears to involve a relatively primitive stimulus evaluation that might be described as the emotionally-driven establishment of contingencies between existing attractors and new classes of stimuli[19]. However, progressive developments in cognitive skills and capacities may well be recruited into the elaborative mechanism. More specifically, recognition, classification, and representational abilities gradually couple with the basic mechanism to produce an ever-more complex elaborative mechanism.

Consistent with a number of literature sources and data it has been suggested that this elaborative mechanism is initially affective. As such, it is argued that the innate components of five primary emotion systems (those for anger, sadness, happiness, fear, and disgust) are both sufficient and necessary conditions for the evaluative and elaborative processes of personality development. Equally, it does not appear that cognitive elements beyond those that are part of the appraisal system are necessary for this initial form of the mechanism to operate. As was noted in the section above, developmental animal research suggests that the hippocampus is relatively unformed at birth, hence is unlikely to be substantially contributing to stimulus evaluation or learning.

The current theory thus suggests that the emergence of an innate emotional response serves two functions. Initially, the emotional response informs the system that something relevant to an existing attractor is occurring (see Chapter 8.5). In some senses, an emotional response is a means of prioritising among the multiple evaluations occurring in respect of multiple attractors/goals. In line with differential emotions theory, it is argued that emotions are an innate means by which to precisely evaluate the relationship between an existing attractor and new stimuli. The intensity

[18] The discussion to follow discusses personality state space development as occurring through the emergence of attractors. The same reasoning follows regarding the development of repellors and is only omitted in the interests of brevity.

[19] The term 'stimuli' is used at its broadest, most subjective sense here. As such, it may be used to describe either internal or external stimuli (per LeDoux, 1989). The reason for this is simply that for the evaluative/elaborative mechanism almost anything can constitute subjective stimulation, as long as

of the response indicates something of the importance of the attractor[20], while the type of emotional response *innately and of itself* describes the fundamental nature of the relationship between the most salient attractor and the stimulus.

Following this, the emotion system then proceeds to reflexively generate a new attractor or repellor, proximate to the 'active' attractor in the state space. This attractor can be taken as representing the relationship between the existing attractors and the new stimuli. As such, we might consider new attractors as emerging as part of innate organisational motivations (see Chapter 3), for they serve to internalise the relationships between aspects of the world and behaviour (new stimuli) with existing attractors or motivations. This fundamental process leads to a cascading rarefaction of the state space and to the development of conceptually distinguishable areas within it.

Initially, new attractors are likely to be comprehensively less stable than innate attractors. They may (for example) emerge only once before other (more powerful) attractors emerge in proximity and thus attract systemic behaviour in this area of the state space. Additionally, the inability of the young infant to make fine temporal discriminations between stimuli and consequence[21] may lead to the simultaneous development of multiple attractors for different areas of the state space. For example, attractors or repellors may develop regarding avoidance of a certain class of external stimuli as well as regarding particular emotional, cognitive or behavioural responses (see Chapter 7.7). Finally, in addition to being relatively 'shallow,' the boundaries of the new attractor may be comparatively unclear.

While later developments may reveal the emergence of contradictory or competing attractors, future attractors can only ever be acquired in respect of the current form of the state space – the totality of existing attractors (M. D. Lewis, 1997). More typically, it is expected that development will lead to ever more precise 'variants' or 'derivatives' of the attractors that already exist. As such, it is argued that, like

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it impacts upon current attractors. As such, the term 'stimuli' is used to include actions, states, experiences, perceptions, cognitions of either the organism or in another.

[20] According to Clore (1994a), intensity is a key part of emotion and emotional experience and is predominantly a function of goal importance (see the discussions of 'importance' in Chapters 7 and 8).

constraints (see Chapter 5), that attractors cascade. Finally, while we cannot predict the manner in which this developmental process will occur, person-environment transactions and their internalisation appears to be a recursive process in which early attractors operate more frequently, hence become ever-more precise and more powerful.

So despite their immaturity, these early attractors will typically be progressively consolidated through organism-environment transactions, thus constituting key initial attractors in the ontogeny of the individual personality and the generation of individual differences.

It is also important that we remember how chance events and timing may play an important part in the development of new attractors (M. Lewis, 1997, 1998a). Most immediately, it should be remembered that the salience of a particular attractor in a microdevelopmental context (its emergent importance) strongly influences the areas of a state space in which new attractors are likely to develop. For example, the attractors for nutrition and eating behaviours probably exist as cyclical attractors in which the attractors deepen as a function of the system's need for nutrition. At a time when the need for nutrition is high, emotional responses will typically occur in respect of this attractor, hence new attractors are more likely to develop in this area of the state space, even where the stimuli or behaviour bear little objective relationship to the existing attractor[22].

Finally, the nature of the emotional response is a key influence on the precise form of the attractor or repellor. More specifically, it must be remembered that attractors are in no way neutral. Rather, they are 'forged' in the immediate presence of a *particular* primary affect. Consequently, their form must inevitably reflect something of the nature of this affect in their form. At the most simple level, this difference may be reflected in the relative dominance of attractors (approach motivations) and repellors (avoidance motivations) in the state space. However, attractors or repellors that emerge in an 'angry' context are also like to differ qualitatively from those that form

[21] As noted above, the hippocampus is comparatively underdeveloped at this stage. As such, the infant is likely to struggle to establish fine-grained temporal contingencies.

in a context of fear, sadness, disgust or happiness. Consequently, personality state spaces may indeed become organised around particular emotions as suggested by differential emotions theory (e.g. Tomkins, 1962, 1963; Izard, 1971, 1972, 1991, 1994a, 1997; Malatesta-Magai & Izard, 1991; Magai & Hunziker, 1993; Magai, 1996), and heritable differences in the propensity to respond with particular emotions will typically be compounded across development.

In addition, the current theory suggests that new cognitive capacities are incorporated within this basic elaborative mechanism as they emerge. As new capabilities emerge, the reciprocal activation of cognitive and affectual evaluations may see them become progressively coupled, ultimately producing a new level of elaborative mechanism. Cognitive abilities, particularly declarative memory, classification (see Chapter 3), and representational skills increase the scope for state space elaboration by enabling the evaluation of less proximate and/or representational stimuli. Throughout this type of development the elaborative process nonetheless remains inherently affectual.

Most importantly in terms of the current theory, the emergence of consciousness or the representation of one's own state space (see Chapter 4) has some profound consequences for the manner in which the personality state space development progresses. While the core of the developmental process remains that of an affective evaluation, the system's ability to represent its own attractors and repellors greatly increases the ways in which the state space can develop.

More specifically, meta-cognitive awareness of the state space or personality enables the deliberate comparison and evaluation of individual attractors (see Chapter 8), and the representational comparison and evaluation of the relationship between stimuli and attractors. This approach is consistent with that of Killeen (1989, 1991) who suggests that what separates humans from many other species is the ability to modify the local character of the state space through mentation, thus bringing other attractors that are not immediately present to bear upon behaviour[23]. Consciousness also enables the emergence of attractors and repellors regarding the phenomenal

[22] Underscoring the complex interactions between existing attractor activities and microdevelopmental responses can help explain phenomena such the emergence of 'superstitious' eating behaviours.

experience of both the state space and the emotions as well as the deliberate increase or decrease in the salience of particular attractors.

A few further comments

Although full explication of the ideas outlined above is not possible in the current dissertation, a preliminary working picture of the model can be described under four headings. The reader should be aware that this conceptual separation only occurs in order that major issues can be highlighted. As such, the organisation of the text should not be taken as indicating any literal separation between comments.

The view from afar: DS and macrodevelopmental prediction

Until recently, the DS approach to development has suggested that there will be real limits on our ability to predict long range developmental outcomes (Thelen, 1990). In this particular view, knowledge about precursor variables (initial attractors or constraints) are not a reliable source of predictor in macrodevelopment due to the variability inherent in complex systems (Thelen, 1990). Perhaps as a consequence of this premise, DS accounts have primarily considered self-organisational processes through the emergence of behaviour in 'real' or microdevelopmental time (e.g. Fogel & Thelen, 1987; Fogel, 1990; Thelen & Smith, 1994).

Recently however, other DS developmentalists have explicitly (e.g. M. D. Lewis, in press b) or implicitly (e.g. Killeen, 1989) suggested that self-organising dynamic systems (such as personality) become more coherent and stable, *despite* their increasing complexity. Moreover, one of these same theorists has suggested that it is precisely the increasing orderliness of the system that enables an increasing 'intricacy' to emerge across macrodevelopment (M. D. Lewis, in press b). According to him, while intrasystemic variability remains endemic to the system across short periods of time, major transformations diminish over time as coherent couples or

[23] Of course, attractors that are not immediately present can only bear on the behaviour insofar as the totality of the state space permits.

relationships crystallise and recur[24] (see also Izard, et. al., in press). The ongoing result of developmental processes then is an emergent system that becomes increasingly stable across macrodevelopmental time (M. D. Lewis, in press b; Mischel & Shoda, 1995).

Perhaps most relevant to the current discussion however, is the suggestion by Lewis (M. D. Lewis, in press b) that *personality* development can be usefully thought of as a series of relatively permanent changes in the structure of the state space. The position adopted by Lewis (and the current author) in respect of decreasing macrodevelopmental variance in personality systems is consistent with a growing body of empirical work that denotes the manner in which personality variables become increasingly stable across time (e.g. Costa & McCrae, 1988, 1997). It is likewise consistent with the ideas of behavioural theorists (e.g. Killeen, 1989, 1991, 1992), as well as with lay notions regarding the manner in which people become progressively more 'set in their ways.'

According to Marc Lewis (and the current author), a major consequence of the increasing stability within a system is that the more order that has accumulated over time, the greater the energy required to shift the system's trajectory (M. D. Lewis, in press b). More specifically, it has been suggested that the form of new attractors or goals within the state space is increasingly constrained by the developmental history (manifest in the current pattern of attractors and repellors) of the organism. As noted by Izard and colleagues (Izard et. al., in press), as well as in Marc Lewis' theory (M. D. Lewis, 1997, in press b; M. D. Lewis & Granic 1999), attractors in the motivational state space have a tendency to deepen via recursive feedback. Additionally, the argument above has suggested that the macrodevelopment of repellors (e.g. Carver, 1997; Lewis & Douglas, 1998) occurs in much the same fashion.

In sum, while few DS authors would wish to dispute the notion that complex systems remain inherently variable across *all* time frames, the implication that we should not theorise about permanent macrodevelopmental change within dynamic systems, *for*

[24] Interestingly Lewis (in press b) suggests that couples occur more frequently and more powerfully when in the presence of emotions, particularly intense emotions.

this reason, strikes the current author as a poorly premised and pessimistic implication. Rather than apply a useful axiom ad nauseam and beyond necessity or reason, we should first remind ourselves of *both* the potential and the limits of our current knowledge.

In the immediate context, such a caution initially means we must remind ourselves that personalities do not set like some 'gradually desiccating jelly-on-a-timer' in the refrigerator of development. The system always contains the potential for emergent growth and transformation (Magai & Nusbaum, 1996), although the tendency for major transformations to occur does decrease across developmental time (see above). Nonetheless, variation remains endemic to dynamic systems like personality, at all levels, and across all timeframes, thus constituting the 'real limits' of DS theorising. Because the system is continually evolving, but evolving without directions or endpoint (e.g. M. Lewis, 1997), it is never finished or unvarying (Magai & Nusbaum, 1996).

Additionally, the development of a system is unlikely to proceed in a smooth fashion (M. D. Lewis & Granic, 1999). Emergence at each developmental phase shift may lead to new attractors that are broadly consistent with other attractors in the system or with those of other infants. They may likewise be variants of these forms, or completely idiosyncratic. So while the changing patterns of variance in personality systems do not suggest that we will ever be able to invariably predict long-range developmental outcomes, they do indicate the presence of certain fundamental processes in the development and operation of the personality state space. While explication and framing of these core processes is a complex matter, the processes appear likely to involve a combination of cascading constraint (see Chapter 5) and emergent attractor which also cascade. The profoundly interactive influences of these two processes appear to progressively define and limit a given personality, enabling the creation of normative theories describing (if not always predicting) the macrodevelopment of the personality state space and its constituents.

Time-scale considerations in state space development

Although implicit in the discussions above, the dissertation has not clearly separated the emergent development of the personality state space across different time scales. Although unfortunate, it is hoped that this omission has not been taken as indicative of the fundamental importance of considering interactions at different time scales. Lewis and colleagues pay particular attention to these relationships, recently suggesting that while self-organisational developments occur across distinct time scales (e.g. M. D. Lewis, in press b), that developments at each level almost certainly interact with developmental processes at each of the others (Lewis & Granic, 1999; see also Vallacher & Nowak, 1997). The current thesis agrees with the position adopted by Lewis (M. D. Lewis, in press b) who suggests that there are two broad directions of influence between scales of self-organisation. Firstly, microdevelopmental self-organising processes, described above in terms of innate affectual evaluations and elaborations, repeated through microdevelopment, influence macrodevelopmental self-organisation.

According to Lewis, the more intense an emotional response, the longer (and perhaps more comprehensively) a particular configuration resonates in microdevelopment, thus increasing its capacity to adjust and stabilise associated attractor developments over longer time scales (M. D. Lewis, in press b). He likewise suggests that these relationships may be even stronger for interpretations forged/embedded in moods. More importantly, this directional relationship (micro or meso to macro self-organisation) is especially powerful in early childhood, where the plasticity in the developing system creates a situation in which microdevelopments may be structuralised as relatively permanently in relatively few iterations. As such, emotionally-driven state space elaborations in early interactions constitute critical initial conditions for the eventual form of the personality state space.

Conversely, macrodevelopmental self-organisations exert a profound influence upon microdevelopmental emergence. According to Lewis (M. D. Lewis, in press b) the complementarities laid down in macrodevelopment (through repeated microdevelopmental coupling) come to constrain the possibilities for thinking, feeling and acting in subsequent moments. As he notes, each state space only has so many

possibilities for making sense of and feeling about the world. The personality thus defines and constrains the possible impact of emotions and moods.

Additionally, logic likewise suggests that macro to microdevelopmental influences are likely to vary proportionally with the 'age' or fixedness within the system. As such, this type of influence is likely to be comparatively small in early development with the notable exception of heritable personality predispositions to manifest particular emotions (Izard et. al., in press). However, as microdevelopmental interactions rarefy and concretise the state space, macro to microdevelopmental influences increase[25]. Most notably in terms of the current discussion, it is expected that the emergence of attractors regarding emotional experience (goals about emotions) will act to regulate microdevelopmental states, and thence micro and future macrodevelopmental emergence[26].

Additional Control Parameters in state space development

The discussion above has predominantly discussed the macrodevelopment of a personality system as occurring through the iterative consolidation of emotionally forged attractors in microdevelopment. It has also included some brief consideration of cognitive developments and their influence on personality development. However, the development of attractors in the personality state space is likely to be influenced by numerous other control parameters in a system's development. While such parameters cannot all be discussed here, the current writer would like to draw the reader's attention to the importance of motor and behavioural control parameters in state space development.

[25] Magai and Nusbaum (1996) have recently made an interesting suggestion regarding the macrodevelopmental stability of personality. Citing a study by Miller and C'deBaca (1994, cited in Magai & Nusbaum, 1996) they suggest that personality variables (individual attractors) are an important mediator of personality change (macrodevelopmental lability). More specifically, they argue that some individuals appear to have a self-reflective capacity that makes them more open to change. Exactly which attractors are important in this regard remains unclear, but the implications are interesting and will be discussed below.

[26] This argument is somewhat similar to that made by Magai & Hunziker (1993) who suggest that an individual's unique emotional organisation is recruited during moments of crisis and transition.

For example, it is reasonable to suggest that the emergence of new motor skills like that of learning to walk, may act as cascading control parameters for emergence of attractors in the personality state space. Learning to walk could be expected to act enable the emergence of more precise motivational attractors relating to agency and the ability to act on the environment. Although the infant's capacity to influence the environment may be made evident to their system somewhat earlier, for example in the responses to non-ambulatory behaviours, it may be that capacities like walking directly enable the emergence of more precise attractors in their personality state space through coupling and feedback.

Additionally, some attractors that emerge within the state space rely on a combination of innate and cascading control parameters from beyond the personality state space. Sexual motivations for example, typically emerge with the onset of puberty. Hormone levels, the development of secondary sex characteristics, exposure to sexual materials, as well as esteem and norm based factors (to name but a few) may interactively determine the emergence of sexual motivations in the personality state space, even though they themselves need not be represented within it.

As with other attractors, the precise form and experience of the attractors representing sexual motivations will vary as a function of the totality of the state space (see above). However, notwithstanding issues of awareness and inter-individual variability in manifestation, the current model argues that the emergence of sexual attractors in the state space per se is near inevitable[27]. Although they do not constitute a part of the personality state space prior to puberty, they are fated to emerge through the redescriptive process outlined in Chapter 4 once the necessary control parameters have themselves emerged. In this way, systemic developments from beyond the personality state space influence, and are made manifest within it.

[27] This is of course an oversimplification. While sexual or reproductive motivations are innate motivations within the current theory (see Chapter 3), their emergence is likely to depend on the cascading influences of numerous control parameters. Hence developmental misfortunes at a number of levels may interfere with the emergence of state space attractors at puberty. Nonetheless, the relative infrequency of complete interference is testament to the manner in which innateness places limits upon (constrains) development.

The affective nature of the developmental mechanism

Yet despite the nonlinear complexity and highly interactive nature of cross-domain developments depicted above, the discussion above has argued that personality state space development is consistent across individuals insofar as the development of personality is primarily a function of innate emotional systems. As will be more comprehensively argued in Chapter 8, the primary systems of anger, fear, sadness, happiness and disgust are innate and universal in their function, if not in their experience. So even where the emergence of particular attractors depends on control parameters that exist beyond the state space it is only through emotional responding that they are elaborated within it. At no stage then does the progressive coupling of cognitive capacities with this core evaluative process change the basic action of the elaborative mechanism.

Chapter 6.6 – Concluding remarks on the development of the personality state space

Overall, the current theory views the macrodevelopment of the state space in a manner similar to Killeen (1989, 1991, 1992) and Lewis (M. D. Lewis, 1997, M. D. Lewis & Douglas, 1998; M. D. Lewis & Granic, 1999). In this view, a comparatively barren state space topography becomes progressively more detailed as the organism develops attractors commensurate with the affectively indicated relationship between existing attractors and new stimuli and behaviours. As noted, these 'existing' attractors must initially be innate, but they are quickly elaborated.

While the state space always retains the potential for change, the overall form of the personality state space and its major attractors becomes increasingly regular across macrodevelopmental time, as attractors become developmentally embedded (Izard et. al., in press). As has been argued above, new attractors can only emerge in relation to the totality of the state space.

The discussion above has suggested that the mechanism underlying the elaboration of the personality state space is initially and fundamentally affective in nature. In its initial microdevelopmental operations, the elaborative mechanism does not have access to (nor does it need) cognitive capacities other than those that constitute part of each primary emotion system to operate. Across developmental time however, emergent cognitive abilities are progressively coupled with the basic mechanism engendering a more powerful, flexible and complex elaborative mechanism.

Taken together, the affectively-indicated associations between new stimuli and existing attractors, as well as emergent changes in the mechanism itself and the emergence of consciousness, lead to an ever more comprehensive and elaborate personality state space. In this dynamic topography attractors and repellors can exist in respect of any and all stimuli, up to and including the conscious experience of the personality state space itself.

Chapter 7 – Goals about Emotions: A motivational approach to understanding conscious emotional experience.

Introduction and Overview

In several of the preceding chapters, this dissertation has gone to some lengths to stress the importance of conceptually separating emotional states from emotional experience (cf. Lewis & Michalson, 1983; M. Lewis, 1993, 1998b). The reasons for separating these phenomena in our theories are many, but for the purposes of the chapter will be discussed only as relevant to the concept being developed herein.

The chapter seeks to establish the viability of a particular goal concept in the motivational study of emotion and personality, a concept that is termed 'goals about emotions.' Typically when we study emotions we conceptualise of them as having an implicit goal. In anger this goal is usually thought to involve the removal of thwart, in fear a distancing from threat, and so on. Rarely however, have we explicitly considered the possibility that *experiences* of emotions are themselves motivated at the level of the individual.

In some theories, the 'experience' of some emotions constitutes 'part of the package,' hence is innately wedded to the emotional state (e.g. Izard, 1991, 1994a). In other theories, emotional experience and indeed emotions themselves are socially constructed (e.g. Harre, 1986), and are innate only in the most limited of senses. As has been implied in Chapters 1, 2, 3, and 6, the current dissertation occupies an intermediate position on this issue. As such, it is suggested that emotional experiences, but not emotional states are subject to socialisation influences[1]. More importantly however, state and experience thought to represent distinct phenomena

[1] This statement is intended to describe the basic relationship between primary emotions and the experience of primary emotions. In line with LeDoux (1994a), it is suggested that experience is initially an output of emotional processing, not an integral part of the system that activates and processes emotional information. It is however acknowledged that once conscious experiences occur that they influence subsequent processing and the state. Additionally, as is expanded in Chapter 8, there is good reason to suppose that secondary emotions are different in that they may require some internalisation of 'social values' prior to *both* the state and experience.

(Lewis, 1993, 1998b), and the two may or may not co-occur (Averill, 1994a) in a given instance.

Extending this reasoning, the argument below suggests that the experiences of emotions are as highly motivated as are other aspects of human functioning. In the terms of dynamic systems, the chapter argues that a conscious system inevitably develops attractors within what could be termed the 'experiential state space' delineating many aspects of emotional experience. In slightly less abstract terms, the current chapter argues that each of us *wants* and is motivated to experience variants of the different basic emotions at different frequencies, intensities, and so on (Mascolo & Griffin, 1998).

In explicating this premise the current chapter will describe the individual macrodevelopment of goals about conscious emotional experience. It will begin by discussing and defining the complicated concept of experience, and will then provide a brief rationale for the study of motivations regarding conscious experience. Data from an exploratory study into the motivated dynamics of experience are then presented, and implications for the development of personality and conceptualisations of emotion and emotional experience are discussed.

Chapter 7.1 – What is an emotional experience, are experiences necessary for emotions, and (either way) what are the prerequisites for experience?

As Averill (1994a) notes, scientists (not to mention laypeople) often use the terms 'feeling' and 'emotion' interchangeably. This unfortunate usage he argues, has led some theorists to think that emotions are *really* feelings, or at least that feelings are the essential feature of emotions (see also Solomon, 1993). More broadly, it seems as though our theories and methodologies frequently, albeit implicitly, treat emotional experiences as *the* defining characteristic of emotions[2].

[2] See Ruch (1997) for a recent discussion on how methodological considerations may affect the relationship between expression and experience.

In some ways the adoption of such a position could be taken as due emphasis on the most salient aspect of emotional phenomena. After all, most people, including emotion theorists 'live' in their experiences, irrespective of what they are experiences of or about (see below), and notwithstanding whether they are in any objectifiable sense 'real'. In some very important ways, experience and feeling comprise the most immediate content of our subjective existences. Additionally, some theorists have suggested that "the presence or absence of detection of internal changes is of extreme importance for the subsequent emotional state" (Kagan, 1984, p. 41, see below), as are interpretative labels.

And yet at the same time, most emotion theorists conceptualise of emotions as possessing or including a far greater number of constituents than experience alone. At the very least, emotions involve physiological conditions and brain states, cognitive evaluations, and action impulses or instrumental behaviours (Panksepp, 1993), as well as experience. As Frijda and Mesquita (1998) note, emotional experience is *just one* of the emotion components among others[3]. More directly, the current dissertation has previously argued (see Chapter 3) that emotions may or may not involve the conscious experience of them (cf. Lewis & Michalson, 1983; M. Lewis, 1998b; Averill, 1994a). Instead, it has suggested that emotional states, the experience of emotions, and the conscious experience of emotions as pertaining or belonging to 'me' are conceptually distinct and distinguishable phenomena.

For ease of organisation, the discussion below has separated views on emotional experience as they pertain to the necessity for consciousness. While this approach does tend to obscure the details of each theoretical position, it has the advantage of enabling us to discuss the concept of experience within approximately the same terminology or at least 'pretend' that we are discussing the same topic.

While theorists differ considerably in their views (Mascolo & Griffin, 1998), a division on the basis of consciousness illuminates two basic theoretical positions in the description of emotional experience and the relationships between experience and

[3] Solomon (1993), Buck (1985), and LeDoux (1989) have similarly criticised the tendency to treat experiences as *necessary* to emotion. Solomon (1993) describes such approaches as encapsulating a 'subjective essentialism,' and links them to a Cartesian view of the world.

emotion. As is common when theorising about matters of such complexity, especially where the constituents of each theory seem inaccessible to direct measurement, the differences between the two camps frequently appear a matter of definition (Izard, 1994a) and philosophical preference.

Position 1: Experiences do not require consciousness

The first position suggests that the experience of emotion is not limited to conscious organisms. Rather, internal experiences are thought to operate as a useful means to ascertain the status of goals (Stein & Levine, 1990), or to represent the self as a competitor in the world (Panksepp, 1994a). Stein and Levine (1990) for example, suggest that the critical dimension in defining and describing emotional experience involves "representing and evaluating change with respect to how valued goals have been affected" (p. 45, see also Stein & Trabasso, 1992). Panksepp (1994a) similarly argues that the evolution of internal awareness is a relatively efficient means to index biological relevance.

In this view then, other species as well as pre-conscious infants, can have emotional experiences. Both Panksepp (1994a) and Averill (1994a) suggest that species other than our own are aware of both events in their environment and their responses to those events. On a similar basis, Stein and Levine (1990) have suggested that emotional experience directly *results* from attending to changes in goal status. Their discussion suggests that because young infants appear motivated to remove themselves from negative states that they must therefore be able to represent some other (more desirable) state, and thus experience (Stein & Levine, 1990).

From a slightly different position, Izard (1994a) has likewise argued that emotional experiences (apart from those that require a self-referential element) do not require cognition, hence do not change with development (see also Ackerman, Abe, & Izard, 1998). Differential emotions theorists like Izard and Malatesta (1987) define emotion as "a particular set of neural processes that lead to a specific expression and a corresponding specific feeling" (p. 496, see also Ackerman, Abe, & Izard, 1998). Overall, the differential emotions school (e.g. Izard & Malatesta, 1987; Izard, 1990,

1994a) suggests that the basic motivational/feeling state of an emotion (the experience) is invariant[4] and context *independent.*

In Izard's theory then, the internal or external emotion-eliciting event triggers neural processes of evaluation that lead *directly* to the expression and a congruent or perhaps concurrent experience or feeling state (Izard, 1990), that may or may not be available for self report (Ackerman, Abe, & Izard, 1998). This elementary approach to the concept of experience appears similar to aspects of that advocated by Frijda and colleagues (e.g. Frijda, 1986; Frijda & Mesquita, 1998) who suggest that an emotional experience *can* be entirely unreflective and consist of nothing but the experience of an event as appraised, with affect as its perceived attractiveness or aversiveness. Reflectiveness is not part of the definition of experience (Frijda & Mesquita, 1998)[5].

While it is not explicitly discussed by most of the authors above, their consideration of experience appears to *define* the concept of experience as either an innate part of emotion (e.g. Campos & Barrett, 1984; Izard, 1990, 1994a), or as being equal to the *awareness* of goal-relevant change (e.g. Stein & Levine, 1990; Panksepp, 1994a, Averill, 1994a; Frijda & Mesquita, 1998). Although the current dissertation does not limit the capacity for experience to conscious organisms (see below), it strongly eschews a stark equation of 'awareness' or emotion with experience. Not only does such a position invite unhelpful comparisons between homo sapiens and any 'organism' (e.g. a tree, a thermostat, or a computer program) that attends to and responds to the environment or input, but it begs the question as to what function non-conscious experiences could possibly serve (see below).

For these authors, the difference between other species, and ourselves and between infants and adult humans appears to lie not in awareness per se, but in the 'awareness of being aware.' In Averill's (1994a) discussion, other species do not self-reference (see also Clore, 1994a; Harris, 1996, and M. Lewis, 1998b, for similar conceptualisations involving attention and a reflective self), while Frijda and Frijda

[4] Izard (1990) actually notes that while feelings are invariant over time, affective-cognitive structures (see Chapter 5) change with age. Additionally, Ackerman, Abe, and Izard (1998) have more recently suggested that *experience* may involve cognition, but that *feeling* does not.

[5] According to these authors, "the only *qualia* are those of affect: the experience of pleasure and pain" (p. 290). This point is returned to below.

and Mesquita (1998) distinguish between reflexive and reflective types of experience. Harris (1996) has similarly suggested that young child feels and expresses emotions, but lacks the ability to conceptualise this experience. Using this type of criterion, most other species appear to lack a *reflective* awareness of self and thus the capacity to consciously reflect on 'their' experiences, even though 'they' have them. In briefly explaining this difference, Panksepp (1994a) has suggested that it is probably a function of linguistic or symbolic thought capacities (see also Averill, 1994a and below).

Position II: Experiences require consciousness

The leading proponent of the alternate position is Michael Lewis (e.g. Lewis & Michalson, 1983; Lewis, 1993, 1998b). Lewis is particularly explicit in his discrimination of emotional experiences from emotional states (Mascolo & Griffin, 1998, see also Jaynes, 1991a). Unlike Izard (1994a), Lewis (1998b) defines an emotional experience as involving turning attention on the self in order to interpret and evaluate perceived emotional states and expressions. As such, his conceptualisation explicitly links experience to the self, to consciousness, and (thus) to cognitive development. He writes, "Emotional experience is very much like consciousness" (Lewis, 1998b, p. 42).

More broadly, Lewis (1998b) suggests that emotional experiences are the interpretation and evaluation of the emotional state, its expression, the situation in which they occur, and beliefs about what 'ought' to be happening (Lewis, 1993), based on perceptual, memory, and elaboration processes (Lewis, 1998b). As such, the content of emotional experience is explicitly linked to socialisation processes (see below). His view is similar to that outlined in Salzen's (1991) TASS (Thwarted Action State Signalling) theory of emotions which suggests that self-awareness is not a requirement for emotion. According to him, 'the experience of emotion . . *implies* awareness of that emotional state" (Salzen, 1991, p. 76, *italics* added).

In contrast to the position outlined above, Lewis' conceptualisation suggests that emotional experiences do not necessarily occur in conjunction with a state (Lewis,

1998b, see also Johnson-Laird & Oatley, 1992)[6]. Experiences may, for example, not occur because attention is captured by competing stimuli (Lewis, 1993, 1998b). So when a patient at the dentist is distracted from the pain through attending to loud music, they may not experience pain. This is not to say that pain does not exist at some level, simply that it is not experienced as pain.

This particular approach to experience is similar to that outlined by emotion theorists operating from a constructivist position. Mascolo and Harkin (1998) for example, define emotional experience as consisting of the subjective awareness of feedback from the activity of the various component systems implicated in an emotional episode. Similarly, the theory of Ortony, Clore and Collins (1988) suggests that emotional experiences do not rely on an internal state per se. Rather, the experience of an emotion is a cognitive construction that, in their theory, needs no internal (state) referent. Johnson-Laird and Oatley (1992) similarly suggest that when an emotion signal impinges on consciousness it does not represent an emotional state, rather "it is the experience of an emotional signal" (p. 214)[7].

In discussing emotional development, Lewis (1998b) suggests that the development of experiences may continue long after the development and emergence of states. In his theory, the capacity to experience emotions emerges around 15 months and changes the nature of earlier emotional states (1998b, p. 46), to the point where "the development of experience . . is likely to exert the most powerful force in the development of emotional life" (1998b, p. 47). Emotional experiences depend on how the world responds to emotional states, and could be considered the consequence of how other people interpret and respond to the infant's states and expressions (Lewis & Michalson, 1983).

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[6] As a matter of definition, theorists from the former position would presumably argue that the experience exists, but that it is not necessarily a reflective or conscious experience. On this basis one wonders if there is ever a disjunction between experiences and states, if they are not in fact the same thing, and where unconscious emotions fit their schemes.

[7] As is discussed below, Johnson-Laird and Oatley (1992) continue to argue that the intensity of an experience increases the likelihood that the experience will represent the state.

Critiquing the conscious and non-conscious positions

In considering any conceptualisation of 'experience' it becomes clear that there are currently no 'good' answers. Although the notion of a non-conscious experience seems problematic (Salzen, 1991), it is perhaps no more so than the notion that a non-conscious organism 'experiences' nothing. Any position is inevitably complex (Mascolo & Griffin, 1998), must be built on assumption, and frequently denotes issues of definition (Izard, 1994a), the placing of the concept 'experience' in a broader theory, and philosophical preference.

Mascolo and Griffin (1998) have recently suggested that some of the disagreements outlined above may concern the meanings of the terms each theorist uses. As noted, Lewis (1993, 1998b) separates the emotional *state* from its conscious *experience*, while Kagan (1984a) describes any undetected changes in emotion as *internal changes* and the detected ones *feeling states*[8]. Functionalists (e.g. Frijda & Mesquita, 1998) in turn, assert that the *experience* of emotion changes across development, while differential theorists maintain the *feeling state* is invariant (Ackerman et. al., 1998). As a consequence of these terminological differences, it becomes difficult to decide whether each 'camp' is discussing the same issues. Such complexities are exponentially compounded when incorporating a distinction between *reflexive* and *pre-reflexive* (Averill, 1994a[9]) or *reflexive* and *reflective* (Frijda & Mesquita, 1998) experiential subtypes.

Bearing the discussion above in mind, it appears most parsimonious to simply link experience to the ontogeny of consciousness in the manner advocated by Lewis (e.g. 1993, 1998b). Through *defining* experience as dependent upon consciousness we can obviate much of the complexity and disagreement apparent above. Irrespective of what *feelings* or emotions actually are, they can only be experienced by conscious organisms. In this view, non-conscious organisms do not experience events, stimuli or emotions at all. Rather, they simply perceive and respond *as if* they had

[8] Kagan (1984) also suggests that motivational changes are absent without feeling, an interpretation eschewed by the current theory (see Chapter 3.7).

[9] Averill (1982) has previously noted that the notion of "completely prereflective experience is a myth" (p. 21), as all experience is given form in the rules and categories of reflective thought.

experiences. So while a state can exist in any system, the state can only be experienced by a system that is conscious.

Yet despite its utility, this particular position is not acceptable to the bulk of emotion theorists (e.g. Izard, 1993, 1994a; Panksepp, 1994a, Averill, 1994a; Frijda & Mesquita, 1998). On balance, most appear unwilling to accept that other species and pre-conscious infants do not experience emotions. Exactly why this should be so remains unclear and inadequately reasoned in most theories, although my suspicion is that a major basis for this 'theoretical' decision lies in the implications stemming from the position of Lewis. Most immediately, the consciousness position on experience inevitably leads to a number of unsavoury inferences regarding the 'moral' conceptualisation of pre-conscious infants and other animals. *If* these creatures do not actually *experience* loss, sadness, pain or joy, does the manner in which they are treated actually matter?

Of greater difficulty however is the problem inherent in reconciling non-conscious experience with function. Accepting the possibility of non-conscious experience exposes a theory to a long-lived family of arguments from within the literature on consciousness (see Chapter 4.3). The 'explanatory gap' argument suggests that many of the same *functional* benefits imparted by phenomena like emotions can be attained without the *experience* of them. Within the functionalist approach advocated by most of the above authors, one is forced to wonder why non-conscious experience would have evolved at all[10] (Harnad, 1998; see also Ortony et. al., 1988, p. 176), or what it adds. While Panksepp (1994a) has offered some explanation for this 'gap,' both Frijda's (1986; Frijda & Mesquita, 1998) and Izard's (e.g. Izard & Malatesta, 1987; Izard, 1994a) conceptualisations appear to implicitly treat experience (as defined by them) as almost epiphenomenal to emotion itself, simply stating that experience occurs with emotions without explaining why[11].

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[10] As was noted in Chapter 4, the current dissertation *assumes* that consciousness evolved for a reason, and is not simply an epiphenomenal property that emerged from the complexity of the human psyche.

[11] Panksepp (e.g. 1991, 1992, 1994a) is one of the few emotion theorists who have provided a functional conceptualisation of non-conscious experience that goes some way toward addressing these problems. The current author is in agreement with Panksepp's ideas insofar as it is believed that the 'answers' to these issues will be found in neuroscience rather than philosophy.

While the conceptualisations of experience as used by Izard and Frijda serve a useful purpose within their general frameworks (see Chapter 8), they, along with other emotion theorists do not seem interested in explicating the function served by non-conscious experience. In theories about emotions, this important 'issue' is neither seen nor considered, but rather is left to philosophers (see Chapter 4) by default. Perhaps unfortunately, the emphasis of the immediate chapter precludes an attempt to explain the functions of non-conscious experience, although a functionalist account of *conscious* experience was offered earlier (see Chapter 4). It is important however that we remember that for the functionalist, a phenomenon like experience must serve purpose. As such, it is imperative that we couple views on non-conscious experience with the development of explanations for why they might occur and what function they serve.

Position III: Experiences and conscious experiences are not the same

While complex, the situation is not as hopeless as it first appears. While the conceptualisation of experience remains a problem, there does appear to be an implicit agreement among many theorists that there *may* exist more than one form of emotional experience. The current dissertation suggests that both conscious and non-conscious experiences occur, but that the two are different, although highly related, phenomena. On this basis the following characterisations[12] are proposed:

> (a). *non-conscious experiences* – are the *reflexive* motivational experiences of an event as appraised, with affect as the event's perceived pleasantness or unpleasantness (innate *qualia* of valence). Non-conscious experiences are invariant, comprising part of the innate system for each primary emotion, *must* co-occur with the emergence of a primary emotional state, and can only occur in respect of primary emotions[13].

[12] See Chapter 8 for a brief discussion of the difference between a 'definition' and a 'characterisation.'
[13] It would seem somewhat of an oxymoron to suggest that emotions that require a conscious of self to exist at all (e.g. shame, guilt, and pride), are capable of producing non-conscious experiences. However as clinical data suggest, this is not to say that a *state* of a secondary emotion like shame cannot occur without conscious awareness.

(b). *conscious experiences* – are the *reflective* motivational experiences of any or all the components of emotions (Frijda & Mesquita, 1998) including bodily reactions, cognitive appraisals, action and regulation tendencies (enacted or not) as well as situational knowledge and beliefs, *as pertaining to a conscious self.* Unlike non-conscious experiences, conscious experiences are highly varied, differing between and within people, situations and emotions (Averill, 1994a). They *may* arise in respect of any primary or secondary emotions, or sequential combination thereof.

The conceptual consideration of conscious and non-conscious experiences outlined here is in no way considered a finished product, but rather serves a purpose within the current framework (cf. Lazarus, 1984; Frijda, 1986; Izard, 1991). As was noted earlier, there currently appear no unproblematic positions on the relationships between consciousness and experience. However, the definitions above do enable us to discuss the macro and microdevelopmental emergence of conscious emotional experience motivations (the focus of this chapter) as distinct from non-conscious experience.

Making time scales explicit in the consideration of conscious emotional experiences

Averill (1994a) suggests that a complete sketch of emotional experience necessitates the incorporation of a temporal dimension (see also Stein & Levine, 1990; Stein & Trabasso, 1992). Although his argument is not couched in dynamic terms, it is essentially similar to the developmental model of Marc Lewis (e.g. M. D. Lewis, 1996, 1997, in press a) described in Chapter 6. Lewis suggests that we should consider emotional experience an emergent form that represents the interactions of real or microdevelopmental time events with and within macrodevelopmentally imposed attractors and constraints (M. D. Lewis, in press a).

Microdevelopment

In describing the microdevelopmental or 'real time' emergence of emotional experience, Averill (1994a) makes clever use of Dennett's (1991c) "Multiple Drafts" model. In this approach, there is never a 'finished product' or output that is then

passed to consciousness as *the* experience. Rather, what constitutes experience depends on when, and presumably how (Ruch, 1997) we access it, both as scientists or phenomenal beings. As Averill notes, "an emotional experience is not the mere sum of its parts" (1994a, p. 382), but is rather a complex phenomenology that is being perpetually updated as an emergent narrative ties the elements of emotions, knowledge and situations together (see also Lazarus, 1984; Ellsworth, 1991; Mancuso & Sarbin, 1998).

Frijda and Mesquita (1998) likewise note that the role and structure of emotional experience may change across microdevelopment (see also Camras, 1988; Epstein, 1991). In their theory, experiences can begin as a nonreflective (non-conscious) experience of an event as appraised and as affect that merely influences action readiness and physiology, and eventuate as an articulate and reflective (conscious) awareness of the various components and their being "one's own" (p. 292). As with Averill's (1994a) conceptualisation, this type of description fits well with dynamic models of self-organisation in real-time (e.g. M. D. Lewis, in press b), and there is good reason to expect that the microdevelopmental self-organisation of conscious experience can be usefully described within the same framework.

Complex emotional experiences like that of an all-consuming hate may well begin as relatively undifferentiated and non-conscious experiences of something 'bad' happening (Frijda & Mesquita, 1998). As further appraisals are made, a more complex experience emerges as the valenced state couples in real time with cognitive perceptions and the apperception of physiological states to unfold as a conscious experience of irritation or frustration. Such experiences might in turn then couple with further perceptions and appraisals, as well as with beliefs, memories about this 'sort' of event, the people present, coping capacities, and behavioural feedback to produce an emotional experience of hatred. Importantly, these dynamic events may take place within microseconds, the patterns of emergence constrained as well as influenced by a large number of situational, intrasystemic and interactional properties.

Macrodevelopment

While microdevelopmental experiences appear infinitely varied and highly labile, the current theory also suggests that the individual is not free in microdevelopment to construct or have absolutely any conscious experience. According to Averill (1994a), experiential scripts are created as a function of past experiences, present circumstances and future aspirations. Lewis (M. D. Lewis, in press b) likewise suggests that the complementarities laid down across macrodevelopment, herein termed 'goals about emotions,' come to constrain the possibilities for thinking, feeling and acting in subsequent moments (see Chapters 4 and 5 for a broader discussion of the relationship between time-frames). More specifically, the dissertation suggests that the emergent experiences of the adult in microdevelopment are likely to represent historically repeated macrodevelopmental events in the form of attractors, repellors and constraints for experience.

As noted, the current dissertation describes these macrodevelopmental or personality variables that impact upon emotional experience as goals about emotions. As is expanded upon later in this chapter, the essential argument underlying this concept is that repeated microdevelopmental couplings, say that of an angry state with negative consequences, leads to the macrodevelopmental emergence of major attractors and repellors for the experience of anger and other emotions. Usually these will relate to the experience of anger, but may be created regarding other emotions. Over time, repeated couplings between states, experiences, and consequences lead to the development of comparatively stable constraints or limits upon later experience.

It is thus to be expected that goals about emotions may first develop as attractors and constraints regarding emotional states or non-conscious experiences. However, it is also suggested that when consciousness emerges that these previous state space characteristics must constitute the initial conditions for goals about the conscious experience of emotions. At the time that consciousness emerges there should typically be a high correspondence between the attractors representing emotional states and the conscious experiences of these states[14]. It seems reasonable to suppose

[14] Michael Lewis (1993) has recently suggested that there may initially exist little in the way of relationship between the state and conscious experience of emotions (see also Ortony, et. al., 1988).

that if a given emotional state is represented in the state space as a repellor, then the first conscious experiences of this region will typically be negative. This point will be expanded upon following presentation of an exploratory study.

Chapter 7.2 – A tripartite rationale: Why should we examine the development of motivations regarding the *conscious experience* of emotions?

Although some reasoning for studying the motivational aspects of conscious emotional experience is evident above, there are several other excellent reasons for investigating this type of phenomenon. Firstly, goal theories have long argued that goals can exist at many levels, being outcome events, broad modes of conduct, *or* emotional states (Hyland, 1987; Carver & Scheier, 1990; Parrott, 1993; Austin & Vancouver, 1996; Carver, 1997). More directly, Parrott (1993) has recently argued that "there is a greater number of motives for emotional self-control than is usually supposed, including some that can appear quite irrational or self-destructive" (p. 278).

A basic assumption of several theories of emotion is that people prefer certain states to others (Stein & Levine, 1990), and some theorists have gone so far as to argue that "all people have conceptions about positive states . . about what these states should be and how they should feel" (Stein & Trabasso, 1992, p. 236). In a similar vein, Frijda and Mesquita (1994) note that emotions derive through *concerns* (goals) which involve the preference of or for particular states of the world and the self. They suggest that "the implications of having a particular emotion at a particular moment is itself an emotional event" (1994, p. 59), "having both social and individual origin" (p. 60). Overall then, the notion that emotional experiences may be motivated at an individual level, if not explicit, is at least consistent with several leading theories of emotions (see also Johnson-Laird & Oatley, 1992).

According to him, correspondence emerges along with the 'competing' ability to dissociate state from experience. In contrast, the current theory suggests that while emotional experiences may be some time in development, that they will tend to exemplify the state space dimensions relevant to the emotional state.

More directly, the current chapter extends a premise stipulated earlier in the dissertation to include the conscious experience of emotions. In Chapter 1 it was argued that *all* aspects of human functioning are motivational insofar as they cannot help but in some way represent the motives (manifest as attractors and repellors) held by the individual. Additionally, it was suggested in Chapter 6 that consciousness may act as a control parameter for the emergence of state space attractors regarding the conscious (frequently emotional) experience of that same space. Most simply, there is no reason to suspect that experiences in general and conscious emotional experiences in particular are any less motivated than other aspects of human functioning.

This complex approach to emotional experience is consistent with the ideas of Tomkins (1962). Tomkins describes what he terms the 'neurotic paradox,' in which individuals become distressed (emotionally react) when experiencing their own emotional reactions. In particular he suggests that in many cases, the negative emotions become organised in such a manner that particular experiences within the affect system tend to activate other negative affect systems (see also Izard, 1991).

A second reason why we might consider investigating a concept like goals about emotions is to a degree less grandiose than that above, and can be found in a brief examination of the literature on infant emotional development. In addition to the general dearth of research into infant motive development noted in Chapter 4, research into infant emotions has thus far not seriously examined the development or structure of infant (or adult) emotional experience (Lewis, 1998b). The topic has traditionally defied scientific analysis (Lang, 1994).

To date, most developmental research in the emotions can be broadly classed as focussing on one of three major research areas. Research has typically examined either (a) the development of emotional expression (e.g. Lewis & Michalson, 1983; Lewis et. al., 1990; Alessandri et. al., 1990; Izard, Huebner, et. al, 1980; Izard, Fantauzzo, et. al., 1995; Izard, 1997; Camras, 1992, 1994) and recognition (e.g. Haviland & Lelwicka, 1987, cited in Magai, 1996; Nelson & DeHaan, 1997) of emotions; (b) the development of the elicitors of emotions (Dunn, 1994; see Chapter 5), or (c) the macrodevelopmental emotional sequelae of early interactions in attachment (e.g. Magai & McFadden, 1995; Mikulincer, 1996, 1998), self-regulation

(e.g. Thompson, 1990), or socialisation (e.g. Eisenberg, Cumberland, & Spinrad, 1998a, b) frameworks.

As such, an understanding of emotional experience and the development of experience stands as an important (Ortony et. al., 1988), yet poorly researched, domain (Linville, 1982; Flett, Boase, McAndrews, Pliner, and Blankstein, 1986; Lewis, 1998b). This gentle censure becomes all the more pressing when we reconsider the importance of conscious emotional experience both in our daily lives as phenomenal beings, and in the motivational model of personality state space development outlined in Chapter 6. Although conscious emotional experience is only one part of emotion, it is nonetheless the part that is most salient to each of us (Oatley, 1992), and the aspect of emotion through which we 'interface' with, and consciously change our personality state spaces.

Emotion-related phenomena constitute a key aspect of some personality theories (e.g. Tomkins, 1962; Izard, 1971, 1991, 1997; Malatesta & Wilson, 1988; Magai & McFadden, 1995; Magai, 1996), an assertion supported by research (e.g. Gross et. al., 1998). Aspects of emotions, their experience and regulation are thought to be highly heritable (Malatesta & Wilson, 1988; Gross et. al., 1998) and are conceptualised as being critical in the development of personality (Thompson, 1990; Fox & Collins, 1993; Eder & Mangelsdorf, 1997). Although this body of research has not always focussed on emotional experience, its totality nonetheless once more underscores the likely importance of emotional experiences in personality development.

Finally, a conceptualisation of emotional experience as motivated, rather than as a simple readout (e.g. Buck, 1999), may indirectly help alleviate one of the most prominent difficulties threatening the face validity of discrete approaches to emotions like that advocated here. Research indicates that people frequently report their affective experience as being highly complex, a *blend* of moods, emotions, and affects (e.g. Johnson-Laird & Oatley, 1992; Oatley & Duncan, 1992). Yet from a structurally discrete perspective, blended emotions do not occur (Izard et. al., in press). Rather, the discrete position argues that multiple discrete emotions self-organise to form new structures, but that each discrete emotion retains its unique motivational properties (Izard et. al., in press; see Chapter 8). Given this difficulty, a motivational approach

that distinguishes conscious experiences from the underlying emotional state could be of some benefit. More specifically, it may help explain why and how the same basic states are experienced differently across individuals and situations.

Chapter 7.3 – Assessing Goals about Emotions: An exploratory study

Overall, the combined thrust of the rationale above suggests that an understanding of emotional experience and its development could be of considerable benefit. Emotions and emotional experience appear central to personality functioning, experience and development. Despite the lack of conceptual and empirical work on the development of emotional experience noted above, this dissertation argues that emotional experiences are highly motivated phenomena that have numerous implications for our theories about human development and functioning.

Hypotheses

Given the exploratory nature of this research, there were relatively few explicit hypotheses prior to the initiation of the study. Rather, it was intended that the study would serve as a pilot in the development of a tool that would enable the assessment of goals about emotions. Consequently, numerous post-hoc analyses are presented in order to suggest directions for future research. The general hypotheses that were stipulated prior to the collection of data are given below.

1. That the major dimensions describing the experience of emotions (liking, intensity and duration) will vary (a) *between* emotions, (b) *between* individuals for the same emotion, and (c) *within* individuals across emotions.

2. That variations in emotional experience will be highly associated with the indirect measure of emotional experience motivation (How much do you like feeling emotion x?).

3. That the measure of emotional experience motivation will be predictive of both the frequency and recency of emotional episodes.

4. That measures of emotional experience will be associated with (a) measures of child expressive style and parental socialisation practices (Child Emotions Scale), and (b) a measure of adult attachment (Collins & Read, 1990).

Method

Participants

Nineteen female and 18 male students (mean age = 24.1 years) from the University of Canterbury (New Zealand) took part in the study. Participants were recruited during their summer break through advertisement at the local student job agency, and were paid NZ$10 for completing the questionnaires[15]. Of 41 questionnaires passed out, 37 were returned within three days. The remaining four subjects could not be contacted for the return of the questionnaires.

Measures

Given the exploratory nature of the research, the goals about emotions questionnaire (see Appendix 1) contained a large number of nine-point Likert items measuring several aspects of emotions and emotional experience. A number of the items were designed to measure dimensions of conscious emotional experience (Items 1, 2, 6, 7, 8, 9, 10), others to assess frequencies of experience (Items 3 & 4), and others to measure beliefs about the consequences of emotions (Items 5, 11, & 12). The 12 questions were repeated for each of six emotions (anger, fear, sadness, happiness, shame, and pride) and the questions relating to one emotion were given together in order to maximise the participants' awareness and orientation towards their

[15] Subjects completed a number of questionnaires at this time. In addition to completing the goals about emotions form, they also completed a further questionnaire related to an appraisal study (presented in Chapter 8), as well as a questionnaire assessing perceptions of the Internet that is not presented here.

experience of each emotion in turn. Each question and its abbreviated description are provided below.

Item 1 (Liking): Please indicate how much you like or dislike feeling X?

Item 2 (Intensity): Is your experience of X typically more or less intense that your experience of other emotions?

Item 3 (Recency): When did you most recently feel X?

Item 4 (Frequency): How frequently do you feel X?

Item 5 (Following): Which of the following emotions do you typically feel immediately following your experience of X?

Item 6 (Immediate self-perception): How do you feel about yourself when you have *just been* X?

Item 7 (Ease): How easily do you become X?

Item 8 (General self-perception): How do you feel about yourself *as a person* who gets X?

Item 9 (Duration): How long does an experience of X usually last for you?

Item 10 (Onset Speed): How quickly do you become X?

Item 11 (Consequences): Are the consequences that follow feeling X usually good or bad for you?

Item 12 (Goal Assistance): Does feeling X help you attain your goals?

While a full discussion of each item is not possible at this juncture, some discussion will be given to the design of the major 'predictor' item. Item 1 asked the participants to indicate how much they liked or disliked feeling each emotion. This item was intended to provide an indirect motivational measure regarding the experience of each emotion. Given the likely ontogeny of goals about emotions (see below), and the relatively inaccessibility of them to awareness and verbal articulation, it was thought that *directly* asking participants about an abstract concept like goals about emotions, would elicit data more representative of conscious *beliefs* about emotions, experience, and the self, than experience per se.

Consequently, it was felt that an *indirect* experiential measure provided the best opportunity to measure motivational aspects of emotional experience without eliciting

concordant or constructed confounds in conscious belief[16]. Overall, it was reasoned that the differential extent to which a person liked or disliked feeling a particular emotion could be taken as broadly indicative of the likely presence of goals regarding its experience. So for example, ratings in which people indicated strongly disliking feeling a particular emotion are taken as indicative of goals regarding its relative avoidance, and vice versa.

Two measures that relate to the fourth hypothesis were included. The first of these was the Emotion as a Child Scale (EAC II), an exploratory measure developed by Carol Magai and colleagues (see Appendix 2). The EAC II measures two important components of emotional development. Firstly, it provides data describing the subject's recollections of their childhood coping/expressive styles for anger, sadness, fear, and shame (withdrawing, expressing, distracting) for the emotions of anger, fear, sadness, and shame. Secondly, it offers a self-reported estimate of the level of each parental socialisation 'type' (neglectful, rewarding, punitive, overriding, magnifying) for these same emotions. Although the scale has not yet been published, studies by Magai and colleagues (in preparation) show that it has adequate internal and test-retest reliability for both child expressive and maternal socialisation measures (Magai, personal communication 7th July, 1999).

The final measure used was a dimensional measure of adult attachment adapted from Collins and Read (1990). Unlike the discrete measure of attachment style typically used in studies of children and its adult counterpart (cf. Hazan & Shaver, 1987), the Adult Attachment Scale (see Appendix 3) measures three *dimensions* of attachment – dependability, anxiety, and closeness. The advantage of this measure is that it enables a more finegrained picture of attachment styles, enabling us to assess the *degree* to which a particular style characterises each subject, and avoiding the problem inherent in assuming that discrete attachment styles are necessarily mutually exclusive.

The first dimension of the scale (Items 1, 4, 7, 10, 13, and 15) assesses the degree to which each subject feels or believes that other people are dependable. Data from this

[16] Although her work focussed on mood terms rather than emotions, Feldman-Barrett (1996) has noted that while the hedonic tone of an affective state is not identical to the social desirability of that same

dimension have been coded (summed across items) so that a high score represents a high belief or feeling that other people will be available when needed. The second dimension (Items 2, 5, 8, 11, 16) measures the extent of abandonment anxiety, again with higher scores representing greater anxiety. Finally, the third dimension (Items 3, 6, 9, 12, 15, 17) measures the degree to which a subject felt comfortable being close to other people, with higher scores representing greater comfort with interpersonal closeness.

Results

The first hypothesis suggested that the dimensions of conscious emotional experience would vary (a) *between* and *within* emotions, (b) *between* individuals for the same emotion, and (c) *within* individuals between emotions. Overall, support for the first hypotheses was intended to establish the need for more comprehensive theorising about the dimensions and origins of emotional experiences. Overleaf, the results as they bear on the initial hypotheses are presented as grouped around different means of examining variation in the experience of emotions. The reader should be aware that not all aspects of this large data set are described, but are included (see Table 7.1) for completeness alone. Rather, attention is initially focussed on the proximate experiential variables of Liking, Intensity, and Duration.

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state, social desirability has a substantial relationship with self-report ratings of experience. It was felt that this influence could be minimised by approaching the topic in the manner described.

Dimension of Emotional Experience		Emotion					
		Anger	**Sadness**	**Happiness**	**Fear**	**Shame**	**Pride**
	Liking (Item 1)	M=3.19 sd=1.73	M=2.32 sd=1.23	M=8.65 sd=0.63	M=2.49 sd=1.55	M=1.51 sd=0.77	M=6.84 sd=2.40
	Intensity (Item 2)	M=5.16 sd=2.23	M=5.57 sd=2.13	M=6.95 sd=1.51	M=5.21 sd=2.04	M=5.46 sd=2.16	M=5.46 sd=1.89
	Immediate self-perception (Item 6)	M=3.57 sd=1.66	M=3.68 sd=1.49	M=8.41 sd=0.96	M=4.03 sd=1.32	M=2.37 sd=0.98	M=7.24 sd=1.99
	General self-perception (Item 8)	M=4.57 sd=1.83	M=5.51 sd=2.12	M=8.08 sd=1.41	M=4.35 sd=1.40	M=3.41 sd=1.76	M=6.05 sd=2.05
	Ease (Item 7)	M=3.89 sd=2.17	M=5.16 sd=2.15	M=6.73 sd=1.95	M=4.49 sd=1.69	M=4.68 sd=2.15	M=4.57 sd=2.23
	Duration (Item 9)	M=3.19 sd=1.68	M=4.62 sd=2.18	M=6.38 sd=2.22	M=2.97 sd=1.64	M=4.22 sd=1.97	M=4.29 sd=1.88
	Onset Speed (Item 10)	M=5.54 sd=2.26	M=4.76 sd=1.90	M=3.65 sd=2.21	M=5.03 sd=2.03	M=5.11 sd=1.97	M=5.54 sd=1.91
	Consequences (Item 11)	M=4.94 sd=1.94	M=5.08 sd=1.94	M=7.84 sd=1.40	M=5.35 sd=1.39	M=3.68 sd=1.81	M=7.22 sd=1.75
	Goal Assistance (Item 12)	M=3.94 sd=2.37	M=2.97 sd=1.98	M=7.65 sd=1.69	M=4.35 sd=2.24	M=2.92 sd=1.96	M=6.68 sd=2.24

Table 7.1 – Showing the mean and standard deviation for nine aspects of conscious emotional experience for Anger, Sadness, Happiness, Fear, Shame and Pride.

Across Subject-Between Emotion analyses

Table 7.1 shows that there is considerable variation in the degree to which the experience of different emotions were liked. A one-way, repeated-measures MANOVA on liking, duration and intensity showed a significant main effect for emotion on the liking scores ($F(5, 180) = 145.47$, $p < 0.01$). It should however be noted that the MANOVA assumption of sphericity has been violated in this analysis ($X^2 (14) = 48.83$, $p < 0.01$), necessitating some further analysis[17].

Post hoc testing[18] showed that experiences of happiness were liked significantly more than experiences of all other emotions (all P's < 0.0001). Similarly, experiences of pride were liked significantly more than experiences of anger, sadness, fear, and shame (all P's < 0.000001). In addition, experiences of shame were liked significantly less than experiences of anger ($p < 0.001$).

[17] The MANOVA sphericity test is most readily thought of as analogous to a Levene homogeneity test for MANOVA or repeated measures ANOVA.
[18] All post-hoc testing completed using Scheffe tests.

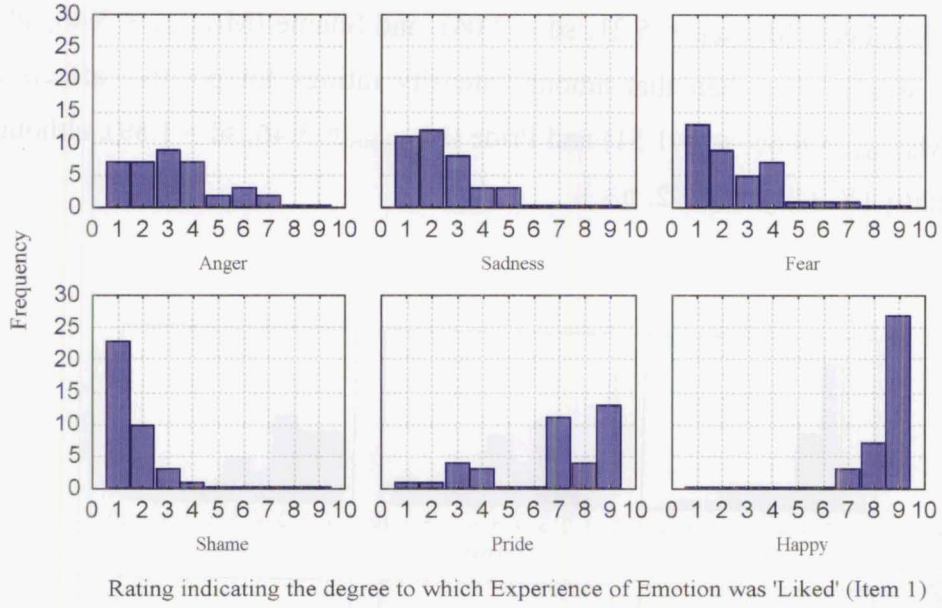

Figure 7.1 – Categorised histogram showing the distribution of 'liking' (Item 1) ratings for the experience of Anger, Sadness, Fear, Shame, Pride, and Happiness.

Anger (M_{Liking} = 3.19, sd = 1.73), Fear (M_{Liking} = 2.49, sd = 1.55), Pride (M_{Liking} = 6.84, sd = 2.40), and to a lesser extent Sadness (M_{Liking} = 2.32, sd = 1.22) statistics also show large variations in the extent to which an experience of each emotion was liked by individual subjects. Put simply, the degree to which a discrete emotional experience was liked varied considerably between subjects. Additionally, post-hoc Levene tests revealed that the liking ratings for experiences of Pride were more varied than all other emotions ($p < 0.01$), while the liking for experiences of Happiness (M_{Liking} = 8.65, sd = 0.63) and Shame (M_{Liking} = 1.51, sd = 0.77) were less varied between subjects than the liking ratings for anger, sadness, and fear (all p's < 0.01). In addition to helping explain the sphericity trouble noted above, this normative difference in between-emotion liking variance has some important implications for the conceptualisation of function in emotion that will be addressed below.

Table 7.1 also shows marked differences in the average intensity of the experiences for the six different emotions. A one-way, repeated-measures MANOVA showed a significant main effect for emotion on the intensity of emotional experiences ($F(5, 180) = 4.13$, $p < 0.01$). As above however, there were also considerable between emotion differences in the amount of variability within the intensity ratings. Taken as

a whole, the variability within Anger ($M_{Intensity}$ = 5.16, sd = 2.23), Sadness ($M_{Intensity}$ = 5.57, sd = 2.13), Fear ($M_{Intensity}$ = 5.21, sd = 2.04), and Shame ($M_{Intensity}$ = 5.46, sd = 2.16) ratings was greater than that among intensity ratings for positive affects of Happiness ($M_{Intensity}$ = 8.65, sd = 1.51) and Pride ($M_{Intensity}$ = 5.46, sd = 1.89), although non-significantly (X^2 (14) = 15.92, n.s.).

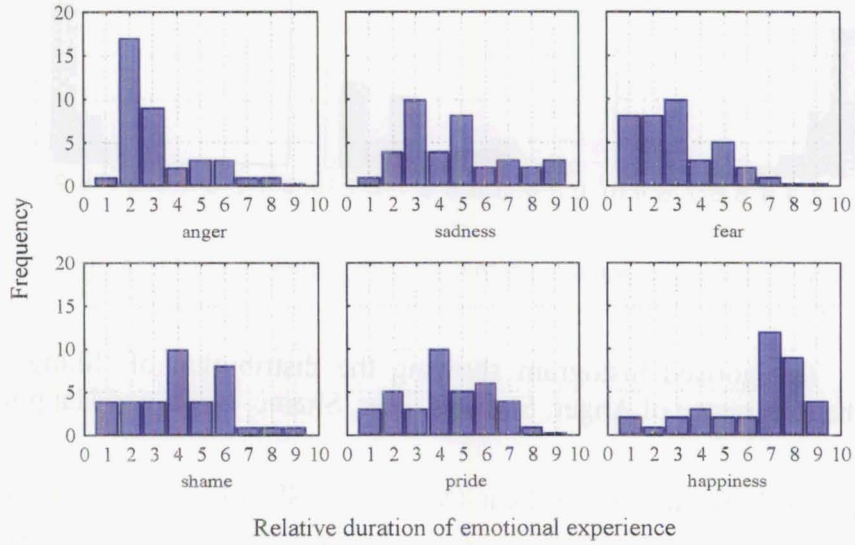

Figure 7.2 – Categorised histogram showing the distributions for duration of emotional experience estimates for anger (M=3.19, sd = 1.68), sadness (M=4.62, sd = 2.18), happiness (M=6.38, sd = 2.22), fear (M=2.97, sd = 1.64), shame (M=4.22, sd = 1.97) and pride (M=4.29, sd = 1.88).

Both Table 7.1 and Figure 7.2 show that the duration of emotional experiences varied between the emotions. A one-way repeated measures MANOVA showed a significant main effect for emotion on duration ($F(5, 180) = 14.09$, $p < 0.01$).

Figure 7.2 shows that happiness is typically experienced as being longer than experiences of all other emotions. It also raises the possibility that experiences of sadness, shame, and pride are often longer than experiences of anger and fear. However given the lack of a priori predictions, post-hoc testing showed that while experiences of Happiness ($M_{Duration}$ = 6.38, sd = 2.22) were reported as being significantly longer than experiences of all other emotions (all p-values < 0.01), the only other significant difference was that between experiences of Fear ($M_{Duration}$ = 2.97, sd = 1.64) and experiences of Sadness ($M_{Duration}$ = 4.62, sd = 2.18, p< 0.01).

Within Subject Analyses

In addition to the results reported above, the first hypothesis also predicted high degrees of variation *within subjects* on the three major dimensions of emotional experience (liking, intensity, and duration). Although the current data do not permit any definitive statement as to what constitutes 'high variation,' inferences are nonetheless possible through an examination of within subject-across emotion reports. For the following figure (see Figure 7.3 below), within-subject *ranges* have been created for each experiential variable (Liking, Intensity, and Duration) across the six emotions (anger, sadness, happiness, fear, shame, and pride).

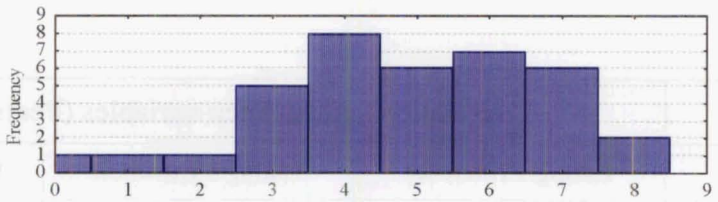

Figure 6.3a

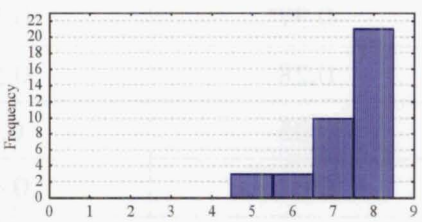

Figure 6.3b

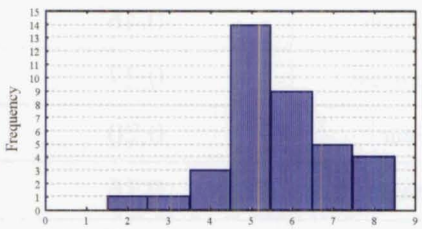

Figure 6.3c

Figure 7.3 - Histograms showing the distributions of *within-subject* ranges in self-reported Intensity (Figure 7.3a), Liking (Figure 7.3b), and Duration (Figure 7.3c) of experience across six emotions.

As can be clearly seen in Figure 7.3b (above), most subjects demonstrated a large range in the degree to which they liked experiencing the different emotions ($M_{Range\ Liking} = 7.32$, sd = 0.94), on average each subject using 8.32 points on the 9-point scale provided. Equally, most subject also showed a relatively high range in the duration of different emotional experiences ($M_{Range\ Duration} = 5.62$, sd = 1.36). Finally, subjects also reported a large range in the intensity of different emotional experiences ($M_{Range\ Intensity} = 4.86$, sd = 1.87). As is discussed below, this latter finding (of high within-

subject intensity variance across emotions) is particularly important. Diener et. al. (1985, 1986) have suggested that each individual has a 'preferred' intensity for all emotional experiences, while the current data suggest that the intensity of experiences may vary per emotion. Consequently, the 'chronic' position of individual affective intensity may be incorrect or at least require substantial elaboration.

Relationships between 'liking' and other dimensions of emotional experience

It was predicted that variations in the dimensions of emotional experience would be associated with the measure of emotional experience motivation (Item 1). The results relevant to this hypothesis were mixed, and varied considerably across both emotions and measures.

	Relationship between variables (Pearson's r)		
Emotion	**Liking x Intensity**	**Liking x Duration**	**Intensity x Duration**
Anger	0.38[a]	-0.14	0.12
Sadness	-0.46[c]	-0.37[a]	0.55[d]
Happiness	0.27	0.28	0.58[d]
Fear	0.20	0.05	0.07
Shame	0.16	0.02	0.43[b]
Pride	0.48[c]	0.49[c]	0.60[d]

Table 7.2 – Correlations between Liking, Intensity, and Duration ratings for anger, sadness, happiness, fear, shame, and pride. ([a] $p < 0.05$, [b] $p < 0.01$, [c] $p < 0.005$, [d] $p < 0.001$).

Table 7.2 shows that Intensity of experience is positively related to the Liking of the experience for five emotions, but only significantly for the emotions of anger (r=0.38), and pride (r=0.48). In contrast, the Intensity of sadness experiences was negatively related to the Liking of them (r= -0.46), with individuals liking sadness more indicating that experiences were typically less intense. Liking was largely unrelated to Duration ratings, with the exception of the relationships for sadness (r= -0.37) and pride (r=0.49). Finally, Intensity and Duration ratings are themselves positively related, as in the case of sadness (r = 0.55), happiness (r=0.58), shame (r=

0.43) and pride (r= 0.60) in which more intense experiences also tend to be reported as lasting relatively longer.

	Dimensions of Emotional Experience					
Emotion	**Immediate self-perception**	**General self-perception**	**Ease of Onset**	**Speed of Onset**	**Consequences**	**Goal Assistance**
Liking for Anger	0.63[d]	0.38[a]	0.38[a]	-0.33[a]	0.27	0.37[a]
Liking for Sadness	0.44[b]	0.14	-0.15	0.11	0.34[a]	0.36[a]
Liking for Happiness	0.52[c]	0.38[a]	0.30	-0.37[a]	0.59[d]	0.09
Liking for Fear	0.34[a]	0.33[a]	-0.14	0.08	-0.04	0.26
Liking for Shame	0.33[a]	0.36[a]	-0.03	0.27	0.26	0.21
Liking for Pride	0.74[d]	0.70[d]	-0.51[c]	-0.36[a]	0.59[d]	0.47[c]

Table 7.3 – Post-hoc correlations between Liking (Item 1) ratings and other aspects of emotional experience ([a] $p < 0.05$, [b] $p < 0.01$, [c] $p < 0.005$, [d] $p < 0.001$).

Additional post-hoc correlations (see Table 7.3) show that the liking of an emotional experience was positively related to subjects' responses to the immediate self-perception question (Item 6) for all emotions. People reported themselves as liking an emotional experience more when they reported feeling more positive about themselves immediately following the experience. The liking of a particular emotional experience was similarly (although more weakly) related to the general self-perception item (Item 8), for all emotions except sadness. For most emotions, subjects tended to report themselves as liking an emotional experience more when they felt more positive about themselves *as a person* who feels that emotion.

The question measuring how easy subjects found it to become emotional (Item 7) was erratically associated with the liking of that experience. People who found it easier to get angry also reported liking it more (r= 0.38), while people who reported a high liking for feeling proud tended to report that they became proud with more difficulty (r= -0.51). However, ratings regarding the experience of sadness, happiness, fear, and shame showed no relationship between liking and ease of onset.

Interestingly, people who reported liking an emotion frequently tended to report it as having a lower onset time (Item 10). The correlation between liking and onset time (while varied) was significant in the cases of anger (r= -0.33), happiness (r= -0.37) and pride (r= -0.36). In each of these three cases, a higher rating for liking an emotion was associated with a quicker onset for the experience.

The liking of an emotion was infrequently associated with beliefs as to whether the consequences of that emotion were generally positive (Item 11). Significant positive correlations were observed in the case of sadness (r= 0.34) and happiness (r=0.59), in which greater liking for the experience was associated with the belief that the consequences of this emotion were typically positive. No significant relationships were observed for reports on the experience of anger, fear, shame or pride.

Finally, the liking of emotional experiences was positively related to the belief that feeling such emotions helped the subject attain goals (Item 12). Ratings regarding experiences of Anger (r= 0.37), sadness (r= 0.36), and pride (r=0.47) all showed a significant positive relationship between the liking of the experience and the belief that the experience helped, while ratings for happiness (r=0.09), fear (r=0.26), and shame (r=0.26) all showed a nonsignificant trend in this same direction.

Overall, the liking of an emotion appears to bear a complex relationship with other facets of the experience. Although the extent to which an emotion is liked is frequently predictive of other aspects of emotional experience, the predictive utility of the liking measure varies considerably as a function of both the emotion and the experiential variable in question. As is discussed below, the findings discussed thus far underscore the complexity of emotional experience as much as they do highlight the utility of a motivational orientation when considering the experience of emotions.

Predicting the frequency of emotional experiences

The third hypothesis suggested that the measure of emotional experience motivation (liking) would be predictive of both the frequency and the recency of experiences of that type. Both the frequency (Item 4) and the recency (Item 3) questions used a non-Likert scale, simply asking subjects to indicate the two measures in terms of the number of episodes per hour, day, week, or month (see Appendix 1). Upon collation, these data were standardised so that each figure represented (a) the frequency of experiences/day or (b) the most recent experience (again in days). While it was felt that asking these questions in this manner would more validly access people's estimates of what constituted an experience of each emotion for them, such framing had the unfortunate side effect of producing highly skewed distributions. As can be seen in Figures 7.4a and c below, the raw self-report data were highly skewed.

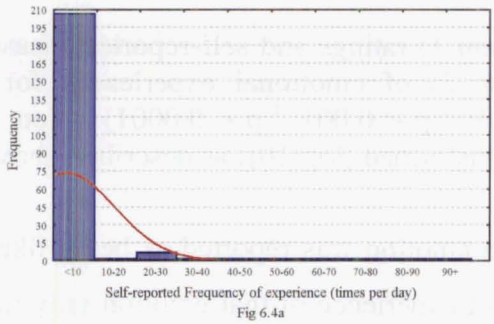

Fig 6.4a

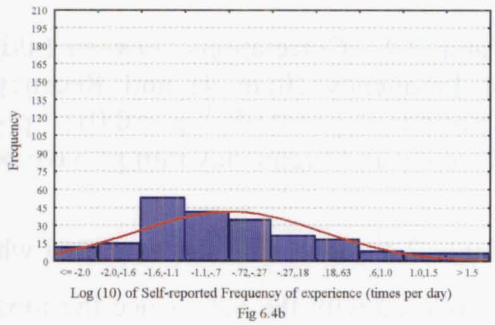

Fig 6.4b

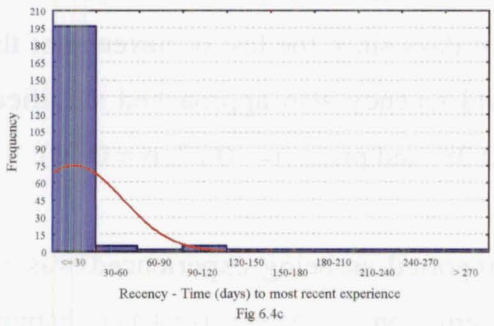

Fig 6.4c

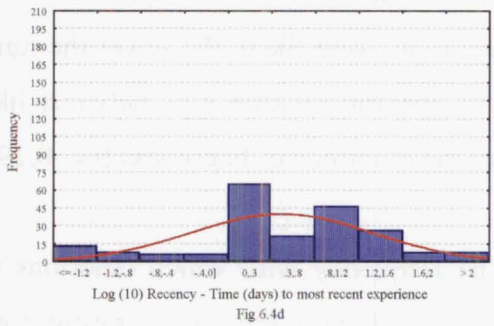

Fig 6.4d

Fig 7.4 – Categorised histograms showing the raw (Figs 7.4a and 7.4c) and transformed (Figs 7.4b and 7.4d) distributions of for self-reported Frequency and Recency ratings summed across six emotions.

Given the form of these distributions it was possible to treat the extreme ratings on each variable as outliers and exclude them from analysis. However, given both the

number and the nature of these 'outlying' estimates, it was felt that a log (10) transformation provided a better trade-off between retaining some measure of subjective validity and ensuring a data set amenable to further linear analyses.

	Variables being correlated		
Emotion	**Liking x Recency**	**Liking x Frequency**	**Frequency x Recency**
Anger (N=36)	-0.46[d]	0.41[b]	-0.68[e]
Sadness (N=36)	0.08	-0.17	-0.68[e]
Happiness (N=33)	-0.29	0.40[b]	-0.64[e]
Fear (N=36)	0.03	0.33[a]	-0.64[e]
Shame (N=36)	0.21	-0.23	-0.72[e]
Pride (N=37)	-0.27	0.51[d]	-0.73[e]
All Emotions (N= 214)	-0.47[e]	0.54[d]	-0.79[e]

Table 7.4 - Correlations between Liking (Item 1) ratings and self-reported measures of Frequency (Item 4) and Recency (Item 3) of emotional experiences for six emotions ([a] $p < 0.05$, [b] $p < 0.01$, [c] $p < 0.005$, [d] $p < 0.001$, [e] $p < 0.0001$). Note that Recency and Frequency ratings have been transformed (log(10)) as described above.

Table 7.4 shows that the extent to which an emotion was reported as being liked is correlated with the days since the most recent experience of that emotion only in the case of anger (r= -0.46) and across all emotions (r= -0.47). Generally, the more emotions were liked, the fewer the number of days since the last occurrence of them. The specific relationships between liking and recency also approached significance for the emotions of happiness (r= -0.29, p = 0.08) and pride (r= -0.27, p = 0.10).

The frequency with which emotions were reported as being experienced was often associated with the liking rating for that emotion. Anger (r=0.41), happiness (r=0.40), fear (r=0.33), pride (r=0.51), and overall (r=0.54) ratings, all suggest that an increased liking for an emotion is associated with more frequent experiences of it. Importantly this relationship is evident for both positive (happiness, pride) and negative (anger, fear) emotions. Ratings for the emotions of sadness (r= -0.17) and shame (r= -0.23) both showed a non-significant trend in the opposite direction, indicating that a greater liking for the emotional experience was associated with *less*

frequent experiences of that type. As above (see results in Table and Figure 7.1), such results indicate something about the experiential nature of function served by these two emotions.

Overall, the results in Table 7.4 once more underscore the complexity of emotional experience and the specificity of the relationships between variables to particular emotions. Nonetheless, when viewed as a whole, the relationships between behavioural reports of frequency and recency with the relative liking for a particular experience support hypothesis three as outlined above. Although recency reports are erratically related to liking ratings, the degree of liking for a particular experience is predictive of the frequency of that experience for four of six emotions. The fact that liking ratings for sadness and shame experiences were not predictive of the frequency of them should not distract from the overall impact of this finding. Rather, it should be taken as indicating the need for more careful examination of the relationships between experience and function for the different emotions.

The developmental timeframe for goals about emotions

The final hypothesis noted above suggested that measures of emotional experience would be associated with (a) measures of child expressive and coping styles and with parental socialisation practices for emotions (EAC II Scale), and (b) with a measure of adult attachment. Below, a series of post-hoc analyses that bear on these hypotheses are presented.

The first analysis involved examining the relationships between the parental subscales of the EAC II and the major aspects of emotional experience. As noted above, the EAC II generates five subscales for each emotion (neglectful, rewarding, punitive, overriding, and magnifying). Each subscale represents the extent or level of each parental style for the particular emotion. A full analysis of the relationships between each subscale and all the dependent measures is not possible here, so analysis has been restricted to an analysis of the relationships between levels of parental socialisation styles and four measures of emotional experience (liking, intensity, duration, and frequency) for the four emotions (anger, fear, sadness and shame) measured by the CES II.

	Parental Socialisation Style (per CES II)				
Emotion	Neglectful	Rewarding	Punitive	Overriding	Magnifying
Anger					
- Liking	0.07	-0.11	0.03	0.02	-0.17
- Intensity	**0.31** [a]	0.06	0.28	0.22	0.06
- Duration	0.04	0.04	0.17	0.05	0.10
- Frequency	**0.38** [a]	**-0.31** [a]	0.09	-0.21	0.29
Fear					
- Liking	0.01	-0.22	0.18	0.06	-0.02
- Intensity	-0.12	-0.12	-0.09	-0.13	-0.13
- Duration	0.04	-0.21	0.26	-0.20	-0.09
- Frequency	0.03	-0.06	0.24	0.20	0.21
Sadness					
- Liking	-0.17	-0.13	0.18	-0.06	**0.42** [a]
- Intensity	0.01	-0.02	**-0.41** [a]	**-0.31** [a]	**-0.33** [a]
- Duration	-0.08	-0.29	-0.14	**-0.51** [b]	-0.20
- Frequency	0.23	**-0.47** [b]	0.01	**-0.54** [b]	0.01
Shame					
- Liking	-0.17	0.00	-0.14	0.17	-0.15
- Intensity	0.01	-0.23	-0.01	-0.17	0.05
- Duration	-0.08	0.03	**0.32** [a]	0.21	0.05
- Frequency	0.23	-0.19	0.28	0.17	0.23

Table 7.5 – Correlations between levels of five parental socialisation styles for each emotion and four dimensions of conscious emotional experience for experiences of Anger, Fear, Sadness, and Shame ([a] $p < 0.05$, [b] $p < 0.01$).

In contrast to the hypothesis above, the data presented in Table 7.5 show that there are no systematic relationships between parental socialisation styles and the four dimensions of emotional experience. Neglectful parental styles are associated with increased intensity (r=0.31) and more frequent episodes of anger (r=0.38) while a highly rewarding parental style was associated with less frequent experiences of both anger (r= -0.31) and sadness (r= -0.47). Punitive parental styles are associated with less intense experiences of sadness (r= -0.41) and longer episodes of shame (r=0.32). Highly overriding parental styles are associated with less intense experiences of sadness (r= -0.31) and these experiences tended to be shorter (r= -0.51) and to occur less frequently (r= -0.54). Finally, highly magnifying parental styles are associated with an increased liking for sadness (r=0.42), although such experiences tended to be less intense (r= -0.33).

Although a full discussion of the general failure of this hypothesis will follow below, a few brief comments will be made here. One possible problem with the between-subjects analysis above may lie in the manner in which different subjects used each of the two scales. To attenuate this possible complication, a second analysis was run in which all subject variables were standardised within that subject across the four emotions. A z-transformation of this sort yields an *internally relative* estimate of the dimensions in question. Nonetheless, the results of this secondary analysis mirror those of the between subjects analysis above, indicating few relationships between the goals about emotion and child socialisation measures.

A further reason for the failure of the goals about emotions (GAE) measures to systematically correlate with the measures of parental socialisation styles (the CES II) may lie in what each of the two scales are measuring. As has been discussed above, the GAE scale was intended to measure the relationships between motivations regarding experience and other aspects of conscious emotional *experience*. In contrast, the CES II appears more suited to describing the relationship between socialisation variables and child *coping/expressive* styles[19]. While experiences of emotions are likely to be related to both coping and expressive style variables (see above), these measures do not constitute basic experiential dimensions. Given this disparity as well as the emotion-specific complexity of experience, it is perhaps unsurprising that the relationships between the two measures are so highly inconsistent.

A second analysis examining the macrodevelopmental timeframe for goals about emotions was run by correlating experiential variables with the three major dimensions of attachment in adults (per Collins & Read, 1990). While the number of experiential (GAE) variables presented here is again limited, this analysis has the advantage of allowing an examination of attachment dimensions and their relationships to all six emotions considered within the GAE scale.

[19] Analyses not presented here do in fact demonstrate significant relationships between parental socialisation variables and child coping/expressive styles, underscoring the internal reliability of the CES II Scale.

	Dimension of Adult Attachment		
Emotion	Dependability	Anxiety	Closeness
Anger			
- Liking	0.12	**-0.45**[b]	-0.13
- Intensity	0.15	**-0.40**[a]	-0.03
- Duration	-0.10	0.02	-0.13
- Frequency	-0.19	-0.15	-0.23
Sadness			
- Liking	0.01	-0.04	0.03
- Intensity	**-0.35**[a]	0.23	-0.01
- Duration	**-0.35**[a]	-0.12	-0.27
- Frequency	**-0.47**[b]	0.18	-0.17
Happiness			
- Liking	0.22	0.25	0.14
- Intensity	**0.46**[b]	**0.36**[a]	**0.50**[b]
- Duration	**0.62**[c]	0.12	**0.39**[a]
- Frequency	**0.50**[b]	0.18	0.30
Fear			
- Liking	0.02	0.15	0.27
- Intensity	-0.13	0.05	0.10
- Duration	-0.02	**-0.41**[a]	0.05
- Frequency	-0.02	0.17	0.12
Shame			
- Liking	-0.03	**-0.32**[a]	0.00
- Intensity	-0.18	0.05	-0.10
- Duration	-0.12	-0.03	0.07
- Frequency	-0.18	**0.38**[a]	0.00
Pride			
- Liking	0.26	0.24	-0.09
- Intensity	0.25	0.03	0.00
- Duration	**0.37**[a]	0.14	0.12
- Frequency	0.25	**0.49**[b]	0.23

Table 7.6 – Correlations between attachment dimension scores on the Adult Attachment Scale and four dimensions of conscious emotional experience ([a] $p < 0.05$, [b] $p < 0.01$, [c] $p < 0.001$) for Anger, Sadness, Happiness, Fear, Shame, and Pride.

Table 7.6 shows that particular profiles of attachment dimensions were associated with differentially complex patterns of emotional experience and frequency. However, the predictive utility of the three subscales varied considerably. Scores on the closeness dimension were infrequently associated with measures from the GAE

scale, the only relationships observed being between closeness scores and the intensity (r=0.50) and duration (r=0.39) of happiness experiences. No other significant relationships were evident for scores on this subscale, suggesting that it may be of limited utility for researchers interested in developmental issues in emotional experience.

By contrast scores on the dependability and anxiety subscales showed several (if complex) relationships with measures of emotional experience. Individuals who had a high dependability score (a high score indicating a high belief that other people will be available when needed) reported significantly less frequent experiences of sadness (r=0.47). In addition, these experiences tended to be lower in intensity (r= -0.35) and to be of shorter duration (r= -0.35). As with the closeness scores, individuals with a higher dependability score also tended to report more frequent experiences of happiness (r=0.50), which again tended to be comparatively longer (r=0.62) and more intense (r=0.46). Additionally, higher dependability scores were associated with longer experiences of pride (r=0.37), along with non-significant trends towards a greater liking for pride (r=0.26, p=0.11) as well as more frequent and more intense experiences (both r s = 0.25, p=0.13).

The most complex pattern of relationships was found in an examination of the anxiety subscale. Anxiety scores were the only attachment dimension to be associated with any measures for the experience of anger, fear or shame. Compared to low anxiety subjects, individuals who reported a high level of attachment anxiety also reported a significantly lower liking for experiences of anger (r= -0.45) and experiences of anger tended to be of a significantly lower intensity (r= -0.40). Individuals with a high anxiety score also reported experiencing significantly shorter episodes of fear (r= -0.41), perhaps indicating an acquired ability to reduce fear quickly or a higher motivation to do so. These individuals also reported more strongly disliking the experience of shame (r= -0.32), and experiencing this emotion more frequently (r=0.38) than low anxiety individuals. On a more positive note, when compared to low anxiety subjects, individuals with high anxiety scores also reported more frequent experiences of pride (r=0.49) and greater intensity of happiness experiences (r=0.36).

Chapter 7.4 – Tying it back together? Data from the GAE Scale, emotional experience, and the creation of more questions than answers

Overall, the data from the study presented above provide some interesting material for the continued development of motivational theories of emotional experience. While the data supporting each hypothesis were complex, substantial support was obtained for all four of the a priori hypotheses.

Before considering the broadest implications of the data presented above, it is worth noting that the current study underscores the incredible complexity of emotional experiences described by Johnson-Laird and Oatley (1992) and Ellsworth (1991). Moreover, the worms one discovers upon opening even the smallest can of experience are not only descriptive, but are both phenomenological and conceptual in nature. Experiences occur as complexity (if holistically), and conceptual consideration of experience is thus undeniably complicated. Nonetheless, complexity itself must not prove a barrier to the consideration of a vital topic distressingly understudied by emotion theorists.

More importantly, when viewed optimistically the data presented above provide some small light at the end of a long, dark, and convoluted tunnel. As shall become clearer (sic), while the dimensions of experience vary considerably both within and between individuals (ideographically), the extent of such variation appears to vary normatively as a function of both the emotion and the experiential dimension in question. This latter finding, and its implications for the relationships between function and experience, seem to *limit* experiential complexity within certain emotions and certain dimensions. Experience is not limitless in its variation, and consequently there is yet hope for normative theory.

Within each subject, the experiential dimensions of liking, intensity, and duration[20] varied considerably across the six emotions rated. Of note is the failure to find a trait-

[20] Sonnemans and Frijda (1994) have recently suggested that duration is a component of intensity. While space constraints limit the consideration of this idea it can be noted that the current data (see Table 7.2) did not wholly uphold this conceptualisation. Consequently, I will discuss the two as if they are related rather than as component and parent concepts.

like relationship across emotions for the experiential dimension of *intensity*. Previous work by Larsen and colleagues (e.g. Diener, Larsen, Levine, & Emmons, 1985) has suggested that individuals vary chronically in the *intensity* of the affects they prefer and experience (see also Sonnemans & Frijda, 1995). In support of this premise, Flett et. al. (1986) reported that individuals with a high Affect Intensity Measure (AIM) score also tended to report significantly more intense experiences of happiness ($r = 0.69$), pride ($r = 0.62$), anxiety ($r = 0.72$) and hate ($r = 0.66$). While the current study did not employ the AIM measure, no relationships between the intensity ratings for each emotion were found.

In considering the discrepancy between these data, it can be noted that the intensity of emotional experience is not typically considered a singularly trait-like characteristic by either emotion (see e.g. Sonnemans & Frijda, 1994, 1995) or motivational theorists (e.g. Brehm, 1999). Some writers, like Lazarus (1991b) and Oatley (Oatley, 1992; Johnson-Laird & Oatley 1992) briefly suggest that emotional intensity usually reflects the extent of the relevant goal commitment (see also Brehm, 1999), while a more comprehensive treatment of intensity and emotion is found in the work of Sonnemans and Frijda (1994, 1995, see also Ortony, Clore, & Collins, 1988).

According to Sonnemans and Frijda (1995), the intensity of an emotional experience is a complex function of the individual's concerns (goals), further appraisals (particularly anticipated effort), regulatory processes, and individual propensities. Their 1995 discussion of 'individual propensities' suggests that the differences can be thought of as differences in appraisals, or as thresholds and preferences for particular modes of action readiness (see Frijda, 1996 for a revised, but essentially similar version of this model). Overall, the available data suggest that felt emotional intensity is not simple or unitary (Sonnemans & Frijda, 1995), and may in fact be non-linear (Brehm, 1999[21], see Chapter 8). Most importantly however, the data from the current study suggest that intensity is non-chronic, but rather may exist at numerous levels of

[21] Paranthetically, it can be noted that Brehm (1999) more fully suggests that while intensity will typically occur in proportion to the importance of the motive, that it will be minimised to whatever extent is compatible with carrying out its function. For Brehm, the ultimate determinant of emotional intensity is a quadratic relationship between the perceived magnitude of deterrence (either competing emotions or distraction) to attaining the goal of the emotion. While Brehm's (1999) discussion of intensity is somewhat beyond the scope of the current work, both his theory and data are compatible with a view that suggests that multiple influences determine felt intensity.

specificity with the relationships between experience and intensity varying per person, per emotion, and per dimension.

In addition to the ideographic variation discussed above, the current study also found that some ratings, such as that for 'liking', varied differentially at a normative level depending on the emotion under scrutiny. For example, there was a significantly higher degree of variation in the potentially bimodal liking distribution for the liking of pride compared to all other emotions, and liking ratings for the emotions of anger, sadness, and fear varied considerably more than did liking for shame or happiness.

Most subjects reported strongly disliking the experience of shame and strongly liking the experience of happiness, while liking ratings were more wide-ranging for all other emotions. It thus appears that happiness *itself* is never experienced as unpleasant, presumably because both the emotional state and (it appears) the experience of that state constitute an irreducibly 'liked' state of affairs (see Chapter 6). This conceptualisation of happiness seems to underlie Freud's *pleasure principle,* and is evident in Arnold's (1960a) discussion of infant motivation. Although experiences probably become more complex as we age, it seems as if we simply cannot help but like being happy at each juncture[22].

As is more fully discussed below, normative variations in dimensions of emotional experience can be taken as indicating something of the relationship between function and experience for the different emotions. While, cross-cultural data (within the same terminological framework or language) would be needed to more fully support this hypothesis, the data are consistent with the idea that experiences while varied are not infinitely so, but are constrained at both normative and ideographic levels.

[22] As shall be expanded on below, it is of course possible to describe an experience of happiness as being unpleasant, say when we immediately feel guilty following our happiness over the misfortune of others. However, such microdevelopmental transitions do not however mean that happiness itself can ever be unpleasant. Rather, they indicate that experience changes incredibly rapidly as the system incorporates new information, up to and including previous, current, or anticipated emotional responses themselves. Nonetheless, it is only at the point that we become guilty (and *cease* being happy) that we may experience unpleasantness.

Experiences are complex: So what?

While the complexity of emotional experience outlined thus far may be pleasing to the phenomenological essentialists among us, the data discussed do little to *explain* variations in emotional experience. Rather, it can be seen that they beg a number of 'why' questions. Why do people differ so greatly across so many dimensions of experience? Why do they vary across some dimensions, and some emotions, more so than for others. Most broadly, why are emotional experiences so complex, and what function (if any) does such complexity and differentiation achieve?

In beginning to answer these types of questions, the discussion below will outline a motivational-constructivist model of conscious emotional experience. It will begin by discussing the importance of conceptually separating experience of emotions from emotional states. Following this, it will suggest that a useful way to consider variations in emotional experience is through reference to the early emergence of experiential motivations that come to subsequently constrain each individual's emotional experiences. While these motivations may exist at any number of levels, it will also be suggested that each individual is not free to develop any motivations regarding their experience. Rather, the emergence of experiential motivations and the dimensions that they regard are constrained through the dynamic interactions of phylogenetic developmentally acquired constraints, attractors and repellors.

Chapter 7.5 – A motivational theory of conscious emotional experience and its development: Experiences as motivationally constructed (within limits)

Taken as a whole, the data described above can be seen as providing further evidence support for the contention that emotional experiences are a different phenomenon from emotional states (Lewis & Michalson, 1983; Lewis, 1993, 1998b; Johnson-Laird & Oatley, 1992). With some exceptions, the data outlined as relevant to the first hypothesis sustain the idea that liking, intensity and duration dimensions of experience vary considerably between people for the 'common' emotions of anger,

happiness, shame, fear, sadness, and pride. In addition, these three measures of emotional experience were shown to vary considerably within each individual across the six emotions studied. If, as discrete approaches to emotion suggest, we accept that the basic *state* of a primary emotion is initially similar across individuals (see Chapters 3 and 8), the fact that self-reported *experiences* of these same few basic states vary so greatly is important in a number of ways described below.

Taken together, the separation of states from experience and the evident complexity of experience illuminate an initial compromise position regarding one of the greatest validity threats to discrete approaches to emotions such as that undertaken here[23]. Along with Tomkins (1962, 1963), Izard (1971, 1991), and Ekman (1994a), the current conceptualisation of emotions (see Chapter 8) suggests that there is a *limited* set of *discrete* emotional states that are qualitatively, hence fundamentally, different from one another. As such, emotional states are not primarily distinguished by (a) their pleasantness and engagement (e.g. Watson & Tellegen, 1985), (b) their valence and arousal characteristics, the so-called circumplex (e.g. Russell, 1980, cited in Ellsworth, 1991; Feldman-Barrett, 1996; Russell & Feldman-Barrett, 1999), or by (c) any number of appraisal dimensions (e.g. Roseman, 1984; Roseman, Antoniou, & Jose, 1996)[24].

Despite this assertion, the discrete position is not without its weaknesses (see e.g. Ellsworth, 1991; Lazarus, 1991b). Most salient in the current context is the trouble engendered by the fact that subjective experiences do not always slot neatly into the categories that emotion theorists typically provide (see Chapter 8). Although this problem has been treated by stating that the reported experience is not in fact an emotion (e.g. Ekman, 1984, cited in Ellsworth, 1991), or by assuming that uncategorised experiences represent a blend of basics (e.g. Plutchik, 1980, 1984, 1991), it seems likely that a reconciliation of the discrete approach with the cross-cultural diversity (Harre, 1986; Markus & Kitayama, 1994, 1996) and complexity of

[23] As Smith (1998) notes virtually any collection of entities can be described either dimensionally (in terms of how they relate to one another along underlying properties) or reified categorically. As is expanded upon in Chapter 8, the current dissertation agrees with this assertion but will nonetheless adopt a discrete position.

[24] As shall be expanded upon in Chapter 8, it is the position of the current writer that appraisal dimensions are better thought of as describing the structure of appraisal space or the dimensions of emotional experience, not (as is claimed by some) of the emotion per se.

emotional experience (Harre, 1986; Johnson-Laird & Oatley, 1992) will always be problematic for biologically discrete theories. There seems to be little additional function served by conscious experience within the discrete framework.

As such, it is initially tempting to promote a working settlement of this issue through arguing that experiences represent a form of epiphenomenal melange, a phenomenologically and temporally undiscriminating conglomeration of discrete states that serve no particular purpose. It could thus be argued that self-reported experiential variations within the basic categories are nothing more than an exasperating socio-linguistic artifact in which differential descriptions (of the same basic state) arise through culturally derived interpretations of the eliciting situation (Harrison, 1986; Dunn, 1994), or through linguistic custom (Armon-Jones, 1986; Harre, 1986; Lutz, 1982, 1986) and construction (Averill, 1982, 1994a). Although this paragraph may strike the reader (as it does the writer) as overly pompous and melodramatic, its substance nonetheless captures the implicit sentiment of several discrete theories.

The difficulty is that such an argument would undermine any functional approach to emotional experience (see above), in that it would imply that there is little reason for experience to occur at all[25]. If variations in experience were simply constructed variants of one or several basic states, why should they occur and what function would they serve? The current dissertation eschews a (dys)functional interpretation of emotional experience, instead suggesting that the complexity of experience describes the function of it. Experiences are thought to be highly complex for good reasons. As such, the mere fact that we have yet to determine what these may be is not argument against functionalism, but rather against theoretical complacency and disregard.

As intimated previously then, the current author suggests that emotional experiences, particularly in the adult, represent more than a 'readout' of emotional states. Emotional states can only exist sequentially, one at a time, while experiences represent a temporally less discriminating integration of multiple evaluations and

[25] As noted above, and more extensively in the following chapter (see Chapter 7), this failure to consider possible functions for experience is part of a more general weakness in emotion theory.

influences. More specifically, experiences are conceptualised as being motivationally constructed in each moment by the individual as a function of shared phylogenetic constraints and ideographically acquired (macro) and emergent (micro) motivational influences.

For clarity the following explication of this idea will consider different aspects of the concept separately. However, the reader should be aware that no literal separations are intended, as each component in the process is heavily and non-linearly interactive with the others. Overall, the current approach to emotional experience may be broadly summed within the following three postulates.

1. Conscious emotional experiences are distinct from emotional states, being *motivated* and constructed[26].

2. Experiential constructions emerge 'afresh' at each microdevelopmental juncture, hence are only 'the same' insofar as they may represent a phenomenologically consistent emotional narrative or pattern of discrete states[27].

3. In most instances, emergent experiences are based on the emotional state, the experience being ever more precisely 'constrained' across microdevelopment by three cascading types of factor.

    a. *Phylogenetic or functional influences* – Initially, experiences are directed and constrained by the heritable nature of the emotional state itself, most immediately through the relative importance of expressive and experiential dimensions to the *function* of the emotion.

    b. *Macrodevelopmental influences* – Emotional experiences are further directed and constrained by the importance of the

[26] Experiences typically parallel the emotional state, particularly as the intensity of the state-level response increases. As is expanded upon in Chapter 8, state intensity is considered to operate as a function of state and emergent goal importance and the degree of relevance between stimuli and goals.

activating motive, as well as through the individual macrodevelopment of attractors and repellors for emotional states and the many dimensions of conscious experience – goals about emotions, operating within the limits imposed by 3a.

c. *Microdevelopmental influences* – Lastly, experiences are directed and constrained by emergent microdevelopmental factors. Specifically they are influenced by the *emergent* importance of the activating motive[28] and the intensity of the initial response at the level of the state (cf. Brehm, 1999). In addition, conscious experiences are also influenced by the individual's perceptions regarding the situation including secondary appraisal, their ability to label it, and the emergent salience of other relevant motivations and beliefs.

Experience as motivated

The data from the study presented above are consistent with the first aspect of the thesis presented insofar as it was demonstrated that the indirect motivational measure (the 'liking' question) was related to numerous aspects of experience and to the relative frequency of different experiences. In the first instance, the liking of an emotion was predictive of its typical intensity for anger, sadness, and pride. In the cases of anger and pride, greater liking was associated with increased intensity, while the relatively higher liking for sadness experiences was associated with a reduced intensity. Similarly, liking for an emotion was substantially correlated with both the immediate and general self-perception items. Finally, liking was associated with reduced onset speed for the emotions of anger, happiness, and pride.

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[27] This premise is in no way addressed by the current data, hence will not be commented on.

[28] The reader should be aware that trait and emergent motive importance are thought to be conceptually distinguishable phenomena. As implied in the dissertation thus far, trait importance represents the macrodevelopmentally stable placement of particular goals relative to others in the personality state space. However, the emergent importance of a particular goal or attractor may also change dramatically in microdevelopment as a function of context specific and context-person interactional variables (see e.g. Stein, Trabasso, & Liwag, 1993).

Given the importance attached to emotions in the model of state space elaboration presented in chapter five, it is perhaps most important that the motivational variable was strongly predictive of the self-reported frequency of particular experiences. This prediction was upheld for the emotions of anger, happiness, fear, and pride as well as the overall measure. In each case, greater liking for the experience was associated with significantly more frequent experiences of it. Interestingly, neither sadness nor shame reflected this trend, each revealing a slight trend in the opposite direction.

It is likewise important that we note that the relationships between liking, experience, and frequency emerge in consideration of both positive and negative emotions and experiences, as well as across a number of experiential dimensions. As such, these data reflect the probability that goals about emotional experiences are acquired in a highly complex, ideographic, and perhaps culturally-specific (Markus & Kitayama, 1994, 1996) manner. Although the interpretative framework these authors use differs markedly from that undertaken here, they do note that there are marked experiential and expressive differences between cultures (Markus & Kitayama, 1996).

Hence, despite the fact that the current study was not designed to enable an analysis describing precisely *which* aspects of particular emotional experiences are motivationally flexible, it seems reasonable to suppose that goals about emotions may operate at multiple levels of greater or lesser discrimination. Most immediately, they appear to restrict or enhance the relative probability of particular types of experiences, and may also limit or enhance the likelihood of particular intensities (cf. Diener et. al., 1985), even for particular emotions. At their most rarefied, goals about emotions may even help delineate the precise situations or people (Matsumoto et. al, 1988, cited in Markus & Kitayama, 1996; Jakobs, Manstead, & Fischer, 1999) associated with a particular experience or class of experiences[29].

To this point, the reader could be forgiven for inferring a discrepancy between the biologically discrete conceptualisation of emotions running throughout the dissertation and the 'near-constructivist' dogma evident in the paragraphs above. As

[29] It is acknowledged that the data described by Markus and Kitayama (1996) are predominantly relevant to expression. However, they do state that "not only the expression but the experience of . . . anger is effectively averted" (p. 237), underscoring their idea that experiences are constructed.

mentioned however, emergent emotional experiences are directed and constrained by a number of factors. So while emotional experiences need never comprise a discrete emotional state (see below), the motivated construction of emotional experience does emerge within multiple and cascading limits that can be described, predicted and measured.

Chapter 7.6 – Form follows function: Abduction and the consideration of experience-function relationships

Despite the difference between experience and state, certain aspects of emotional experience nonetheless appear to be constrained or predisposed by the heritable evolutionary functions of the discrete emotional states. Although the focus of the current dissertation precludes a full analysis of what experiential data might enable us to infer (abduct) about function, a few examples will be provided to underscore the potential utility of the abductive approach. Below, the relationships between experiential valence and the functions of happiness and shame, as well as those between function and the duration of emotional experiences are examined in this regard.

Function and Experiential Valence

Within the current data, normative relationships between function and experience are most obvious in noting that some emotional experiences appear limited in the degree to which their liking, pleasantness or experiential valence[30] dimension may vary. Most notably, there is little variation along this dimension for experiences of shame and happiness. Happiness and shame experiences were consistently positive or negative, pleasant or unpleasant, and liked or disliked across the entire sample, while the emotions of fear, anger, sadness and pride varied considerably along this dimension.

These differences could of course represent little more than a methodological artifact,[31] although it seems more likely that the comparative lack of variance in the liking of shame and happiness experiences is indicating something of function in the different emotions. Specifically, these data could be taken as supporting an argument suggesting that the functions served by the emotions of shame and happiness may be more closely linked to the valence of their phenomenological experiences than is the case for the other four emotions studied.

Previous considerations of shame have typically stressed the cognitive-experiential antecedents of the emotion in respect of a conscious self (e.g. Tangney, 1991, 1992, 1999; Frijda, 1993a; Lewis, Sullivan, Stanger, & Weiss, 1998). Moreover, recent discussions regarding the function of shame appear to have emphasised what could be termed the communicative, social (e.g. Frijda, 1993a; Frijda & Mesquita, 1994; Einstein & Lanning, 1998) or appeasement (Keltner, 1995; Keltner & Buswell, 1996) aspects of shame and its expression.

In the current study, all but one of the 37 subjects rated their liking of shame within the first three points at the negative end of the scale, indicating that all strongly disliked feeling ashamed (cf. Tangney, 1999). That this pattern holds across a sample displaying considerable variation in the liking for most other emotions can be taken as reinforcing a functional interpretation of shame that emphasises, or at least includes, the *experiential and motivational* nature of shame as a major part of its function. As Frijda and Mesquita (1994) have noted, "the emotion is most powerful through one's efforts to prevent it from occurring" (p. 77).

The adoption of such a position is not intended to suggest that shame does not have important social functions, but rather that we cannot blandly accept that it is via communication or expression alone that a 'social-moral' emotion (Keltner & Buswell,

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[30] As with the term 'function,' the term 'valence' is used irregularly by emotion theorists. For the purposes of the current discussion, valance refers to the innate and fixed nature of the person-environment relationship. When discussing experiences, the term 'experiential valence' will be used.

[31] For example, it seems likely that the Item 1 anchors "very strongly dislike" and "very strongly like" are not extreme enough for shame and happiness ratings, producing a floor and a ceiling effect respectively. As such, differences in variance may simply reflect a bias in measurement. Nonetheless, the fact that such 'artifact' only occurred for these two emotions can itself be taken as an indication of experiential-functional links for these two emotions that may not exist for others.

1996) like shame functions. After all, anecdotal data suggest that shame experiences are infrequently expressed in contemporary Western culture.

On the basis of the data presented here it is suggested that while shame expressions may function as an indicator to social others that we have erred, that the *motivational experience* of shame likewise serves a crucial function. While there is little direct evidence supporting this assertion (Tangney, 1999), it appears reasonable to suggest that shame experiences (a) motivate the avoidance of situations, elicitors, and acts associated with them, and (b) motivate the acquisition of skills or abilities necessary to remedy the perceived deficit either immediately or in future. In this manner, it is through expression *and* experiential motivation that shame assists the maintenance of the social order and prevents rejection (Frijda, 1993a), rather than through expression alone as seems to be implied above.

In some ways it could be argued that such a position is noting nothing new in emotion theory. Theorists like Tangney (1991, 1992, 1999) have been admirably explicit in their consideration of the motivational function of shame (see also Nathanson, 1993). Tangney (1999) for example, suggests that shame experience typically lead to attempts to deny, hide, or escape the situation. Nonetheless, the data above once more lend themselves to an interpretation of shame that stresses motivational (via experiential), rather than expressive function alone *explicit* in our theories.

A similar comment can be made in respect of normative experiential valence for experiences of happiness. According to some theorists, happiness has been distressingly understudied and is probably the most problematic emotion of all (Averill & More, 1993). A brief examination of the literature on happiness *as an emotion* supports their concerns. There is little discussion, let alone consensus regarding happiness, with many theorists offering many different functions[32] for this primary emotion.

[32] Making matters worse, the term 'function' is inconsistently or poorly employed by emotion theorists. Within the current chapter the term is intended to denote distal or evolutionary function, rather than describing the manner in which a particular emotion or adaptation functions within its current context.

Izard (1993) begins his discussion of the positive emotions by distinguishing joy/happiness from simple sensory pleasure (see also Averill & More, 1993). He suggests that joy (happiness) is predominantly functional in that it strengthens social bonds, particularly those between caregiver and infant. Consequently, a distinct function of joy is served through its expression, universally indicating a readiness to engage in friendly interaction. Izard (1991, 1993) has also proposed that happiness may serve as an antidote to stress (cf. Lazarus & Folkman, 1984) suggesting that "during the experience of joy . . . both our mind and our body have time for recuperation or recovery" (p. 139).

More broadly, Johnson-Laird and Oatley (1992) have suggested that all emotions operate to redistribute cognitive resources and manage goal priorities (see also Oatley, 1992, p. 36). In discussing happiness, Oatley (1992) suggests that the same principles are usefully applied. Within his communicative theory, all emotions are engendered by "*any* substantive change in the evaluation or progress of any goal or plan" (p. 359). Consequently, the effect of positive change is to encourage continuation with that same plan, enabling the person to remain absorbed and confident. In terms of specificity, Oatley's (1992) position is similar to that of Michael Argyle who suggests that happiness experiences represent a personal reflection on satisfaction in various aspects of life (Argyle, 1987).

Perhaps due to the confound between function and the way a phenomenon functions, researchers investigating happiness have typically examined aspects of cognitive and action change as correlated with experiences of happiness, rather than focus on the function of the experience itself. Isen and colleagues for example (e.g. Isen, 1993, Isen, Daubman, & Nowicki, 1998), have long argued that positive affect facilitates creative problem solving and cognitive change. More specifically, they argue that positive affect leads to more inclusive categorisation (Isen & Daubman, 1984, cited in Isen et. al., 1998), to better problem-solving or negotiation ability (Carnevale & Isen, 1986), and to an increased capacity to savour and appreciate the world (Izard, 1991). More recent discussion has likewise suggested that the cognitive effects of positive affects are multiple and highly linked to task and personality factors (see Aspinwall, 1998 for a recent review).

There is good reason to think that such cognitive change may well constitute an important part of the function of happiness. As Oatley (1992) notes, many emotions narrow the focus of attention, while happiness tends to widen the range of possibilities. Fredrickson (1998a) likewise suggests that positive emotions serve to broaden an individual's momentary thought-action repertoire, which in turn has the effect of building that individual's physical, intellectual, and social resources. A similar point is made by Trope and Pomerantz (1998) who argue that positive experiences boost an individual's ability to cope with negative self or goal feedback (see also Lazarus, et. al., 1980).

Overall, the functions of happiness as described thus far seem to fall within one of three categories. Firstly, there is clearly a social function, perhaps operating as envisaged by Izard, in which happiness indicates to social others a 'readiness to engage.' This function is implicitly reliant on expression rather than experience, although expression may well serve as a reliable indicator of state, and hence a predictor of behaviour. Secondly, there appears to be a function of happiness involving concomitant cognitive adjustments, that serve to enhance creativity and problem solving (Izard, 1991; Isen, 1993), and to broaden perceptual scope (Isen, et. al., 1998). Finally, there may be a recuperative/rest or resource function described to by Trope and Pomerantz (1998), Izard (1991), and Fredrickson (1998a).

In considering both function and happiness it is quickly apparent that the concepts are difficult to integrate. As Averill and More (1993) note, the basic term 'happiness' seems to denote a variety of experiences and a many-functioned adaptive system. In seeking to capture something of the complexity of the topic material, theorists seem to have offered as many 'functions' as appeared necessary to describe the different parts of the concept and the ways in which it is made manifest. As Aspinwall (1998) notes, the changes engendered by positive affect currently appear too complex to be subsumed within a single explanatory framework.

Notwithstanding the complexity of happiness, the functions described thus far appear unnecessarily problematic. In isolation, there are difficulties with each 'function' too

numerous to be adequately addressed here, so commentary will be limited to two major problems[33].

The first of these relates to what might be termed a 'thought experiment' that the reader has already been introduced to. Earlier in this chapter, it was briefly argued that several theories of emotional experience appear to fall prey to explanatory gap reasoning. At this point, it was suggested that many of the 'functions' ascribed to experience could be achieved without any conscious experience at all. Why do we need an experience in order to smile, to broaden our cognitive scope, or to recover? In seeking comprehensiveness, many conceptualisations do not seem to ultimately consider *why* happiness always feels so good. Consequently, I suggest, they miss the basic point of happiness and the function of its experience.

A related difficulty lies in the lack of *explicit* motivational emphasis in the link between experience and function. Typically when theorists consider motivation and affect, particularly within self-regulatory frameworks, we see a return to hedonistic models of motivation and function which do little to elucidate the evolutionary function of a discrete state like happiness. As Aspinwall (1998) has recently noted, "most theories . . (assume that) . . the maintenance of positive affect is the primary goal of self-regulation" (p. 6).

Within emotion theory, Oatley (1992) has described happiness as functioning to 'encourage' continuation with (presumably) successful plans (see also Malatesta & Wilson, 1988; Smith, 1998), while Izard (1991) describes such effects as concomitant change. He does note that joy is *associated* with a sensed increase in vigour, strength, confidence and competency, but then goes on to suggest that we do not act in order to feel joy, but rather work to get the job done. As such, "joy follows as a *byproduct* of the successful doing" (Izard, 1991; p. 140, *italics added*).

[33] Further problems also exist. For example, it could be argued that much of the theorising is made less useful through confounding happiness with positive moods or affects. Following this criticism, it can be seen that most emotions are typically thought to arise in respect of a single goal or evaluation (albeit a very important one). As such, conceptualisations of happiness that link its function to global or 'life-wide' evaluations (e.g. Averill & More, 1993) are somewhat out of step with mainstream theories of discrete emotions. Finally, many of the frameworks in which function and happiness are described have considered aspects of systemic change in happiness that typically arise later in time than the experience itself. This sequencing tends to make one wonder why we have experience as an intermediate step, if the function is found temporally later than it.

By contrast the current theory of experience suggests that the motivational experience of happiness as pleasant is a critical component of its function. Within the functionalist framework being developed, all emotions arise where there is a significant change in the status of a goal or goals (see Chapter 8). In the case of happiness then, such circumstances are necessarily and by definition goal-congruent. When we are happy, the *experience* of the state (a) motivates us to continue or recreate the goal-congruent circumstances in which the experience arose[34], and (b) engenders cognitive changes that facilitate achievement. This is not to say that people experience their motivation in this manner (see Chapter 2), but rather that happiness is experienced as pleasant and motivating *in order* that we want to and are able to continue achieving goals[35].

In addition to indicating that we are achieving, and motivating behavioural continuance or repetition, happiness also appears to make us more able to do so, enhancing cognitive processing, creativity, and confidence, particularly where the information is useful to one's goals (Aspinwall, 1998). Exactly how these processes operate remains unclear (Aspinwall, 1998), although some authors have suggested that positive affect may operate as a general intrapsychic 'resource,' enabling the delaying of short-term gratification in favour of long-term motives (see e.g. Trope & Pomerantz, 1998).

Emphasising the motivational function of experiential valence in happiness and shame is not intended to herald a return to conceptualisations of humanity as simple hedonists, motivated and acting in order to maximise experiential pleasure and minimise pain. Rather, it is intended to suggest that a truly functional conceptualisation of emotions should necessitate explicit consideration of the relationship between experiential dimensions and function. The conceptual removal of the necessity for the pleasantness and unpleasantness inherent in being variously happy and ashamed would appear to critically undermine their motivational functions, and (perhaps consequently) the manner in which they function.

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[34] A similar position on the function of happiness was recently adopted by Craig Smith in his presentation at ISRE 1998.

[35] People are also clearly motivated to maintain the state of happiness in and of itself. However, given the relationships between goals and happiness, happiness for its own sake will not last indefinitely in the face of contrary goal information and appraisal.

Function and the Duration of Emotional Experiences

Anger is a short madness

Horace

A preliminary interpretation of similar slant can be made of the finding that experiences of the different emotions were systematic in their mean duration. As noted above, post-hoc analyses showed that experiences of happiness were considerably longer than all other experiences, while experiences of fear were typically shorter than experiences of sadness. The differences noted are consistent with those described by Malatesta-Magai and Culver (1991), Scherer, Wallbott, and Summerfield (1986) and Frijda, Mesquita, Sonnemans, and van Goozen (1991). More importantly, normative differences in duration appear susceptible to an explanation that examines something of the basic relationships between the experiential dimension of duration and evolutionary function for the emotions[36].

Examining the small literature on emotional experience finds that it has typically concluded that while the physiological and facial perturbations accompanying emotions last a few minutes, that the experience or feeling component may last much longer (Oatley, 1992; Frijda, et.al., 1991). According to Oatley (1992), the data gathered for Oatley and Duncan (1992), showed that one third of happiness, sadness and anger episodes lasted five minutes or less, one third between five and 30 minutes, and one third longer than 30 minutes.

Similarly, Sonnemans (1990, cited in Frijda, et. al., 1991) found that both emotions and emotion episodes lasted anywhere between a minute or less and more than a week[37]. Importantly, Frijda et. al. (1991) argue that these descriptions of experience and duration do not represent mere figures of speech. Acknowledging that little is known about the determinants of duration, Frijda et. al. (1991) nonetheless suggest that duration is a complex product of the eliciting motive's importance, the temporal

[36] In addition, the duration of experience is also likely to be influenced by personality variables and the general affective backdrop to a particular emotional response. However, such influences do not accurately address the issue of basic or prototype durations for discrete emotions, which are thought to exist notwithstanding such influence.

[37] The most prolonged episode reported in their study is particularly interesting. It is a report on an emotional episode involving an experience of fear lasting two months.

nature of the eliciting event, and the consequences of one's emotional reactions and the responses of others.

The temporal structure (duration) of discrete emotions is not reported in the Oatley and Duncan (1992) study, yet as Malatesta-Magai and Culver (1991) note, discrete emotions are theoretically likely to vary considerably along this dimension. On the basis of a large cross-cultural study, Scherer, Wallbott, and Summerfield (1986) reported that fear typically lasted less than one hour, that anger lasted between a few minutes and an hour, and that happiness and sadness usually lasted for more than an hour and frequently more than one day. While the current study used relative rather than absolute measures of duration (see Appendix 1), the 'between-emotion' patterns of results mirror those reported by previous authors.

In discussing such data, Frijda et. al. (1991) suggest that different emotions may well have different characteristic timeframes, although these may be explained through prototypical and shared antecedents, and are invariably confounded by self-regulatory processes (see also Aspinwall, 1998). Conspicuously missing from the discussions of duration to date is adequate consideration as to *why* experiences differ so greatly yet systematically along this dimension. An allusion to evolutionary function is implicit in the discussions of Frijda et. al. (1991) and Malatesta-Magai and Culver (1991), but once more few explanations have been offered.

Below, the prototypical duration of happiness, sadness, and fear experiences are further discussed insofar as they permit inference about the function of each emotion. As above, the discussion is speculative insofar as the interpretation offered would require considerably more data to be wholly acceptable. Nonetheless, normative variance and lack of variance in duration ratings can inform us about function, as long as we remember that the constraints and experiential predispositions imposed by our phylogenetic past are probably relatively diffuse.

In the current study, experiences of happiness were reported as lasting considerably longer than all other experiences. Given the functions of happiness described above, there are a number of possible reasons for this finding. Initially it must be acknowledged that the result may represent a reporting bias. Given the importance of

'being happy' in our societies and in our selves, it may be that people treat happiness as a type of default experience or report. If this were true, we could expect happiness experiences to be reported as occurring during periods of time when things were perhaps better described as being "OK," or as 'bridging' multiple and discrete episodes of happiness (see Ekman, 1994a; p. 16). As noted above, scientists frequently confound positive mood, affect, and discrete experiences like happiness, and there is no reason to expect lay people to do differently.

While this type of concern cannot be denied, it strikes the current author as an impoverished explanation. If we begin compulsively dissecting the necessarily subjective reports describing conscious emotional experience in this manner, the scientific investigation of experience risks being irrevocably hamstrung. If an individual reports that their experience was of a certain quality or duration, who are we to argue? Similarly, one wonders why reports describing experiences of happiness should be any the less 'biased' in this manner than reports of other emotions. Finally, the *relative* nature of the duration estimate (see Appendix 1) and the skewed distribution depicted in Figure 7.2, suggest that happiness experiences probably do last longer than do experiences of most other emotions.

If we accept the relative length of happiness experiences as 'real,' there are several further comments that bear note. Firstly, it would appear likely that experiences of happiness are consciously prolonged by most individuals, in most instances, due to normative regulatory strategies (Frijda et. al., 1991; Aspinwall, 1998), and the intrinsically pleasant nature of the experience. Happiness experiences are irreducibly pleasant, hence we are probably motivated to maintain or prolong any experience of them. Additionally, the functions of happiness as described above suggest that people who are happy may be more capable of *continuing* to achieve goals. In this case then, happiness may endure not only because of measurement difficulties and because we like and want it to, but also because in being happy we are more capable of maintaining or creating the conditions that lead to or maintain happiness.

Particularly in comparison to happiness, although also in respect of most other emotions, experiences of fear are typically brief (Scherer et. al., 1986; Frijda et. al., 1991), while experiences of sadness endure for an intermediate period. Although they

acknowledge the possibility of characteristic time courses for discrete emotions (cf. Malatesta-Magai & Culver, 1991), the analysis of Frijda et. al. (1991) offers several other possible determinants for temporal variations across different emotions. They initially consider the possibility that the intensity of an experience may be related to its duration, but then conclude that such relationships are weak. In contrast, the current study found that the intensity of an experience was significantly related to its duration for experiences of sadness, happiness, shame and pride (see Table 7.2). As is elaborated below, both the intensity and duration of emotional experiences are initially likely to be a function of the relative importance of the relevant or eliciting motive. Via this shared determinant, it is expected that the two experiential variables should be moderately related.

Overall, the emphasis of Frijda et. al.'s (1991) analysis suggests that normative durations for discrete emotions are due to prototypical and shared antecedents. In this approach then, sadness lasts *because* it typically follows the permanent loss of something significant, while experiences of fear (following relatively brief and passing threats) are comparatively short.

Prima facie, an explanation that links experiential duration to antecedent characteristics appears plausible (at least for these two emotions), yet the reasoning appears to falter upon extension and more thorough consideration. Initially, it is of note that their framework presupposes certain notions about the nature and timeframe of the antecedent events, suppositions that may not be upheld or valid in all or even most cases. Additionally, if the experiences of emotions like sadness and happiness follow relatively *permanent* changes in goal status, what then determines when the experience ends?

More specifically, Frijda, et. al.'s (1991) 'explanation' of inter-emotion variation in duration struggles to posit a plausible function. While some normative durations for different experiences are adequately *described* through reference to prototypical antecedents, such an analysis does not fully enable an examination of *why* discrete emotions should vary along this dimension. Moreover, the analysis they offer is weakened in that it fundamentally confounds the concept of antecedent event with that of the emotional response. So for example, there appears to be no *objective* basis

upon which to argue that the events that elicit sadness last any longer than other sorts of antecedent event. Lacking such, they appear to argue that the events that elicit sadness last longer because the experience of sadness itself lasts longer. In this manner, 'events' are ultimately defined at the level of experience[38], the two become one and the same, and any resultant 'explanation' becomes essentially tautological and unenlightening.

In seeking to consider the relationship between the function of emotional states and experience, the current section suggests a different interpretation of duration. While the duration of discrete emotional experiences are likely to be part-function of the trait and emergent importance of the eliciting motive (see below), different emotions do nonetheless appear to have characteristic experiential timeframes commensurate with, and indicative of, the function of the emotion in question.

While experiences of happiness may last longer than other experiences for a confounded group of reasons (see above), the duration of fear and sadness experiences can be taken as indicating something of the function of each emotion. Within the current theory, sadness is an emotion that follows the perception of loss. It tends to be associated with a cessation or reduction in the effort directed towards a particular goal or goal grouping, and is typified by multiple and complex changes in the relationships between the remaining personal goals.

Given such a function, experiences of sadness may well last a comparatively long time *in order* that the individual be motivated for the necessary time period, during which their altered processing tendencies (cognitive set) can perform what may be highly complex adjustments to their affected goal commitments[39]. Put simply, experiences of sadness follow organism-environment relationships that, involving

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[38] Such problems are perhaps unsurprising given Frijda et. al.'s (1991) definition and emphasis on the nebulous concept of 'emotional episodes.' These are defined as "a continuous emotion sequence resulting from the more or less continuous *impact* of one given event or series of events" (1991; p. 201, *italics added*). Although this is clearly not intended to be a definition of event, the relationship between event and response is evidently conflated via use of the word 'impact'.

[39] Paranthetically, it can be noted that this type of reasoning would lead one to expect that experiences of emotions involving longitudinal cognitive alterations will typically become longer the more complex or older the goal system (and consequent adjustments required) is at the time of the loss. Indeed, researchers have noted that lability appears to diminish with age, particularly in children. Thompson (1990) for example notes that emotions increase in duration between 6 and 12 months of age.

loss, require *longitudinal* adjustments within the goal system. Goals that may have depended upon the lost goal must be re-evaluated or replaced, processes that take time and thought (Stein, Trabasso, & Liwag, 1993). The feeling component of sadness is necessary in that it precludes continued effort toward and promotes rumination on the place of the lost goal in the broader scheme of the system. Given the necessity for cognitive adjustments in the face of loss, both the state and experience of sadness tend to endure for comparatively longer periods than other emotions.

Similarly, the fact that experiences of fear are typically shorter than are those of the other emotions tells us something about the function of fear. In its most simple forms, fear is elicited by a perceived threat to life or physical safety (Shaver, Collins, & Clark, 1996), although it can appear in response to less direct, more existential threats. Given their comparative brevity, experiences of fear appear to motivate a more urgent adjustment of the organism-environment relationship than other emotions, like sadness. Specifically, the experience seems to motivate an immediate consideration and response to both the eliciting stimulus and the fear itself. In most instances, the fearful response will involve an immediate physical or metaphorical distancing from the fearful event/stimulus. As such, the reason that the experiences are comparatively short is not *because* the eliciting stimuli are necessarily briefer, but because the fear system has evolved to promote *immediate* adjustment. The threatening event may in fact continue to endure. However, and as is likely, as long as the person has successfully removed themselves from the situation, the experience will end. Given the duration of fear experiences, we can reasonably infer that the motivation to do so is typically great.

Concluding Remarks on Function and Emotional Experience

From the above it is clear that emotional experience bears a highly complex relationship with function for discrete emotions. In considering something of these relationships, it has not been my intention to suggest that we can or should want to understand emotions through their experience components alone. Nor has it been intended that the criticisms above be taken as evidence that antecedent prototypes are unimportant in an understanding of emotions and emotional experience.

Rather, the argument above has been intended to illustrate two points. Firstly, the discussion makes it clear that emotion theorists need to more carefully consider the place of experience in any theory of emotions. Currently, description and analysis regarding the place of conscious emotional experience in emotions is very much in its infancy. While experience is not the only aspect of emotion, it is nonetheless critical, both practically and phenomenologically, as well as in theory. Moreover, questions regarding the possible functions of experience are scarcely being asked, much less answered in our field. Consequently, it is suggested that we need to be more explicit, systematic, and rigorous in our consideration of the relationships between conscious emotional experience and the functions of discrete emotions.

Perhaps more importantly, and certainly of greater interest to the current writer, the analysis presented above has also suggested that emotional experiences can inform us about the general function in emotions. Given the criticisms offered earlier, it is ironic that that the manner in which an emotion functions and is experienced can nevertheless inform us about its evolutionary function. Although the discussion here has restricted itself to a relatively primitive analysis of experience-function relationships, the abductive or retroductive approach employed in the analysis seems to contain a great deal of promise. Valence and duration, two central components of emotional experience, vary, and do not vary, in ways that manifest and inform us about function. Consequently, there appears little reason why more systematic data gathering and theorising could not further extend the type of reasoning employed here to other emotions and other aspects of their conscious experience.

Of particular note among the implications stemming from this approach to emotions, experience, and function, is a necessary reconsideration of the relative importance of expression (particularly social expression) and experiential motivation in fulfilling evolutionary functions for each emotion. While social expression may comprise a key part of function for some emotions, this would seem unlikely to be equally so for all emotions. As the data presented above indicate, emotional states, expression, and the dimensions of conscious experience of emotions bear complex relationships with one another, relationships that are usefully seen as initially more or less flexible depending on the functions of the emotion under scrutiny.

Tuning this approach would necessitate data gathering from several cultural groups and emotions, and the concomitant assessment of (a) the relevant dimensions of conscious emotional experience, (b) situations and events (at a level that differentiated them from experience), and (c) the degree to which the emotion was verbally, facially, and behaviourally expressed. The cross-cultural aspect of this design would enable the comparative elimination of socialisation explanations for variances within the measures, while the combined experiential and expressive measures would permit ever-more precise inferences to be made regarding the relative importance of expression and conscious experience and motivation to the function for each emotion.

Chapter 7.7 – The macrodevelopment of emotional experience: Motivation and construction in a dynamic system

Introduction

Within the broad class of limitations imposed by the function of the individual emotional states, the current dissertation suggests that emergent emotional experiences are further influenced by factors derived from within each individual's own macrodevelopmental history – made manifest in their goals about emotions. As should be clear from the discussion above, function seems to impress comparatively few limits upon the experience of emotions. The influences that are apparent appear very general, and are limited to where the relevant dimension of experience is important to the function of the particular emotion.

Perhaps more importantly, functional limits are more useful when used to describe the general constraints on the manner in which some emotions are typically experienced, *once they have emerged.* As such, they do not help explain a number of situations, for example instances when a particular emotional state is not experienced at all. With some few exceptions, neither do they explain why different people vary so greatly in the frequency of different experiences, in their enjoyment of them, and in their subsequent responses to each experience. Certainly it is to be expected that emotional experiences will be influenced by the functions of the emotional state, yet a more

ideographic concept is needed to capture a greater part of the complexity of individual experience. As Malatesta et. al. (1989) note, emotions rarely occur in isolation, but rather in combinations or patterns.

As noted, the current dissertation describes the macrodevelopmental or personality variables that impact upon emotional experience as 'goals about emotions'. The concept is similar to the notion of emotions about emotions (c.f. Cole, Michel, & O'Donnell Teti, 1994), in that it suggests that we often get emotional about the emotions we are experiencing – they occur in patterns (Diener, 1999). Consistent with contemporary emotions theory, the current chapter further argues that the consequences associated with discrete experiences, states, and behaviours are internalised as *goals* across development, such that emotional states or experiences themselves can be treated as goal-relevant stimuli, and thus become capable of eliciting 'secondary' emotional responses. So for example, in the individual possessing goals regarding not being angry, the initial changes characterising the early stages of the angry response will immediately be appraised as the information relevant to the status of goals about emotions. In instances where the importance of the goal regarding emotional experience outweighs that of the original motive, the earlier emotion may never consciously experienced by the individual.

Developmentally, the essential argument underlying this concept is that repeated microdevelopmental couplings, for example that of an angry state with negative consequences, lead to the macrodevelopmental emergence of major attractors and repellors for both the state and experience of anger or other emotions. Most often these new attractors will relate to the state or experience of the relevant emotion, but may be created regarding this or other emotions, say by making alternative emotions more favourable. Over time, repeated couplings between states, experiences, and consequences lead to the development of comparatively stable constraints, attractors and repellors for later experiences. As is discussed below, goals about emotions are thought to simultaneously develop at multiple degrees of greater or lesser specificity, such that they may relate to particular emotions, to combinations of intensities and emotions, to the people present and so on.

A few caveats

When considering how emotional experiences might develop across the life-span of the individual, it becomes abundantly clear that the scientific understanding of emotional experience, let alone its development or its relationship to personality, is still in its infancy (M. Lewis, 1993). Emotion theorists have traditionally bypassed the investigation of experience, tending to leave its consideration to philosophers. Exactly why this should be so remains unclear, but the omission appears to relate to the difficulty in examining experience within normative frameworks.

More optimistically, there are however three major developmental literatures that have indirectly examined several types of individual factor that are likely to influence subsequent emotional experiences. The literature examining the development of self-regulation, particularly in its most recent formulations (e.g. Cole et. al., 1994), has begun the process of exploring the complex interplay between the heritable and social factors involved in the regulation of emotional experience. While the emphasis of such research differs somewhat from that of the current chapter, many of the developmental factors likely to be involved in the development of emotional experience (e.g. Thompson, 1990; Saarni, 1993) have been examined in relation to emotion regulation and are discussed below.

Similarly, recent work in attachment theory has begun to delineate some of the affective sequelae associated with particular patterns of attachment. In a recent review, Magai and McFadden (1995) have noted that ambivalently attached children express more anger than securely attached children during reunion following the Strange Situation. Similarly, insecure children appear more angry, hostile, sad and fearful in their relationships than do securely attached children. In contrast, securely attached children are more affectively positive during play, and exhibit greater curiosity and more autonomy (see also Shaver, Collins, & Clark, 1996 for a recent review).

Finally, research from within personality frameworks, particularly the Five-Factor Model has considered something of the relationship between personality variables and the experience of affect. It can be broadly noted that some individuals appear

particularly prone to either positive (PA) or negative affect (NA). More specifically, it has been found that extraversion is associated with positive affect, and neuroticism with negative affect (e.g. Emmons & Diener, 1985; Gross, Sutton, & Ketelaar, 1998), although a recent meta-analysis has suggested that this represents a grossly over-simplified interpretation of personality-affect links (DeNeve & Cooper, 1998). Additionally, it also seems possible that individuals may consistently differ from one another in the intensity of affects they typically experience (Diener, et. al., 1985; Flett, et. al., 1986).

Despite the comparative maturity of each field, it is my contention that each of the frameworks briefly described is unsuited to examining the interface between emotional experience and personality. Initially, it can be seen that the three frameworks operate at a level of generality difficult to reconcile with a discrete approach to emotions. Emotion regulation theory has not been explicit in its consideration of discrete emotions, tending to adopt a broadly 'affective' and implicitly hedonic model of regulation. Rather than consider specific emotions, "developmental and clinical research associates emotion regulation with the reduction of intensity and duration of negative emotion" (Cole et. al., 1994; p. 86).

This criticism is also levelled at both the attachment and personality-based investigations of affect[40]. While attachment may well be an affective bond (Magai, 1996), data describing *precise* affective consequences for particular types of attachment have not been forthcoming (e.g. Cooper, Shaver, & Collins, 1998; although see Mikulincer, 1998). Even should such data emerge, one wonders how they would be explained within the simple descriptive framework offered by the attachment classifications. Within an attachment framework, the affective correlates of particular styles would seem to be equally well explained through reference to differential motivations and beliefs acquired regarding relationships, a key future source of emotions as they do to predicting or explaining variations in experience. As such, while they may predict experiential differences, particularly at the gross level of

[40] There are two notable exceptions to this trend, found in the work of Carol Magai and colleagues and Mikulincer (e.g. 1996, 1998). Being a 'devotee' of the differential school of emotions Magai has consistently conducted research into attachment-emotion relations at a much greater level of specificity than most researchers. Ironically however, she has recently concluded that attachment may not

affect, the framework makes it next to impossible to determine whether such differences relate *specifically* to experiential variables or to shared global differences regarding the relevant elicitors.

A recent paper encapsulating a trait approach to personality-affect relations specifically acknowledges that its empirical findings are considerably more consistent at a global affective level, while being less so at the level of discrete emotions (Gross, et. al., 1998). In itself, this finding suggests that the broad trait framework may be unsuited to the task of predicting and explaining variations in the complicated domain of emotional experience[41]. Furthermore, because the measures of both personality and affect are so global within these frameworks (Pervin, 1993a), the power of the framework to create an ecologically valid descriptive theory of emotional experience is greatly weakened. Moreover, to note that extraverts are generally more positive people can scarcely be considered a descriptive, much less an explanatory theory, of emotional experience[42] (Pervin, 1993a, 1993b).

The correlational data that ensues from trait and attachment research typically considers only the differences *between* (rather than within) individuals. As such it is at greater risk of 'explaining' experiential differences via conjectured mechanisms that may in fact result from ideographic differences in reporting or some other third variable. While not eliminating this possibility, multiple and relative intra-individual measurements seem more likely to enable the generation of more precise descriptive and explanatory theory for emotional experience and personality.

Finally, all three approaches are difficult to reconcile with a motivational approach to personality like that undertaken here, particularly one in which emotional experience itself is thought to represent an ideographically motivated phenomenon. Each of the

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constitute the optimal system for classifying and predicting behaviour (Magai & McFadden, 1995), or, by extension, emotional experience.

[41] DeNeve and Cooper (1998) for example, note that only 4% of the variance in subjective well-being is associated with trait-based personality variables, with as much variance being accounted for by demographic variables like health and socio-economic status.

[42] It is again of note that the meta-analysis (DeNeve & Cooper, 1998) described above suggests that extraversion is no better a predictor of positive affect than agreeableness or health indices (see also Eid & Diener, 1999). Furthermore, an examination of Tables 8-12 in DeNeve et. al.'s (1998) review lead one to suspect that the single best predictors of global affective measures are for personality measures that are inherently affectual themselves.

three frameworks implicitly conceptualises of emotional experience as a 'readout' of the underlying personality processes, rather than as a motivated and constructed variable in its own right.

Additionally, each approach has tended to measure behavioural indices of emotion and emotional expression as if these were necessarily indicative of emotional experiences, rather than states (see below). Shaver et. al. (1996) for example describe a study in which differentially-attached children masked the facial display of sadness following the losing of a game. In discussing the results, these authors clearly consider the masking *behaviour* that was observed to represent a form of emotional regulation. While it cannot be denied that it may do so, it is also possible that the behavioural measure may represent little more than the regulation of a social display. In this manner, frameworks that confound behaviour and experience lose even more precision than is already lost in an emphasis on affect over emotion.

Overall, the problems discussed above suggest that a new approach to the place of stable personality variables in conscious emotional experience may be of considerable benefit. Although several theories have noted that emotions can lead to other emotions or that some states are 'preferred' to others, the current theory is unique in asserting that emotional states are internalised as ideographic *goals* across macrodevelopment. Following this development, the influences of goals about emotions are thought to function no differently to those of any other goals (although their domain of effect clearly varies). The continued use of the goal concept means that the relationships between personality and emotional experience are more easily subsumed within a general theory of personality, emotion, and motivation. Lastly, the approach taken here is more precise than other approaches in its consideration of exactly which aspects of which emotions are being socialised. It pays particular attention to the importance of discrete emotions (see Chapter 8), clearly separates emotional states from the conscious experience of those states, and acknowledges that emotions, emotional experiences, and behaviour are simultaneously socialised at multiple levels of specificity.

As has been noted previously, the current discussion is limited to the development of ideographic motivations about *conscious* emotional *experience*. While a more

comprehensive discussion of the relationships between language, representational ability, consciousness, and conscious experience is withheld until chapter seven, it is briefly noted that the conscious experience of emotions necessarily presupposes the presence of consciousness and a conscious self (Lewis, 1993).

Several writers in the field of emotion regulation have also suggested that the representation of emotional experiences is critical in their regulation (Cole et. al., 1994; Thompson, 1990; Stein, et. al., 1993). As children become consciously aware of and able to judge their own inner life, it becomes possible to have emotional reactions about emotional reactions (Cole, et. al., 1994). Thompson (1990) makes a similar comment when he notes that once a child acquires a representational knowledge of the consequences of an emotion, the emotions themselves can become the object of reflective analysis, regulatory capacities can be employed deliberately or strategically, and incorporated into a broader representational network of emotional understanding. Finally, Stein et. al. (1993) suggest that having preferences for emotional states necessitates the ability to represent, remember, and compare two different states.

Additionally, it seems probable that linguistic capacities are a necessary component in the construction of more highly differentiated emotional experiences. While the causal contribution of language development to the development of emotional experience remains a matter for speculation, it seems reasonable to initially suggest that the ability to use verbal labels is important to the individual's ability to differentiate among diverse experiences.

The place of temperament

The most obvious place to begin a theory regarding the macrodevelopment of conscious emotional experiences is in consideration of temperament. Although temperament theory has its own complexities (see Derryberry & Rothbart, 1984), most approaches acknowledge that infant emotions are at the core of temperament (Thompson, 1990). Consequently, temperament is generally regarded as a heritable individual difference in behavioural-affective style, including both reactivity and regulatory aspects (Derryberry & Rothbart, 1984). While personality variables

probably differ in their macrodevelopmental stability (West & Graziano, 1989), longitudinal data suggests that measures of affect tend to be considerably more stable than do data continuities for other personality variables (Caspi & Silva, 1995; Eder & Mangelsdorf, 1997). Additionally, behavioural genetic work (e.g. Buss & Plomin, 1984) suggests that there are sizable heritable components in levels of pleasant and unpleasant affect, while theorists such as Ormel and Wohlfarth (1991) have suggested that stable temperamental dispositions may in fact be more powerful than environmental factors in influencing subjective well being[43].

The concept of temperament is perhaps best seen as a biological basis for the development of personality (see Graziano, Jensen-Campbell, & Sullivan-Logan, 1998 for a recent review), rather than as an initial condition for the development of emotional experience. However given that temperament is an inherently affective construct and highly stable over long periods of time (Caspi & Silva, 1995), there is good reason to suspect that temperamental differences may exert an indirect effect on later experience.

Malatesta and Wilson (1988) have conceptualised of temperament as a heritable affective tendency to perceive and respond to the environment in systematically different ways, leading to either 'affect readiness' or 'affect blindness' (Izard, Hembree & Huebner, 1987; Izard, 1994a) effects (see also Campos, et. al., 1983; Lazarus, 1991a). Within dynamic systems terms, one could say that attractors and repellors for discrete emotional states are pre-existent within the human infant[44]. As with all attractors, these may be more or less precise and may well include aspects of arousal or state intensity. If we accept this conceptualisation, it is readily seen that the relative frequency of differential emotional states will vary between individuals, at least on average. Furthermore, in coupling this view of temperament with the affective-developmental mechanism outlined in Chapter 6, possible relationships between temperament and subsequent experience emerge.

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[43] There has been some suggestion that heritability coefficients may be higher for unpleasant than pleasant affect (Tellegen, Lykken, Bouchard, Wilcox, Segal, & Rich, 1988)

[44] It is of note that Malatesta et. al. (1989) in the conclusion/response section of their seminal paper on expressive development directly compare emotional biases to attractors.

Chapter 5 suggested that attractors within the personality state space are elaborated within the presence of particular emotional states and experiences. On this basis, it was argued that the precise form of emergent attractors must necessarily represent something of the nature of the emotion present during their inception. Additionally, it was also suggested that a single developmental episode could result in the emergence of multiple attractors. Finally and most importantly, it was noted that these attractors could represent organism-environment relations for any 'stimuli,' up to and including new attractors for the *emotional responses* themselves.

Following this approach, the current theory views temperament as exerting an influence on later emotional experiences in a number of ways. Firstly, if new attractors are 'born' within the influence of discrete emotional states then individuals with different temperamental styles should develop differential ratios of attractors and repellors of certain kinds (an emotional style). The 'grumpy' baby for example, could be expected to manifest a developing state space in which a greater proportion of developments occur as a result of angry states. Consequently, the particular form of the state space developments stemming from the angry state, coupled with attractors regarding the state itself, combine to maintain a process in which attractors are born in, and responded to, with anger[45]. So because temperament is the critical initial condition for the state space attractors relating to emotional states, goals are responded to and emerge in a cascading pattern characterised to some degree by individual temperament.

Importantly, these processes may well be occurring from the very first moments of infant-environment interaction, with a consequence that key attractor patterns may be instantiated considerably prior to the infant's ability to examine, articulate or reflect upon them. The implications of this developmental timeframe are important and are returned to below.

[45] This type of pattern is consistent with the personality theory of Magai (1996) who suggests that personalities can come to be organised around a particular emotion (an anger-prone personality configuration). Such children have a lower threshold to anger arousal and report more anger in response to anger eliciting videos than non-aggressive children.

The socialisation of state space attractors for emotional states

The innate developmental processes hypothesised here do not occur in a social vacuum. From the outset rather, many elements of emotion are heavily socialised (Thompson, 1990). Although the literature discussing the socialisation of emotion-related phenomena has failed to consider the socialisation of emotional experience as distinct from expression (see e.g. Eisenberg, Cumberland, & Spinrad, 1998a), there is good reason to suspect that many of the same influences and processes are as relevant to the development of experience as they are to other aspects of emotion.

Eisenberg, et. al.'s (1998a) recent review on the socialisation of emotion captures something of the staggering complexity of the nature-nurture interactions involved in emotional development, as well as illustrating the general sentiments of the current literature. A heavily abridged list of factors relevant to the socialisation of emotional experience would include parental expressive style and the reinforcement practices for children's emotional expression (e.g. Thompson, 1990; Eisenberg, et. al., 1998a), particularly as they relate to gender (e.g. Shields, 1990; 1991; Fivush, 1998), affective attunement (e.g. Stern, 1985), the development of representational ability (Stein et. al., 1993), the composition of the family, the role of peers, the emergence of theories of emotions (Thompson, 1990), cultural rules (e.g. Ekman, 1972; Cole & Dennis, 1998), exposure to television, the emergence of language (Fredrickson, 1998b), and familial discourse practices (Vygotsky, 1962).

Given the importance of temperament (Graziano & Tobin, 1998) and the clear influence of socialisation variables, the current dissertation endorses a heavily interactive model of experiential socialisation. While personality research has suggested that temperament-affective continuity is comparatively high (e.g. Eder & Mangelsdorf, 1997; Caspi & Silva, 1995), developmental research and theory suggests that affective-personality variables are heavily socialised. Both Tomkins' (1962, 1963) and Izard's (1994a) developmental theories for example have suggested that the organisation of a child's emotional repertoire is acquired during the socialisation process.

In addition, a fair proportion of data denotes highly complex interactions between biological and social variables. For example, mothers report that their responses to negative emotions were more punitive or avoidant if they viewed the child as high in negative emotionality or low in the ability to regulate attention (Eisenberg, et. al., 1998). Similarly, Malatesta, Culver, Tesman, and Shepard (1989) found that affective biases occur where punitive socialisation occurs, while a more balanced emotional repertoire appears under rewarding socialisation practices (see also Thompson, 1990). Overall, Magai (1996) has suggested that certain aspects of emotionality such as arousability or irritability might load genetically, but that styles of management (open versus controlled), parental modelling, and family climate may introduce a source of learned variance that may be etiologically significant. Thompson (1990) likewise suggests that more extreme (affective) genotypes may be less responsive to the press for 'fit,' or environmental demand. Overall, it is clear that more research is needed (see below), particularly that of a longitudinal nature (Fivush, 1998).

Unfortunately, the dictates of space preclude a full discussion of these influences on the socialisation and development of emotional experience (for more information interested readers are referred to the excellent reviews by Eisenberg, et. al., 1998 and Thompson, 1990). However, in respect of emotional experience a further three interrelated comments will be made.

The relationship between state and experience

The final comment to be made in respect of the development of conscious emotional experience speaks to the initial relationships between emotional states, expressions, and conscious emotional experience. Although few theorists have considered this issue, Michael Lewis has argued that the links between state and experience may be small or non-existent in early development (Lewis, 1993, see also Ortony, et. al., 1988; Fogel, 1990). Exactly why this should be so remains somewhat unclear in Lewis's (1993) paper, but appears to relate to consciousness and the general potential for dysjunctions between state and experience.

To be blunt, this strikes the current author as a problematic standpoint to adopt on the issue of initial state-experience connections. Lewis (1993) notes that in a culture

where interpersonal expressions of anger are inappropriate, that while the individual may act in an angry manner and even be in a state of anger, that they will probably not have any experience of anger. While the current author categorically agrees with Lewis insofar as such occurrences may represent a demonstration of the potential dysjunction between states and experiences, it is my contention that this type of illustration does nothing to support the notion of an *original* dysjunction.

As was demonstrated above, the conscious experiences of emotions are highly ideographic phenomena, varying within and between individuals on a number of dimensions. If we assume that even a minor proportion of such difference is existent in the very first experiences of a given emotion, we must consider where such differences came from. If the patterns of attractors regarding emotional states do not form the basis for attractors at the level of experience, on what basis are the ideographic characteristics of early conscious experiences determined? Not only does Lewis's conceptualisation fail to suggest a basis, but one cannot imagine a plausible explanation deriving from an initial dysjunction.

On balance, an initial concordance between state and experience would seem more likely than not (Malatesta & Wilson, 1988). Although the potential for dysjunction is quite evident within the current conceptulisation of experience, initial experiences are likely to represent an approximate experiential 'readout' of the attractor pattern for the state, particularly since these will be active at the time.

Specificity in the socialisation of discrete emotions

As should be clear by this point (see also Figure 7.5 below), the current dissertation clearly separates emotional states from conscious emotional experience. Within the current context this means that much of the socialisation research is made less directly relevant to the socialisation of emotional experience, in that it has typically focussed on emotion generally rather than on conscious emotional experience (Graziano & Tobin, 1998). More specifically, research and reviews in socialisation have typically inferred the presence of both emotions and experiences in the infant through the

measurement of behaviour[46]. Although this methodological emphasis is part of a more general issue in developmental emotions research (see e.g. Camras, 1988, 1992; Malatesta, et. al., 1989) it becomes particularly salient when we want to know *exactly* how and which aspects of which emotions are being socialised.

For example, it is debatable whether the contingencies existent in socialisation practices impact on emotions generally or more specifically on the expressive behaviours associated with them. Similarly, it is hard to know exactly how the socialisation of states or expressive behaviours in the pre-conscious infant impact on (or are reflected within) later conscious emotional experiences.

The answering of such 'specificity' questions depends in part on how one conceptualises the relationships between socialisation and affect, and between the components of emotions. If a given theory considers certain classes of infant behaviour to be a reliable indicator of emotional state, then both behaviour and state are (for that emotion) simply socialised as one. Because emotional states themselves have implications for a number of other goals/attractors, it is likely that certain states come to be more and less favoured by the organism depending on the consequences that typically follow or co-occur.

Moreover, while the possibility for state-behaviour dysjunction probably emerges comparatively early in development, the current theory suggests that the two components typically co-occur. Consequently, attractors can be instantiated in respect of both the behaviour and the state *simultaneously but individually*. In this sense then, the conceptual separation of emotional states from emotional experience and the emergence of consciousness does nothing more than increase the number of emotion-related phenomena that might be affected in a given interaction, from two to three.

The consequence of these separations is that the environmental and intrapsychic consequences associated with particular behaviours, states and experiences are thought to lead to the development of attractors or repellors regarding one, two or all

[46] In addition, Fivush (1998) has recently suggested that the measurement of parental variables needs to be made more precise, avoiding a confusion between parental behaviour and reports about behaviour.

of the three components, *at the same time*[47]. Imagine for example that a toddler is in an angry state, is experiencing anger, and behaves accordingly. The parent, in seeking to eliminate such *behaviours* from the child's repertoire, punishes the child. Given a conceptual separation of states, experiences and behaviour, it is possible that (despite the parent's intentions vis-à-vis the behaviour alone) their intervention creates distinct repellors for the state, the experience, and the behaviour (see e.g. Izard & Malatesta, 1987). In future, the child will be unwittingly repelled from both angry states and behaviours. As will be expanded upon below, it is for this type of reason that language plays such an important role in increasing the specificity of socialisation influences.

In addition, the current theory is explicit in suggesting that socialisation occurs in respect of discrete emotions. Most studies of emotion socialisation have examined positive versus negative affect, rather than discrete emotions (Fivush, 1998, although see Malatesta, et. al., 1989). However, common sense suggests that parents are likely to be considerably more discriminating in their values, desires and reinforcement for the expression of discrete emotions. Moreover, data suggests that infants are displaying discrete emotions very early in life. Izard, Fantauzzo, Castle, Haynes, and Slomine (1995) for example found that full-face expressions of interest, joy, sadness, and anger were present at 2.5 months. In some senses then, what parents believe they are socialising is only indirectly relevant to attractors and repellors for the discrete states and behaviours that are actually being established.

In sum, it is clear that the socialisation of emotions is incredibly complex. Over time, the agents of socialisation appear to unwittingly (cf. Fivush, 1998) reinforce emotions, experience, and expression at a high level of specificity. Socialisation almost certainly occurs at the level of discrete emotions, and may involve the concurrent although discrete socialisation of both states and behaviour. Additionally, it is also likely that parents reinforce levels of intensity for particular emotions, as well as the expression/experience of emotions in particular contexts, in respect of particular people, and in response to particular classes of stimuli. Within the current theory, such complexity is accommodated by asserting that single events can produce

[47] The link between states and experiences is discussed below.

multiple changes within the child's system of attractors, the products emerging at the levels of both behaviour and state. Over time, an ever more precise system of attractors and repellors relating to emotions, experiences and expressions is acquired.

Language, construction, and more specificity

Given the potential for specificity evident above, it is suggested that the emergence of verbal communication represents a critical juncture in the precise socialisation of emotional phenomena. While the relationships between language use, particularly in families, and later affective consequences is a poorly researched domain (Dunn, Brown, & Beardsall, 1998), several theorists have emphasised the importance of language to emotion (see e.g. Thompson, 1990; Fredrickson, 1998b). According to Thompson (1990), the mastering of linguistic basics opens critical avenues for exogenous influences on emotions. During conversations about emotions children receive influential verbal messages regarding the values, appropriateness and justification of particular feelings. As Thompson (1990) notes, verbal knowledge transmission and socialisation can occur either through direct instruction, through disapproval upon communication of a state, or indirectly by informing children about the potential future consequences of a an experience. Furthermore, adults can suggest regulatory strategies, and provide the conduits through which emergent experience is linked to cultural meaning (Cole & Dennis, 1998).

Within the current theory, the emergence of language has two critical effects in terms of emotion socialisation and emotional experience. Following the discussion above it can be seen that once the child is able to understand verbal labels and use language that the socialisation of the components of emotion are or can be made more precise. Moreover, the language-driven increase in the depth and specificity of meaning derived from interactions occurs for both the agents and the targets of explicit or implicit socialisation.

For the parent, language provides a far more precise method of communicating values regarding emotions and displays. With language, a parent can more precisely identify, communicate, and thence modify particular parts of a child's emotional reaction. In a recent paper, Gondoli and Braungart-Rieker (1998) describe an

example of a socialising interaction that clearly illustrates the potential for specificity imparted by language. They describe a situation in which a child becomes angry following their losing a toy to a peer and hits the other child. In response to these events the child's mother says, "I can understand why you're angry, I'd be angry too. It's not fair when someone else grabs your toy. But we don't hit other people even when we're angry." In this situation, the mother's use of language has enabled her to be more specific in the targets of her socialisation. Through language, she has reinforced the legitimacy of the child's experience, while verbally informing the child that certain classes of behaviour are unacceptable. Obviously, not all parents are as discriminating in their interventions, an unhelpful practice that is likely to engender broad attractor patterns at levels ill-conducive to health (Cole, et. al., 1994), produce emotional biases (Tomkins, 1962, 1963; Malatesta, et. al., 1989) and/or tendencies to inhibit behaviour (Polivy, 1998).

For the child's part, the information imparted through language should enable them to more accurately determine the aspects of the situation and their response that are acceptable to the parent (or other key figures) and those that are not. Over time, the child is able to develop an ever-more highly differentiated knowledge regarding which emotions, situations, expressions, and combinations thereof will likely lead to negative consequence and which will not. Interestingly, the socialisation of emotions through language also creates the possibility that the child may perceive dysjunctions within the parent, wherein (for example) the parent angrily tells the child that it is not alright to get angry.

A second general consequence of language-based socialisation of emotions, is that that the use of verbal labels leads to the capacity for more precise differentiation among or between emotional experiences. As was noted earlier, conscious emotional experience is probably the most highly constructed component of emotions. To some extent, the ability of the young child (or the adult) to differentiate among emotional experiences, even those derived from the same basic state, is linked to their verbal capacities to describe them as different (see below).

At the broadest level, language provides the conduit through which the emotions and their experience are linked to cultural (Cole & Dennis, 1998) or shared (Stern, 1985)

meaning (see also Averill, 1982, 1994a, 1996; Lazarus, 1984; Ellsworth, 1991; Mancuso & Sarbin, 1998). The relationships between emotions, experience, and culture are of particular interest to writers operating from a constructionist perspective (see e.g. Lutz, 1982, 1986; Harre, 1986; Armon-Jones, 1986). In Averill's (1982) analysis for example, "emotions may be defined as socially constituted syndromes" (p. 6), and the reflective experience of emotion involves an interpretation of one's own behaviour in relation to social rules and standards.

Constructionists have been singularly vocal in stressing the need for an understanding of the relationships between emotions and language. According to Averill (1982), "language is the royal road to conscious experience" (p. 25) and the "proper unit of analysis is represented by the natural categories of emotion as reflected in our ordinary language" (p. 329). Although the extent to which culture provides conceptual tools for constructing experience is as yet unknown (Lutz, 1986), "emotion words do not simply serve to bring the private into the social realm" (Lutz, 1986; p. 285). Rather, they are integral to it, shaping and giving meaning or contextualising what it is that is being experienced (see e.g. Malatesta & Haviland, 1985; Heelas, 1996).

While the interests of the current chapter prohibit an analysis of language-experience relationships, language is nonetheless likely to be important in the development and later emergence of emotional experiences. Although it is trying to avoid adopting a causal position on this issue, the current dissertation is certainly not taking a Whorfian (causal) perspective on this relationship[48]. The use of verbal labels does not in and of itself generate novel experiences. However, it seems reasonable to suggest that verbal labels are important in assisting an individual to differentiate among experiences. Because language is critical to the reflective consideration of one's own experiences, verbal labels may come to constitute attractors for particular categories of experience. These may vary either qualitatively or in quantity depending on both the linguistic and social devices available.

[48] Paranthetically, it can be noted that the current author is of the opinion that linguistic labels are more usefully thought of as encapsulating or representing a wide variety of social values and practices, rather than as directly causing differentiation within experience. As such, language does not directly cause differentiation, rather it is a way in which was can approximate a more abstract series of social and moral distinctions that permeate a given culture.

To illustrate, imagine a situation in which a young child is attempting to create a particular configuration of blocks. However unfortunate, the child's motor skills are such that they are unable to place the blocks with the sensitivity needed to create the structure, and the child begins to violently throw the blocks around. The parent intervenes, probably tidying the blocks, and asks the child what is wrong. The child states that they are angry. The parent considers this description and suggests to the child that they are in fact not feeling 'angry,' but rather are feeling 'frustrated.'

Over time, such interactions create a learning situation in which the child begins to connect the combination of a particular state (in this case anger) and a certain class of event type (in this case, repeated and failed attempts) with an experience called 'frustration'. So through repeated verbal interactions, the agents of socialisation help to 'create' attractors for experiences of 'frustration' within the infant's experiential state space. In this case frustration is not a state. Rather, it is an experience based in the state of anger coupled with the proximate occurrence of repeated failure/thwart.

In making these claims, it becomes evident that the current writer endorses the weaker version of constructionism like that expoused by Averill (1982) and Armon-Jones (1986), at least *insofar* as applied to emotional experience. An experientially discrete model could of course argue that experiencing oneself as being 'angry,' 'frustrated,' 'irritated,' 'annoyed,' 'exasperated,' 'infuriated,' 'enraged,' 'furious,' 'incensed,' 'livid,' or 'outraged' is simply a socio-linguistic convention that allows us to indicate *degrees* of the same basic state, anger. Clearly such an explanation is possible in some cases, yet we cannot realistically deny that each experience *feels* different, and not only in degree. Furthermore, one cannot help but wonder whether 'contentment' is really the same as 'joy' or whether 'apprehension' and 'terror' are the same but for degree? Accepting that people experience more than one emotion simultaneously (e.g. Oatley & Duncan, 1992) simply compounds the difficulty inherent in experientially discrete or 'readout' models.

While not seeking to create a definitive answer on this issue, the current author suggests that emotional experiences, particularly in the adult, represent more than a simple 'readout' of emotional states. Emotional states are a finite set of biological facts, and can only exist sequentially, one at a time (see Chapter 8). In contrast,

conscious experiences represent a temporally less discriminating integration of multiple evaluations and influences. Moreover, they are highly motivated phenomena, based in states but dependent on acquired values and variables for their discrimination. While experiences are not typically constrained by the absence of a suitable verbal label, the availability of them makes their emergence considerably more likely.

Concluding remarks on macrodevelopment and emotional experience

Although the socialisation of conscious emotional experience is a poorly researched domain, the current section has argued that both heritable and early childhood factors have critical influences on the conscious experience of emotions. Within the current theory, certain emotional states and the behaviours associated with them are initially made relatively more and less likely by the temperament of the child. As noted above, a heritable predisposition to appraise the environment and respond to it with certain emotional states and behaviours is one useful way to conceptualise of temperament. Since new attractors emerge within the influence of certain emotional states and retain something of their 'flavour,' temperament is seen to exert a cascading influence across development.

Interacting with these initial and cascading proclivities are a large number of social and socialisation variables. Taken together then, a combination of temperamental and environmental factors shape the development of an ever-more highly differentiated field of motivational attractors and repellors for certain states, certain intensities, behaviours, situations, and combinations thereof. At the level of personality or motivational measurement, the current theory describes such factors as goals about emotions.

Importantly, the section above has argued that states and behaviours are frequently, albeit unwittingly, socialised together and has further suggested that the patterns of attractors representing the developing system's preference for certain emotional states must be thought of as providing the initial basis for the attractors representing conscious emotional experience.

Once conscious experience is capacitated (see Chapter 4) and verbal communication emerges, conscious emotional experience is influenced in two further ways. Firstly, language enables the parent to be more specific in the component of emotion that their interventions target. For the child, language can be used to gain key information about emotions, their experiences, and the consequences associated with each. Secondly, the use of verbal labels may well play an unrecognised role in creating even more precise attractors within the experiential state space.

Across development, these processes create a cascading tendency within the individual's state space development whereby certain types of experiences become progressively more or less likely. Although the influences of attractor fields are never fixed, repeated interactions do nonetheless tend to perpetuate differences, creating stable personality-affect relationships. While the processes discussed here have been framed as issues in early development, there is no reason why further developments in adulthood, for example those stemming from personal development/psychotherapy or the acquisition of another language could not further rarefy the experiential state space, increasing the possibilities for phenomenonally different conscious emotional experiences.

Chapter 7.8 – Tidying up by example: Synthesising developmental and operational concerns in the emergence of conscious emotional experiences

By this point in what is admittedly a very complex piece of theory, the reader could be forgiven for wondering exactly how the model being developed here describes and explains emotional experience (or even what it all means). Below, a diagrammatic representation and summation of the model is offered (see Figure 7.5), as is an extended example in which the various influences on the emergence of conscious emotional experience are described.

The Macrodevelopment of Jack: A quick biography

Jack seemed to have been born grumpy. He was an irritable baby, demanding and difficult to please. He was a second child, born two years after an older brother, and a year earlier than his sister. In most ways his upbringing was commonplace, unexceptional and without the characteristics known to produce later difficulty. Intellectually, he was an average student, he played a few sports, and attended the local Catholic Church until his mid-teens. As with his siblings, he suffered no childhood 'abuse,' and was never involved in drug use beyond experimentation in college (he inhaled). Currently 25 years old, Jack lives with his partner (Jill). She is currently concluding a Masters degree at the local college while Jack works as a shift manager at the local convenience store.

The Situation

Upon arriving at work one day, the general manager takes Jack aside and explains that a fair amount of money is being lost through employees taking extra time on breaks. The manager asks him to pay particular attention to the amount of time employees are spending on such, reminding him that they are only entitled to 10 minutes. Bearing this in mind, Jack monitors the employees' breaking habits (sic), and keeps track of the time each takes. Later in his shift, he becomes aware that X has been absent from the shop floor for nearly half an hour. He discovers him, 'with his feet up,' reading

the paper in the staff room. He approaches X and explains the situation to him, only to be dismissively rebuffed. "Don't be so uptight!" X says.

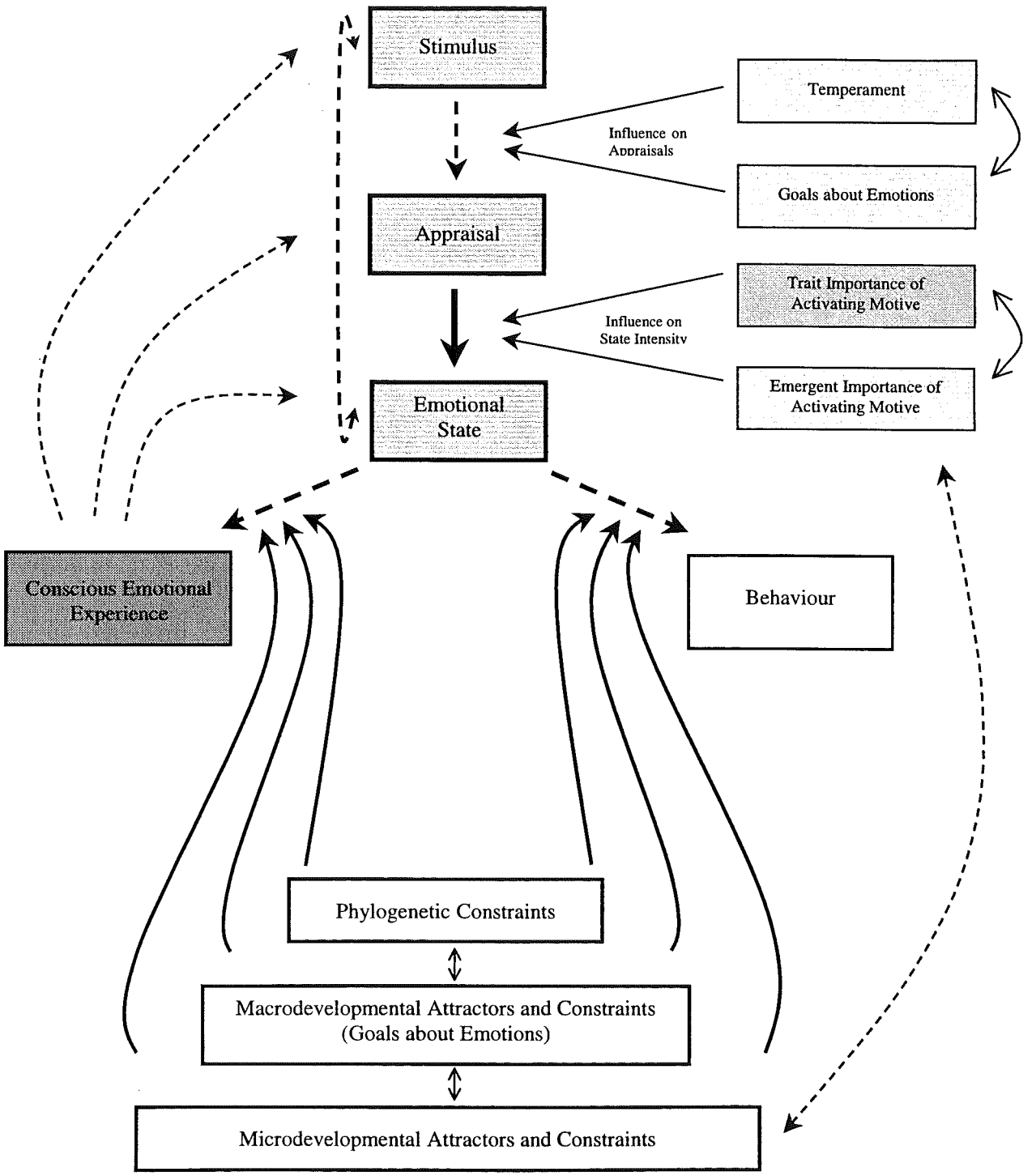

Figure 7.5 – A model depicting the macro and microdevelopmental influences on emergent emotional experience

The Demonstration

For the purposes of illustration and simplification, imagine that "being a good employee" or "doing his job properly" is the most immediate general goal Jack brings to this situation. In the general arrangement of his personality, these are not particularly important goals for Jack (low trait importance), for he does not envisage a career as a manager and has no great interest in remaining within this particular company. However, he is financially dependent on his job and the general manager has recently spoken to him regarding the issue. Additionally, he is currently in the work setting, suggesting that this motive may operate as somewhat more important than it might in other situations (cf. Cantor, 1994).

The comparatively simple description of Jack's functioning outlined above is useful in illustrating a number of points. Firstly, it offers a momentary glimpse of the complexity of personality and motivation, and the resultant overdetermination of behaviour. Although, the analysis here requires that we focus on the dynamics of experience as related to a single goal (the 'activating' motive), Jack's motivations are clearly complex and interactive (see Chapter 2) and his behaviour a compromise between the competing demands of multiple emergent motivations. Secondly, the example here demonstrates something of the ways in which other motives and situational variables interact with the trait importance of the activating motive to influence its emergent importance (see Clore, 1994a). In this example, the emergent importance of Jack's 'need to be a good employee' goal is probably somewhat higher than its trait level, due to the influences of the situation and other salient motives within his state space.

Interactively, trait and emergent motive importance tell us how *intense* the emotional reaction is likely to be at the level of the state. They do not however tell us which emotion Jack will feel, or how intense the experience will be for him. Within a general cognitive model, the emotion that arises depends on how Jack appraises the situation. In this situation (and without further information), the emotion and any emotional experiences that emerge could be nearly anything, their nature determined by the manner in which he thinks about the situation.

Yet given what we know about Jack's *temperament*, it is reasonable to assume that he might typically appraise such situations as being ones of 'thwart'. In dynamic terms, attractors representing the state of anger have been considerably larger than those for other emotional states since before the time of his birth.

If we further assume that Jack's parents were comparatively reinforcing of his behaviour during the times that he was in an angry state, such initial state-level biases will have tended to cascade. The state of anger will have been reinforced (its attractor deepened and/or generalised), and a high proportion of acquired or derived goals will have been 'born' during microdevelopmental episodes of anger, thus representing something of it in their makeup. At a trait level, it is easier, preferable and more likely that Jack will develop an angry state. Jack wants to be a good employee, and this individual is deliberately creating a situation in which this cannot be.

Currently then, Jack is in a state of moderate anger. Yet to this point, Jack has not had any conscious emotional experience. In most instances, and for most people, the conscious experience of emotion will reflect the emotional states present[49]. However, as is indicated in Figure 7.5 state-experience concordances do not necessarily occur. What and how Jack consciously experiences the state in this situation is a complex function of several more influences. More specifically, the type and intensity of any conscious experience involves the consideration of three other influence groupings (Processes 1, 2, and 3a).

Initially, the emotional state itself may be evaluated as the stimuli relevant to attractors and repellors existing at the level of the state (Process 1) before any experiences emerge. Given Jack's history, it is unlikely that he has repellors for the state of anger (see above). However, for an individual who (unlike Jack) had a history of punishment or negative consequence associated with angry states (and thus seeks to avoid them), the state would then be appraised as relevant to these motives. In such instances, the issue of whether the angry state is ever manifest in a conscious experience of anger is determined through a trade off between at least two goals.

[49] As was noted above, and is expanded upon below, conscious experiences tend to be a less discriminating temporal integration of multiple states.

In the most simple illustration, the intensity of the response of the level of the state (and by inference the importance of the activating motive) is 'compared' to the importance of anger-state avoidance goals/attractors. If the activating motive is more important, the state will be represented in experience, although this experience may be a particular 'variant,' more complex, or conflicted (see below). If however it is more important to them that they do not get angry, a completely different experience could potentially result. In such a case, the angry state would be appraised as the stimulus that 'threatens' the angry-state repellors (the new eliciting motive) and produce a new emotional state, say that of fear. As is made clear in this example, a particular emotional state need never be experienced by the individual, but can be changed through an ongoing process of re-evaluation.

Following a less biased developmental history, an emotional state will typically be initially made manifest in a conscious emotional experience of a similar type. However, the current model also suggests that conscious emotional experiences themselves are 'up for grabs' as stimuli to be evaluated in respect of goals about emotions (Process 2). In some situations, or in general, an individual may want or not want to have particular emotional experiences.

Consider for example a slight variant of our basic situation in which X is an attractive female. In such a situation, it is possible that Jack might initially begin to experience anger. However, he could quickly come to evaluate her (unfavourable) response to his anger in respect of his 'need to be attractive' type goals that emerge in the situation. As above, whether Jack is able to alter his emotional experience (and how quickly) depends on the relative importance of multiple *emergent* motive concerns. Specifically, his experience depends on the relative emergent importance of the motive that elicited the anger in the first place *and* his need to be attractive to her. If the latter is more important, his angry experience will be appraised as threatening his attractiveness goals, produce a new state, and a likely change in his experience.

The notion of *emergent* importance is particularly important here, in that it can be used to explain why individuals experience themselves as wanting to be/do/feel differently, but declare that they are unable to do so. Within the current theory, it is not true that they *cannot*. Nor is it true to say that they do not want to experience

something different, or do not experience themselves as unable to alter their experience. Rather, it is suggested that changing their experience is not important enough *in the particular instance.* In slightly more technical terms, the emergent importance of the motives producing the experience outweigh the importance of other motives. So while people may well make report on this type of 'undesired' experience, they do so retrospectively and at a trait level. For the man who becomes angry and beats his wife *despite* his desire to have a decent relationship with her and his knowledge that beating her threatens this goal, the emergent importance of whatever goals, emotions, and experiences are producing the violence *by definition* outweigh his desire to be with her in that moment[50].

Upon returning to our original example, we find Jack in a moderately angry state. Such a state, coupled with the absence of preclusive attractor and repellor patterns sets the stage for the emergence of a conscious experience of anger. However, how will this be experienced? Will the experience be pleasant for him? How long will the experience last? Will Jack become irritable? Will he become frustrated? Will he become so completely consumed with hatred that he has an apoplectic seizure? As noted above, Jack's conscious emotional experience is not simply a phenomenological readout of his angry state. Rather it is a motivationally constructed experiential variant that is usually *based* in a state, in this case of anger.

As is evident in the figure, there are three general influences on the precise form an emotional experience takes. The most immediate constraints are those imposed by the function of the discrete emotional states (Process 3a). In the case of anger, these have not been discussed, predominantly because any that might exist were not evident in the data gathered above. In a more general sense however, it has already been noted that the conscious experiences of some discrete emotions are somewhat constrained by the function of the discrete emotional state.

In the emergence of emotional experience, the second grouping of constraints and attractors are uniquely created during each individual's developmental history

[50] As is expanded upon later in the dissertation, the ability to alter an experience and motivation in this type of situation requires that the individual simultaneously hold many of the relevant motives in their

(Process 3b). In Jack's case, these 'biases' make it more likely that he will experience anger as the anger experiences have been reinforcing for him in the past. In the terms of dynamic systems, Jack could be described as a person for whom the attractors for angry experiences are deeper than for other people. He is motivated to become angry disproportionally to other emotions and probably experiences the emotion more frequently than other people. As such, it is likely that Jack will find the experience of anger more pleasant than do other individuals. The experience will probably be slightly more intense than other emotions he experiences, will arise comparatively quickly and easily, and Jack will feel better about himself following the experience.

However, it is not necessary that Jack experience any 'pure' form of anger. Equally possible, depending on the availability of linguistic terms and more precise socialisations, is that he may experience a constructed variant of anger. Developmentally, he might be more 'comfortable' experiencing 'frustration' or 'irritation,' either generally or specifically in respect of particular others or situations. In part, the accessibility of such variants will be related to his ability to label his experiences as different.

Finally, Jack's experience will also be influenced by situational variables (Process 3c) and their interactions with his personality structure. He may find he gets less intensely angry when there are women present, or he could experience exasperation if the other is younger than him or has been told repeatedly. In certain situations, Jack is likely to express the emotion differently which will necessarily feedback and have consequences for his experience either directly or through reappraisal of his physiognomy and behaviour (see Chapter 8).

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consciousness. Most often, this will also involve the concurrent activation of the meta-management or 'growth' motivations necessary to a re-arrangement of their state space or motivational system.

Chapter 7.9 - Concluding remarks on the conceptualisation of emotional states and conscious emotional experiences

Conscious emotional experience is clearly a domain of unsurpassed complexity. Nonetheless, the analysis above has shown that experience can be realistically considered within the appropriate scientific framework. Although the methodological developments needed to test some aspects of the theory described here may be some time in coming, several preliminary conclusions are nonetheless possible.

- Conscious emotional experience is a complex, poorly understood and important domain that is open to scientific inquiry

- Although related, emotional states are not the same as emotional experience, the latter being a more integrative and temporally less discrete phenomenon

- Emotional experiences are both highly motivated and constructed within limits, namely:

    - Limits imposed by phylogenetic function

    - Constraints and attractors imposed by each individual's macrodevelopment (measurable as goals about emotions)

    - Situational variables

It appears near-indisputable that the conscious experiences of emotions are a different concern from emotional states. Furthermore, it has become evident that the conceptual and methodological separation of states from experience may be a necessary step in the construction of explanatory models of experience. While states and experience are presumed to interact, emotional states appear finite in number and

biologically driven. They contain a normative action impulse (see Chapter 8), follow inevitably from particular appraisals, and may only occur sequentially.

In contrast, experience is in no way as fixed, may or may not be the same as a constituent state, and may incorporate a combination of experiential elements. The current theory has framed conscious emotional experience as a motivationally constructed variant on emotional states, emerging as constrained and influenced by many factors.

While absent from the predicted effects, it has become clear that there are limits in the extent to which ideographic development can influence the experience of emotions. Abductive reasoning has suggested that selective pressures have imposed broad constraints on different aspects of experiential variance commensurate with the function of the emotional state.

The importance of motivation to emotional experience was nowhere more evident than in the study conducted to illustrate this point. In this research, an individual's motivations regarding their emotional experience was shown to be predictive of many components of experience, most notably in their frequency. Although the data gathered thus far struggled to denote a clear time frame for the acquisition of such motivations, future research using tools more suited to the purpose should see an improvement in the specificity of theoretical predictions.

In all, the developments described above offer much to the scientific study of emotions and conscious emotional experience. While complex, suitably informed theorising regarding the determinants and function of emotional experience are not beyond our grasp. The analysis presented above has shown that a motivational approach to experience as measured through the 'goals about emotions' concept can provide a valuable operationalisation of personality-affect links, partially explaining the critical phenomenology of conscious emotional experience.

Chapter 8 – Drawing some threads together: A functionalist take on emotions in development, experience and action.

Chapter 8.1 – Introductory remarks

It should be clear that the writer considers emotions central to personality, development, and motivation. To this point however, there has been no attempt to place the conceptualisation of emotions that underlies much of the developmental and personality theorising within contemporary emotions theory. Accomplishing this is the most general aim of this chapter.

As will become clear, the current conceptualisation of emotions owes much to the seminal works of both Richard Lazarus (e.g. 1991a) and Carroll Izard (e.g. 1991). Lazarus' ideas regarding proximate cognitive causation in emotion are central, as are Izard's ideas concerning the importance of discrete emotions in development and motivation.

While much is drawn from these works, the conceptualisation offered is not a simple recapitulation of previous ideas. Rather it is consistent with much of each author's theory while nevertheless expressing new emphases and variations. The conceptualisation of emotions developed here is in many senses a fledgling theory, yet a sufficient number of theoretical and empirical accomplishments stemming directly from its variations are presented to underscore its potential. Additionally, the framework used is sufficiently well grounded and inclusive enough to be systematically developed over time.

The conceptualisation focuses on the emotions of happiness, sadness, anger, fear, disgust, shame, embarrassment, guilt and pride. Readers familiar with the emotion literature will recognise the first five of this list (primary emotions) as being identical to those considered 'basic' by Oatley and colleagues (Oatley & Johnson-Laird, 1987; Oatley, 1992; Oatley & Johnson-Laird, 1992), Stein and colleagues (e.g. Stein, Trabasso, & Liwag, 1993), and similar to Ekman's original list, with the exception of

surprise[1]. The current author does not claim that these are the only emotions, rather that these are the nine considered in the model.

The chapter begins by offering a characterisation of emotions. Following this, four further sections are presented in which four aspects of the basic characterisation are elaborated. The first section examines the issues involved in adopting a discrete perspective. The second considers the relationships between cognition, emotion and goals, and presents a series of diary studies investigating goal-emotion relationships. The third section reiterates the importance of function in emotion theory and presents a framework for functional analysis in emotions. The final section considers the systemic nature of an emotional response, and the relationships between the components of emotions. The emphasis of the section is on the relationships between emotions and overt behaviour and two studies examining emotional behaviour are presented.

Chapter 8.2 – Characterising the phenomena of interest: What are emotions?

Emotion is too broad a class of events
too broad to be a single scientific category.

Russell and Feldmann-Barrett (1999; p. 805)

'Emotion', 'feeling,' and 'mood' – ostensibly each represents a comparatively simple, everyday concept and yet the adequate definition of each continues to prove a task beyond even the most articulate, erudite and industrious scientist. While many researchers have attempted to define emotion (see e.g. Kleinginna & Kleinginna, 1981; Frijda, 1986,1994a; Izard, 1991; Campos, et. al., 1994), no commonly accepted definition is yet available (Mandler, 1982, 1984; Frijda, 1986; Forgas, 1991a, 1991b, 1995; Scherer, 1994a; Parkinson, 1997). Although this difficulty may reflect

[1] Surprise is not an emotion within the current theory insofar as it does not have an inherent valence (Ortony, et. al., 1988) or encapsulate a response to a particular goal relationship (see also Ortony & Turner, 1990). Similarly, the 'emotion' of interest (Izard, 1991a) is more usefully considered a cognitive state that frequently occurs in conjunction with positive affect, than it is a discrete emotion per se.

something of the complexity of the topic material (Plutchik, 1994), any inherent difficulties are compounded through the inadequacies of our language (Harre, 1986), and the occasional use of definitions as a substitute for superior theorising (Haig, 1999).

It can first be noted that definitions are not isolated from the theory within which they are derived. Rather, definitions are thought to imply broader issues, areas of interest, or questions, hence comprise a type of 'mini theory' (Lazarus, 1984; Clore & Ortony, 1991; Plutchik, 1994, see Chapter 6). This said, simply acknowledging that there exists a relationship between a theory and its definitional encapsulation may not adequately consider the 'proper' place of definitions in science.

According to some writers, definitions should be constructed to serve a more exacting and limited purpose. Following Popper (1968), Haig (1999) suggests that definitions should be "used to facilitate communication amongst those familiar with the theories from which they are extracted, rather than as major vehicles for conveying meaning" (p. 67). By this he means that a definition should act as a 'convenient shorthand' to be used by the individuals who comprehend the larger context, rather than act as a substitute, stanchion, or escape clause for an inadequate or underdeveloped theory.

Bearing such issues in mind, the writer will not provide yet another 'definition' of emotion. However, it is important that the reader have some idea of what the current writer means when emotions are being referred to. Consequently, a *characterisation* of emotion is offered. Although the difference between a characterisation and a definition may appear a trifle semantic, the distinction represents the writer's belief that a characterisation is advantaged in that it carries less theoretical weight. Too often, definitions are used to shore up weakness in theory or to exclude problematic observations.

By contrast, a characterisation is a less restrictive means of delineating or describing the phenomena of interest in that it does not claim that x represents an emotion and y does not, but rather plainly informs the reader as to what the writer is discussing. For the purpose of this discussion then, emotions are characterised as:

> *A heritable set of adaptive mechanisms that function systemically to inform, motivate, and organise an organism's responses to the perception of a change in goal-environment relationships.*

This characterisation is clearly directed to a biological description of emotion at the level of evolutionary function, rather than at that of content, causality, or functioning/operation. More specifically, it is clear that the current writer has adopted a *discrete* approach to emotions in which distinct emotional states[2] function to *inform* (Schwartz & Clore, 1988; Schwartz, 1990; Clore & Parrott, 1991, Clore, 1994b), *motivate* (e.g. Tomkins, 1962, 1963; Izard, 1991; Buck, 1991, 1999) and *organise* (e.g. Johnson-Laird & Oatley, 1992) the organism's responses to a *perceived change* in the status of one or more goals.

A characterisation of emotions as occurring in respect of goals is consistent with the impressive theories of Lazarus (e.g. 1984, 1991), Frijda (e.g. 1986), and Ortony, et. al., (1988) as well as with many other cognitive theories (e.g. Roseman, 1984; Roseman et. al., 1990, 1996; Smith & Ellsworth, 1985; Campos, et. al., 1994). The subjective nature of these changes is important, Ortony et. al., (1988) for example suggesting that emotions are "valenced reactions to events, agents, or objects, with their particular nature being determined by the way in which the situation is construed" (p. 13). The notion that emotions follow 'interruptions' to goal pursuit has a similarly distinguished history, being present in the work of Mandler (1982, 1984), and Frijda's (1988) *law of change*, and more recently in that of Carver and Scheier (e.g. Carver & Scheier, 1998).

More generally, the characterisation of emotion offered here is consistent with the model of personality presented in the preceding chapters. Within the current theory, emotions arise due to perceived changes in the status of a very *particular* set of goals, namely those that together define the personality state space. As such, the goals that

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[2] For the purposes of this discussion, emotional states are considered more simple phenomena than emotions as a whole. As is expanded upon in Chapter 8.6, emotional states are made up of three basic, tightly related and comparatively invariant parts – a central and peripheral physiological response, a motivational/action tendency component, and an expressive component.

emotions arise in respect of are not simply goals that 'a person' holds. Rather, emotions occur in respect of the goals that *are* the person.

The notion that the responses engendered by discrete emotions occur at the level of the system is in line with the views of Scherer (e.g. 1997), Izard (e.g. 1991), Plutchik (e.g. 1994) Panksepp (e.g. 1993), and Levenson (e.g. 1994a). Scherer (1997) for example suggests that emotion produces a "synchronisation of all of the major organismic systems" (p. 119), while Levenson (1994a) suggests that emotions serve to coordinate response systems. As shall be expanded upon below, the current conceptualisation considers the overt action that occurs in emotions central to this response, particularly for primary emotions.

Finally, it is notable that this characterisation omits the *necessity* for any part of the processes involved in an emotional response to include the awareness of them. Michael Lewis (M. Lewis, 1998b) for example suggests that "emotional states can occur without the organism's perception of these changes" (p. 33). In a similar manner, while the characterisation does not preclude a conscious or reflective awareness of the antecedent, concomitant, or consequent components of emotions, nor does it require them.

Chapter 8.3 – Fleshing out the characterisation I: Basics, universals, primaries, blends, and discreteness

Emotions are best regarded as categories that
can be put on a dimension of intensity

Lazarus (1991a, p. 84)

Introduction

There has long been tension between two conceptions of emotion, one based on discrete categories, and the other based on dimensions (Lazarus, 1991b; Buck, 1999). On one hand, pan-cultural data covering appraisals, experience, physiology and action tendencies have suggested a typological classification (e.g. Ekman, 1972; Ekman,

Friesen, & Ellsworth, 1972; Wallbott & Scherer, 1988; Frijda, et. al., 1989; Mauro, Sato, & Tucker, 1992; Mesquita & Frijda, 1992; Roseman, et. al., 1996; Scherer, 1997). On the other, studies using the scaling of affective judgements suggest that affects, at least in humans, can be described by the dimensions of arousal and pleasantness-unpleasantness (e.g. Watson & Tellegen, 1985).

Discrete approaches have been criticised for ignoring potentially important variations in emotion and for struggling to agree on either the number of basic categories (Ortony & Turner, 1990; Russell, et. al., 1999) or the basis for the inclusion of a given emotion (Ortony, et. al., 1988, 1990). In return, categorical theorists suggest that their approach is more consistent with folk psychology (Johnson-Laird & Oatley, 1992), and that they are merely trying to 'bring order' (Ekman, 1992) or 'organise' (Ekman, 1999) emotional phenomena. They accuse the others of attempting to reduce qualitative differences to matters of valence and arousal (e.g. Ellsworth, 1991), and claim that the supposedly fixed dimensional structure of emotion in fact varies, thus undermining the key assumption of the approach (Lazarus, 1991a). Equally then, each approach has its strengths and weaknesses (Frijda, 1986), and each (unsurprisingly) offers its own criteria for deciding the issue (Stein & Oatley, 1992).

As is expanded upon below, it is my belief that a discrete approach to emotions is considerably advantaged over a dimensional one. Although the interests of the current dissertation preclude a full discussion of such issues, the conceptualisation of emotions has clearly been written from a discrete perspective hence some small commentary will be provided. Given the limits of space, this commentary is necessarily a somewhat partisan one, although it is hoped not too selective. Brief attention is devoted to the vocabulary used in the area, before interest is concentrated on the extent to which each approach is consistent with a functional approach to emotions. Overall, it is suggested that both theory and data are more consistent with a discrete approach to emotional states.

How will the terms be used?

An initial impediment to the consideration of the issues involved in adopting either of the two approaches involves the irregular use of terminologies. Laden theoretical

terms like 'basic,' 'primary,' 'universal' are haphazardly and interchangeably used by emotion theorists, and their taken meaning differs considerably (Ortony, et. al., 1988, 1990). Dimensional theorists such as Russell (e.g. Russell, et. al., 1999) have suggested that because "categories seem so natural that it is sometimes forgotten that they are *semantic* categories rather than facts of nature" (p. 806, *italics added*; see also Averill, 1994c).

In stark contrast, Oatley and colleagues (e.g. Johnson-Laird & Oatley, 1992; Stein & Oatley, 1992) have adopted a scientific realist (e.g. Hooker, 1987; Fletcher, 1996) perspective regarding the term 'basic.' As such, they argue that usage is not intended to imply that English *words* like 'happiness' are basic, but rather that there is a basic emotion for which this word is the nearest indicator (see also Frijda, 1996, p. 6). As they note, in another language the terminology will be different, and possess slightly different connotations.

Ortony and colleagues (Ortony, et. al., 1988, 1990) have been singularly critical of the 'basic' approach. They have argued that "the search for and postulation of *basic* emotions is not a profitable approach" (1988, p. 7, *italics added*) and outline a mixture of conceptual and empirical difficulties inherent to the basic or 'palette approach' (cf. Scherer, 1984). Although their equation of 'basicness' with simplicity appears somewhat unwarranted, I am in agreement with them insofar as their critique does cast doubts on the utility of the term in the context of emotion research.

While some usages of the term 'basic' are clearly not intended to do so (e.g. Johnson-Laird & Oatley, 1992), the word nonetheless contains a number of connotations that unnecessarily complicate the scientific study of emotions. For example, should basic be taken to mean biological, functional (Averill, 1994c), or to mean that other (non-basic) emotions are derived (cf. Plutchik)? More generally, does the term 'basic' imply 'universal,' 'primary' or 'separate'?

Equally, the term *adds* very little, other than the opportunity for disagreements as evidenced above. Consequently, the conceptualisation of emotions developed here will not use the term, but will simply distinguish between phenomena that are considered to represent discrete (separate biological system) emotions, and those that

are not (Ekman, 1992). In referring to discrete emotional states, the discussion is of an innate response system (see Chapter 8.6) that results from innate appraisal processes, and involves a distinctive pattern of neural activation, a particular motivation or action impulse, and physiological arousal.

While the term basic will not be used, some use will be made of the terms 'primary,' 'secondary,' and 'universal'. In the current dissertation, the distinction between primary (anger, fear, sadness, happiness, and disgust) and secondary (guilt, shame, pride, and embarrassment) emotions is not a roundabout manner of nonetheless distinguishing between basic and derived emotions, but rather is intended to imply that this subset of emotions are phylogenetically and developmentally both *first* and *different.* It is in this initial sense that the term primary is used, although there may be some grounds on which to suggest that some emotions may also be primary in terms of their relative importance and frequency (e.g. Wallbott & Scherer, 1988).

In terms of 'differentness,' the five emotions described as 'primary' here bear a less intimate relationship with conscious self-awareness than do the four described as secondary. Both developmentally and phylogenetically, primaries are evident considerably sooner than consciousness, and are hypothetically capable of fulfilling their adaptive function in the absence of it (see Chapter 4). In addition, at least four of these emotions appear to hold a biological connection with an identifiable behaviour type (see Chapter 8.6 below). In contrast, secondary emotions necessarily follow the development of consciousness, and do not appear to urge immediate instrumental behaviour types as part of their function. While these emotions may come to operate at the level of the state without conscious awareness, their emergence nonetheless initially requires the ability to consciously self-represent.

Finally, the current author considers all nine of the emotions described here to represent 'universal' phenomena. Here, the term 'universal' is used to describe emotions for each of which the fundamental, state-level components are inherent to the biology of homo sapiens (Lazarus, 1991a). As is expanded upon below, this statement is not intended to suggest that these emotions operate or are experienced equally across cultures or even individuals, but rather that each represents a real

phenomenon (Hooker, 1987) that exists at a heritable level (cf. Johnson-Laird & Oatley, 1992), and is consistent in kind across individuals, situations, and cultures.

The key advantage of a discrete approach to emotional states

The major strength of the discrete approach lies in its explicit and mature incorporation of an evolutionary-functionalist analysis to emotions. While a functional perspective is also purported to underlie both dimensional (e.g. Watson, et. al., 1999; Cacioppo, Gardner, & Berntson, 1999) and constructivist/relativist (e.g. Markus & Kitayama, 1994) approaches to emotions, a comparison suggests that their incorporation of functionalism is less mature and to a degree ad hoc.

In contrast, discrete functionalists argue that each emotional state is a specific adaptation that has evolved to deal with what are variously termed *fundamental life tasks* (Ekman, 1992, 1994a, 1999), *universal human predicaments* (Johnson-Laird & Oatley, 1992), *core relational themes* (Lazarus, 1991a; Smith & Lazarus, 1993), *situational types* (Tooby & Cosmides, 1990a, 1990b; Nesse, 1990) or *adaptational demands* (Campos, et. al., 1994). Johnson-Laird and Oatley (1992) for example argue that the multitude of real world events *must* be mapped onto a finite set of categories else the system will be quickly overwhelmed by processing demands (see also Tooby & Cosmides, 1990b).

This approach is consistent with an enormous battery of cross-cultural data describing the relationships between discrete emotions and particular facial expressions (Ekman, 1972; Ekman, Friesen, & Ellsworth, 1972; Haidt & Keltner, 1999), appraisal patterns (Wallbott & Scherer, 1988; Mauro, Sato, & Tucker, 1992; Scherer, 1997), action tendencies (Frijda, et. al., 1989; Mesquita & Frijda, 1992), and actual behaviour (see below). Although a discussion regarding what will be taken as constituting 'evidence' for discreteness, basicness, or universality involve issues of epistemology rather than ontology (see Klee, 1997[3]), a discrete framework seems to provide the

[3] Ontological issues relate to the very being of things, their existence, possibility or necessity and are clearly separable from epistemological issues that denote issues regarding how and when we could garner evidence of them (Klee, 1997). In emotion theory, these issues are typically ignored in the mutual critiques of dimensional and discrete theories (although see Ortony, et. al., 1988) with most theorists focussing on epistemic issues (see e.g. Russell, 1994; Ekman, 1992, 1999; Izard, 1994b).

most viable explanatory framework for the cross-cultural data gathered thus far. Discrete theory seems better suited to *explaining* why we have emotions, and the functions they serve (see below) than do dimensional or relativist approaches.

Simultaneous or blended emotions?

> *it is perhaps surprising how few words in English denote mixed emotions*
>
> Oatley and Johnson-Laird (1998; p. 93)

The current author does not consider a blended, palette, or simultaneous approach to emotion states to be a theoretically sustainable position. The major reason for this decision stems directly from the incorporation of an explicitly evolutionary and functional approach to emotions. In respect of simultaneous emotions, Oatley and Duncan (1992) have suggested that "if emotions function to make ready a small set of action plans, each appropriate to the eliciting cause, it would be dysfunctional for several such sets to be made ready, since conflict and indecision could occur" (p. 273). While their argument does rest to some extent upon a particular consideration of emotion and function, it is easily extended to include many other functions.

Brehm (1999) has also argued that only one emotion can occur at a time. According to him, if we assume that emotions are largely motivational in nature, the behavioural option that will be chosen is the one with the largest urge. When that option is considered, no other feelings will be simultaneously present, as the emotion system gives the behavioural system clear instructions on how to proceed. He does however note that emotions may supplant one another as quickly as they arise, the time for replacement being how long the nervous system takes to appraise situational change and create the new feeling.

As was noted in Chapter 7 however, perhaps *the* core difficulty with any discrete approach is that people frequently report themselves as experiencing two or more emotions simultaneously (Ellsworth, 1991; Johnson-Laird and Oatley, 1992). In Oatley and Duncan's (1992) study for example, more than one third of emotional experiences were reported as occurring in blends. While our current methodologies

do not enable a valid discrimination between true simultaneity and rapid alternation (Oatley & Duncan, 1992), we cannot ignore the fact that individuals do not experience themselves as rapidly alternating between discrete emotional states.

Additionally pressing is the fact that self-reports describing emotional experience do not typically comprise a 'new' emotion, thus casting doubt on the idea of a blend (cf. Plutchik, 1980, 1982). Rather, more than one universal emotion is often reported as being present simultaneously. While the tendency to report discrete simultaneous emotions may be a limitation imposed by language, the conscious experience of emotions is characteristically at once holistic, *and* made up of phenomenally simultaneous discrete emotions.

Certainly, definitional subterfuge might enable us to circumvent this problem, yet we should not underestimate the challenge that this issue poses for discrete theories. Even the most 'basic and biological' of emotion theorists acknowledges the difficulty. Contrary to his earlier positioning, Ekman (1999) for example has recently noted that he is "less certain now about whether or not two basic emotions can occur simultaneously" (p. 47). So given the purported functions of each discrete emotion, how can discrete function and the complexity of phenomenology be reconciled?

Most emotion theories have not seriously considered this issue, despite having more or less discrete approaches by virtue of using the appraisal concept. The most salient exception is found in Izard's differential emotions theory[4]. Izard attempts to accommodate this difficulty by arguing that each discrete emotional state, while often occurring within a pattern of other discrete states, retains its unique motivational properties (e.g. Izard, 1991). His approach suggests that an emotion typically recruits other emotions and the person can be thought of as effectively responding to multiple conditions with multiple emotions (Izard et. al., in press; see also Scherer, 1984, 1993). The resultant set of emotions then self-organise as a coherent set or pattern. Each emotion in the pattern has the capacity to moderate (attenuate, amplify) the others, while at the same time retaining its individual motivational and organisational function. According to Izard, et. al. (in press) such a response system provides an

[4] Ortony and Turner (1990) also offer a view of emotions based on the combination or co-occurrence of components of emotions. Their approach is not discussed here.

adaptive advantage in that it yields a greater variety of choices for decision and action.

The current author's approach to this issue has previously been articulated in Chapter 7. At this time it was suggested that by conceptually distinguishing emotional states from the conscious experience of emotions, one could neatly sidestep the problem of categorising the infinities of experience within a finite number of functionally discrete categories. In this view, emotions are *never* simultaneous at the level of the state, although they may change at this level as rapidly as the appraisal system allows (e.g. Brehm, 1999). Additionally, emotions that frequently occur in close temporal proximity to one another may come to operate as spatially proximate and saddled attractors in the state space (see Chapter 5.2), in that they preferentially activate one another.

However, if genuine *state-level* simultaneity were possible, it is suggested that the complexity of human goal evaluations would mean that the organism would frequently be paralysed by a multiplicity of conflicting impulses (Oatley & Duncan, 1992; Brehm, 1999). If two emotions could be present simultaneously, why not three or ten? Contrary to Izard, et. al. (in press) then, the current theory suggests that such a system would not in fact be adaptive, but rather would mean that the behavioural system would be near-perpetually paralysed by multiple and conflicting urges.

So why then does conscious experience appear to allow simultaneous emotions? Considering the issue once state and experience have been separated creates at least two interrelated possibilities. The first of these is that conscious experience represents a temporally less discriminating phenomenon, a form of experiential summation across the multiple, sequential and discrete emotions that are occurring at the level of the state[5]. Put simply, the emotions *seem* simultaneous to each of us but they are in fact *not*. This explanation has the clear advantage of simultaneously retaining a discrete functionalist conceptualisation of sequential states, while not denigrating the validity of self-reports denoting the conscious experience of emotions.

[5] As was made clear in Chapter 6, this position represents that most currently favoured by this author.

The difficulty of course is that the position creates a new explanatory difficulty in that one must seek a viable reason (function) as to why experience occurs in this way[6].

Secondly and relatedly, it may well be that emotions are not accurately described as simultaneous at *either* state or experiential levels, despite the fact that people describe themselves as experiencing emotions in this way. One possible explanation for this is similar to that outlined by M. D. Lewis and Douglas (1998). Although their analysis is directed to a different issue, they suggest that at the moment of a phase shift, many possibilities are briefly available until the components couple and stabilise again. So when we describe ourselves as experiencing multiple simultaneous emotions we may be (a) recounting a representational perception of experiential *possibility,* that does not become an experience until a single possibility dominates, or (b) describing the emotions that we have, are, or may experience in this emotional *sequence* or about this event.

This idea can be further considered as encapsulating an issue of figure and ground. In Boring's (1930) classic illusion, either the wife or the mother in law can be seen at one time, but not both at once. This holds, despite the fact that we are aware or know that both are actually present. Applying this to the domain of conscious experience, we could reason that only one experience (the figure) can be extracted from the possibilities (the ground) at one instant. Certainly, the 'figure' can change as quickly as we are able to move attention around the 'ground' but only one can exist in a literal moment. Although beyond the interests of this discussion, this conceptualisation creates the interesting possibility that the speed of sequential discriminations may represent a personality variable, wherein some individuals differ or can be trained to more finely differentiate their experiences.

In any case, the current theory suggests that emotions are never simultaneous at the level of the state. Although the brief discussion of conscious experience above may have done little more than illustrate how poor our understanding is, discrete and sequential emotional states strike this author as a more adaptive response system.

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[6] There are currently few theories that directly address this issue. One possibility is that the complexity of experience is a consequence of the complexity of goal concerns relevant in a situation. Explaining why, how, or if complex conscious experiences are functional are key issues in emotions research.

These states may change very quickly as the multiplicity of goals active in a situation are evaluated or as an episode unfolds and more information is obtained, yet in an instant only one state will be present. Which, whether, and how a rapid pattern of sequential states is made manifest in conscious experience represents a fascinating domain of future research.

Chapter 8.4 – Fleshing out the characterisation II: Proximate causality, goals, and the relationships between cognition and emotion

Nothing can be loved or hated unless it is first understood

Leonardo da Vinci

Introduction

Arnold (1960a, 1960b) is generally credited with introducing the concept of appraisal to the study of emotion (see e.g. Parkinson, 1997). In her view, appraisal is a process whereby the personal relevance of an event is determined. While such an account suffered somewhat from a lack of specificity (Ortony et. al., 1988), appraisal has become central notion in contemporary emotion theory (Parkinson, 1997). Arnold's comparatively simple approach was originally extended and rarefied by theorists like Roseman (1984), Scherer (1984), Smith and Ellsworth (1985) and Lazarus (1968, 1982, 1984, 1991a) and there are now a large number of competing cognitive (Ortony, et. al., 1988) and appraisal models for emotions (e.g. Roseman, 1984; Roseman, et. al., 1990, 1996; Scherer, 1984, 1997; Frijda, 1986, 1993a; Oatley & Johnson-Laird, 1992). While the details of each vary somewhat, disagreements among them typically denote issues of detail and emphasis rather than reflect any substantive controversies (Scherer, 1993; Parkinson, 1997), and the concept of appraisal occupies a pivotal position in present day emotion theory (Frijda, 1993b).

All appraisal theories assert that emotions result from or are proximally caused by an *analysis of meaning* (e.g. Smith, 1989; Lazarus, 1999a) in which the adaptational significance of an event is determined. Frijda has termed this relationship *the law of*

situational meaning (Frijda, 1988, 1998), arguing that the presence of an emotion is dictated by the meaning structure of events. In slightly more precise terms, events are appraised in terms of their subjective implications for well-being or the satisfaction of goals or concerns (e.g. Frijda, 1986, 1993b, 1996; Ortony, et. al., 1988; Lazarus, 1991a; Oatley, 1992), the *law of concern* (Frijda, 1988, 1998). Importantly, emotions are thought to be dictated by the way in which an individual *perceives* an event, rather than any objective reality (Frijda's *law of apparent reality*).

Appraisal theories suggest that each emotion is characterised by particular patterns of evaluations (appraisals), and that each emotion results from different evaluations (Frijda, 1993b). While the many details of the many appraisal theories are beyond the interests of this dissertation, the notion that emotions follow the apperception of a particular organism-environment or goal relationship (cf. Lazarus, 1991a) is central to the current model of emotional states (see Figure 8.1). Consequently, one of the more lucid and comprehensive expressions of appraisal theory (Smith & Lazarus, 1993) is briefly outlined below.

Before beginning, it is important to note that *appraisal* has a very specific meaning in emotion theory, particularly in relation to *knowledge* (Lazarus, 1991a). Lazarus and Smith (1988) suggest that knowledge consists of cognitions about the way things are and how they work, while appraisal involves the extraction of personal meaning based on the significance of an event[7]. According to them, knowledge is a necessary, but not sufficient condition for emotion.

According to Smith and Lazarus (1993) the *primary* dimension of appraisal is one of motivational congruence-incongruence that distinguishes between positive and negative emotions – is the event good or bad for us. The term 'primary' may be misleading to a degree, for as Lazarus and Smith (1988) acknowledge, it may not come first in the appraisal process. Primary appraisal is not sufficient by itself to determine in which ways harm or benefit is involved (Lazarus & Smith, 1988). Rather, *secondary* appraisals further distinguish among other discrete emotions

[7] Strictly speaking, it might be more accurate to suggest that appraisal involves the extraction of personal meaning within the recurrent categories of goal-environment relationship that evolution has selected (cf. Tooby & Cosmides, 1990b). This point is returned to in Chapter 8.5.

according to an individual's appraisals regarding emotion and problem-focussed coping potential, accountability, and expectations. It is generally accepted that appraisal processes may also include the individual's assessment as to how he or she might handle the event (Frijda, 1998).

Smith and Lazarus' (1993) framework has the advantage over previous forms (and other models) in that it enables complementary analyses of cognition-emotion relationships at both molecular and molar levels[8] (see also Lazarus & Smith, 1988). At the molecular level, an emotion is engendered by its own distinctive pattern of appraisals, although discrete emotions differ in the degree of cognitive involvement (Ortony, et. al., 1988). The 'strong position' (cf. Lazarus, 1999) regarding cognition-emotion relationships suggests that appraisals are both necessary and sufficient for an emotion (Lazarus, 1982, 1991a; Lazarus & Smith, 1988; Roseman, et. al., 1990, 1996). As such, they assume that the same molecular appraisals will produce the same emotion within and across individuals, while different appraisals will produce different emotions[9].

The individual or component appraisals involved in each emotion can also be summed at a molar level as the emotion's *core relational theme.* A core relational theme is the central (or core) harm or benefit that underlies each of the emotions (Smith & Lazarus, 1993). They acknowledge that such 'themes' are likely to be "greater than the sum of the components that imply them, and to have properties and adaptational implications that cannot be easily derived" (1993; p. 260) from the appraisal components alone. Nonetheless, according to these authors "the bottom line, so to speak – is that an emotional reaction is always based on personal meaning" (Lazarus & Smith, 1988, p. 297).

Generally speaking, it is assumed that neither appraisal nor emotion represent static entities. Rather, the appraisal process is seen as constantly operative, with evaluations being continuously performed in order to 'update' the organism's understanding of an

[8] Whether emotions are caused through molecular or molar evaluations is beyond the interests of this discussion, although a molar level is used for descriptive purposes.

[9] One clear advantage of such a theory is that it is apparently open to falsification (cf. Popper, 1968). Unfortunately, the nature of emotional responding is typically such that there are no temporally

event or situation (Scherer, 1993). As he notes, emotions are probably not static states either, but rather a continuous affective reaction (see also Lazarus, 1991a; Frijda, 1993b). So while emotions are always about the manner in which an encounter is appraised, emotional states can only change as quickly as the appraised meaning changes (Lazarus, 1995).

A conceptual critique of appraisal and cognition-emotion relations

This so-called 'commonsense' position (Ellsworth, 1991) regarding cognition-emotion relationships first came under substantial attack in the early 1980s. Robert Zajonc (1980, 1984) outlined a series of conceptual and methodological criticisms of the position, arguing that affective responses frequently occur in a manner that casts doubt on the *necessity* for cognition. In his provocatively titled critique on the cognitive position, "Feeling and thinking: Preferences need no inferences" (Zajonc, 1980), he denoted a large array of empirical evidence that can be interpreted as being inconsistent with the necessity for cognition. Judging by the response, Zajonc had touched a nerve (Lazarus, 1999).

Zajonc (1984) accused Lazarus of being circular in his definition of cognition, while Lazarus (1984) in turn suggested that Zajonc was being unnecessarily "ambivalent" (p. 1021) and that he persisted in conflating 'cognition' with notions of deliberateness, reflectivity, and rationality. Lazarus' initial response to this challenge (Lazarus, 1982), the pair's mutual rejoinders in 1984 (Lazarus, 1984; Zajonc, 1984) as well as many commentaries since this time (see e.g. Buck, 1991; Scherer, 1993; Ellsworth, 1994a; Frijda, 1994a) have tended to suggest that the disagreement may ultimately rest upon the *definition* of 'cognition'[10].

In a recent chapter, Lazarus (1999) has bemoaned certain aspects of this now-famous debate, particularly the titling of the 'second round.' According to him the entire issue of *primacy* was misconstrued by a majority of readers, insofar that he never claimed that cognitions always came first in the cognition-emotion relationship, but

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localised events that constitutes a starting or end point for the episode (Lazarus, 1991a, 1995; Parkinson, 1997).

rather that each emotion was always preceded by evaluative cognitions - appraisal. As was noted in Chapter 7, any 'response' including an emotional one can be a stimulus, depending on where one begins one's entry into the flow of adaptive activity.

Lazarus' (1999) concern is quickly evidenced in an examination of the literature on this issue. Following this debate, Michael Lewis and colleagues soon argued that the notion of primacy is inherently artifactual and depends on the focus of the theorist (Lewis, Sullivan, & Michalson, 1984). More recently, Matthews and MacLeod's (1994, cited in M. D. Lewis, 1996) review of mood-congruent retrieval demonstrates how difficult it may be to draw a sharp delineation between background affective or emotional states and new appraisals. Background states, for example one of irritation presumably make certain types of appraisals more likely (see also Ellsworth, 1991). In M. D. Lewis' (1996) view, the appraisal process similarly constitutes an ongoing trajectory of cognitive-emotional activity that surges and recedes, moves in and out, without beginning or end.

M. D. Lewis and Douglas (1998) support the position taken by Izard and Malatesta (1987) arguing, contra the current theory, that emotion can be triggered independently of cognition (although it rarely is), yet at a sufficient intensity emotion *always* induces cognition. As they note, "emotion seems to function as a field that influences a wide spectrum of activity in the cognitive system" (p. 162, see also Oatley & Johnson-Laird, 1987). While the influence of emotions at a systemic level is important, and is discussed below, the mere fact that emotions may frequently influence cognitions does not pose a problem for accepting appraisals as either necessary or sufficient in the ontogenesis of emotion (Lazarus, 1999a).

Michael Lewis and colleagues evidently disagree. In discussing cognition-emotion interactions, they suggest that "neither should be described as *causing* the other; rather, each continually and progressively chases the other, weaving separate threads of behaviour into a single composition, a fugue" (Lewis et. al., 1984; p. 285-6). While in keeping with the complexity of the topic material, such a statement appears

[10] Lazarus (1999) has recently (and, I think correctly) disputed the notion that the independence of cognition and emotion is only a definitional issue, suggesting instead that "it has great ontological and

to do little to advance emotion theory. More pointedly in terms of this position, it can be noted that no theorist has yet offered a satisfactory explanation of how emotions occur that does not involve some form of cognitive evaluation.

Although it is highly likely that emotions are continually enhanced by changes in appraisal and that appraisal is progressively updated via the adjustments engendered by emotion, the most viable position nonetheless appears to be that advocated by Lazarus. The position has the advantage of being falsifiable (cf. Popper, 1968), and requires relatively few assumptions regarding the make-up of the emotion systems. On balance, it appears that Leonardo was probably right – few things can be loved or hated until they are first understood[11]. While this 'understanding' may occur, change, and update extremely quickly, and may operate with or without awareness (Lazarus, 1991a), emotions are nonetheless thought of as being created in a cognitive system of goal-relevant evaluation that we call appraisal.

What do the data from appraisal research actually tell us?

> *empirical findings rarely alter the way we think about theoretical and metatheoretical issues*
>
> Lazarus (1999)

In addition to the substantial conceptual criticisms that have occurred in response to appraisal theory, a great deal of discussion has been devoted to examining the epistemological significance of data gathered under the appraisal umbrella. According to many writers, it remains highly contentious as to what such data constitute evidence for (Parkinson, 1997). Frijda (1993b) for example suggests that appraisal may refer to the content of the experience, and argues that the roles of content and antecedent are conflated (see also Oatley, 1992). Parkinson (1997) has likewise argued that the 'commonsense' link between appraisal and emotion is often

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epistemological significance" (p. 10).

[11] This comment is made with the understanding that some emotional responses seem to occur without cognitive involvement (Frijda, 1994a). A small class of stimuli may have hard-wired appraisals and emotional responses associated with them (Lazarus, 1982; Scherer, 1984), parenthetically one that is invariably 'primary.' While it has been argued that these responses are actually sensory states that only become emotions when the state is appraised (Lazarus & Smith, 1988), such an issue thankfully remains well beyond the focus of this discussion. Some small number of evolutionarily critical stimuli may hold some special place in the generation of emotion, but the vast preponderance of occurrences of emotions are caused by the more general cognitive process of meaning extraction – appraisal.

misrepresented and that appraisals can be seen as constitutive features of emotions in everyday experience (see also Ekman, 1994b) rather than as causal entities that *determine* the structure of that experience.

This issue is further complicated by the manner in which some appraisal research has been conducted. Early research (e.g. Smith & Ellsworth, 1985) asked subjects to focus on appraisals made *during* rather than *prior* to emotional experiences (Parkinson & Manstead, 1992; Roseman, et. al., 1996). Several theorists have cast doubt on the purportedly explanatory methodologies that rely on self-report, particularly when investigating the *causes* of emotion (Parkinson & Manstead, 1992; Frijda, 1993b). Frijda (1993b) for example suggests that appraisals are as readily construed as a consequence of an emotion as they are a cause, and that there are often 'discrepancies' between the cognitive content of the emotion and the presumed structure of the antecedents[12] (see also Reisenzein & Hoffman, 1993). Lazarus (1995) likewise acknowledges the tautology implicit in the methods used to investigate the causal status of appraisals.

Because there is a correlation (typically from self-report data) between certain emotions and specific cognitive micro-assessments (appraisals), most theorists accept a causal role for cognition in emotion. Yet because much of the data on the relationship is correlational it is incapable of providing direct support for a causal position (Smith & Ellsworth, 1985) even where laboratory manipulations are involved (Parkinson, 1997).

A further problem is that early studies of appraisal-emotion relationships typically gathered data on the causes of hypothetical or prototypical events, rather than actual experiences (Roseman, et. al., 1990). Even studies that use recollected events to examine appraisals may produce data that are biased or reconstructed based on culturally scripted theories of emotions (Roseman, et. al., 1996), although this problem is reduced when cross-cultural data are considered (e.g. Wallbott & Scherer, 1988; Frijda, et. al., 1989; Mauro, Sato, & Tucker, 1992; Scherer, 1997).

[12] Although it is beyond the interests of this discussion, the current theory sees no a priori difficulty with such discrepancy. Given the generally constructive nature of reports regarding experience (see Chapter 7), there is no reason to expect an isomorphism between theoretically derived appraisal content and the cognitive content of experience.

A final consideration that appears problematic for appraisal research lies in specifying the number and nature of the appraisal dimensions necessary to account for differentiation among emotions (Parkinson, 1997), and identifying which dimensions are the most important for which emotions and which cultures or persons (Scherer, 1997; Parkinson, 1997). Authors have used various numbers of different dimensions/factors with differing results. Smith and Ellsworth (1985) for example correctly classified 42% of 15 emotions using 6 factors, while Frijda et. al.'s (1989) studies reported 32% and 43% for 32 emotions using 19 and 23 dimensions respectively (see Scherer, 1997; Roseman, et. al., 1996 for recent reviews). Nonetheless, it remains debatable as to whether an average discrimination rate of 30 – 40% is 'good' (Reisenzein & Hoffman, 1993). While the issue of discrimination rates is not only a methodological issue, the complexity of the literature does not help in interpreting what the results mean.

In concluding, it can be safely remarked that the status of data from appraisal research in establishing cognition (appraisal) as causal in emotions remains unclear. Appraisal research been subjected to a series of penetrating methodological critiques and the data must be taken as equivocal. That said, there are two further comments that bear consideration. Firstly, there are some senses in which this ambiguity is inevitable given the methodological difficulties inherent in measuring what is purported to be a near-automatic (Lazarus, 1984) and unconscious (Scherer, 1993; Lazarus, 1995) process. Perhaps as a consequence, researchers appear to have resorted to theoretical rather than empirical defences (see above), and it may be that the connection between emotion and cognition represents a definitional requirement (Parkinson, 1997).

However, even if we accept that appraisal researchers are yet to produce evidence that definitively establishes appraisals as necessary in the creation and differentiation of emotions, the same can be said of the position that criticises the necessary and sufficient position. As Lazarus (1984) notes, this position "can no more prove that a cognition is *not* present in any emotion . . . than I can prove it is present" (p. 126, *his italics*). Certainly, more rigorous experimental methods may help, but a critical experiment may never be forthcoming (Tetlock & Levi, 1982, cited in Lazarus, 1984), and it is debatable whether research findings will ever settle the issue (Lazarus, 1999).

Concluding remarks on cognition-emotion relations

While cognitive theories differ in their level of interest, specificity and in the details, the common core of the cognitive approach to emotions is that appraisal and emotion are causally related (Parkinson, 1997). As is evident in Figure 8.1 (below), the current theory endorses the 'strong' view (cf. Lazarus, 1999) on the relationship between goal-relevant cognition (appraisal) and emotion. It suggests that in most instances appraisal is both a necessary and sufficient condition for the emergence of an emotional response *at the level of the state.* Following this it can be seen that the function of the emotional response following appraisal is to a degree independent of the particular content of the activating goal or goals (Frijda, 1994b)[13].

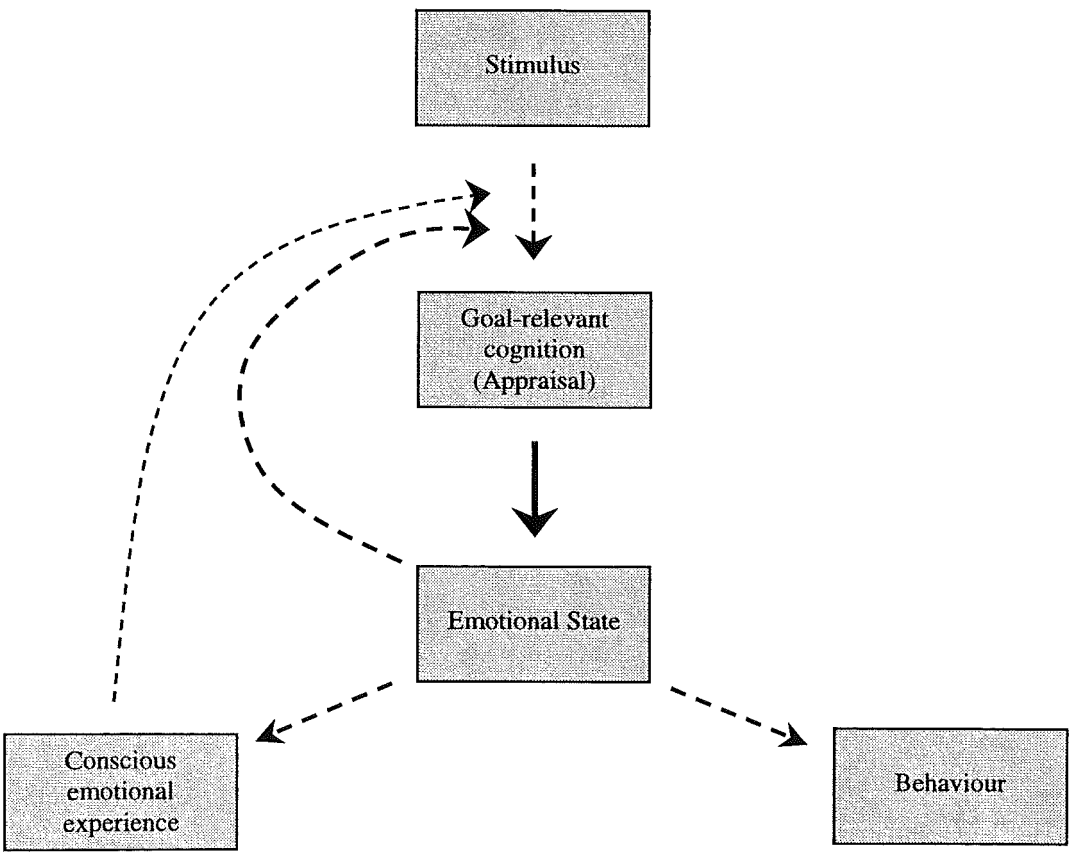

Figure 8.1 – A causal model showing the necessary and sufficient relationship between goal-relevant appraisal and emotional states (NB: Solid lines denote inevitable consequences, while dotted lines represent less necessary influences).

[13] As is discussed below, there is an extent to which the behavioural impulses that are a key part of the emotional response are also independent from their activating motive and the situational affordances.

Unlike previous cognitive theories the current model presents the empirically demonstrable separation (see Chapter 7) between emotional states and the conscious experience of emotions suggested by Lewis and Michalson (1983). In this view, particular appraisals necessarily cause a state-level emotional response. However, the extent to which a particular pattern of appraisal is made manifest in a conscious experience of emotion is a different issue. While our current methodologies necessarily examine self-reports regarding the conscious experience of emotions when considering the structure of appraisal and its relationship to emotion, it is questionable whether this avenue is ever likely to illuminate the more basic causal relationship.

As is also evident in the figure, the relationship between cognition and emotion is conceptualised as being necessarily causal, but not unidirectional. Rather, both emotional states and conscious emotional experience are almost certain to influence subsequent appraisals. Although research in this area has tended to examine the relationships between more global affective constructs such as mood with cognition (e.g. Forgas & Bower, 1987), some data do suggest a more precise influence for discrete emotions (e.g. Keltner & Ellsworth, 1990). More precisely delineating how these reciprocal processes interactively influence or cause one another, particularly over time, remain critical domains for future research.

Chapter 8.5 – Goals and emotion: Theoretically 'al dente,' empirically still a little crunchy

Introduction

As indicated throughout the dissertation, the current author is of the belief that emotions arise when the individual perceives environments and events as impacting on their *goals*. This assertion is central to contemporary emotion theory, particularly cognitive theories, being present in the work of Frijda (1986), Lazarus (1991a), Ortony et. al., (1988), and Oatley (1992) among others. Below, the current state of

knowledge in goal-emotion relationships is reviewed and the basic theoretical position is described.

The section then turns to a consideration of the available empirical literature on goal-emotion relationships, describing the relevant findings from clinical, personality, and emotion psychology. It is suggested that while the *theoretical* consideration of goal-emotion relationships is very well developed, direct and naturalistic empirical demonstrations of cognitive emotion theory are lacking. The studies conducted within emotion theory are typically retrospective and inferential, while those conducted in other frameworks have been tailored to different theoretical issues, and have been conducted at a level unsuited to directly examining the assertions of cognitive theory. In seeking to go some way towards addressing this discrepancy, two longitudinal diary studies examining goals and emotion are presented. The results are interpreted within emotion theory, and directions for future research are discussed.

Goals and emotion: The basic theoretical position

In modern emotion theory, Arnold (1960a, 1960b) is generally credited with the notion that events are subjectively evaluated (appraised) in terms of their significance for the individuals. In her view, emotions are the end product in a process of goal relevant perception and appraisal. For Arnold, the goals and emotions are so closely linked that evaluations are never objective, but always in the form 'knowing and liking' or 'knowing and disliking'.

Since this time, an emphasis on emotions as arising due to perceived changes in the status of one or more goals has exponentiated (see Chapter 8.3). In contemporary appraisal theory, emotions occur when events are appraised as having relevance for well being or the satisfaction of individual goals or concerns (e.g. Frijda, 1986, 1996; Ortony, et. al., 1988; Smith, 1989; Smith & Pope, 1992; Lazarus, 1991a; Oatley, 1992). In this view, emotions are inherently relational or interactional as they follow a *meaning analysis* in which the properties of both the person and the environment are combined to evaluate the adaptational implications of the new circumstances for the person's goals (Lazarus, 1991a; Smith & Pope, 1992). Each emotion is thought to

correspond to a particular pattern of evaluations (e.g. Frijda, Kuipers, & ter Schure, 1989), or relationship (Smith & Lazarus, 1988; Lazarus, 1991a), an assertion supported by much data (see Scherer, 1997 for a recent review).

In justifying the place of goals in contemporary emotions theory, Novacek and Lazarus (1990) simply note that "it is not possible to understand individual differences in emotion . . . unless one takes into account what is important to people" (p. 693 – 4). In their view, emotions and moods are the individual's reactions to the fate of *their* goals in everyday encounters (Novacek & Lazarus, 1990), with an event's significance determined by the extent to which it impinges on a person's goals (Lazarus, 1991a; Emmons, 1991). People do not become emotional about events that do not matter, but about the affected goals to which they have a commitment. As I have argued previously, without goals, there could be no good or bad events, for there would be nothing to evaluate events in respect of (see Chapter 5).

This theoretical position is strengthened by its emphasis on the individual nature of both goals and (hence) the appraisal process (e.g. Frijda, 1988), and the idea that emotion can change as quickly as perceived meaning changes (Lazarus, 1995). As noted earlier, emotions are thought to result from the manner in which events and situations are perceived, rather than being determined by any objective reality. An emotional response will only be the same across individuals insofar as they appraise events as impacting on their goals in the same way. Furthermore, an emotional response can be transformed or replaced as quickly as a new meaning is extracted from the ongoing encounter. This theoretical position requires the study of goals at the level of the individual.

Goals and emotion: The empirical picture

> *I think that . . our understanding of the impact of issues of concern is rudimentary and ad hoc*
>
> Nico Frijda (1996, p. 11)

While the theoretical position advocated by contemporary cognitive theories of emotion appears plausible and robust, *directly* supportive empirical demonstrations of goal-emotion relationships are hard to find. Cognitive theories have been in

development since the time of Arnold, and yet in the four decades that have passed there have been *few* direct illustrations of the way in which goals are related to emotions, let alone which particular aspects of goals and emotions are important. Despite an emphasis on the individual's goals, we have neglected to examine the very phenomena that emotions are purportedly arising in respect of. This is a major problem.

Below, I briefly review the available literature of goal-emotion relationships in three areas: emotion, motivation, and personality theory. As will become clear, only a small proportion of this research body has been generated from within emotion theory itself, and the utility of appraisal research is questionable. A far greater proportion of the relevant empirical work has been conducted under the personality umbrella, with a consequence that affect and goals have typically been operationalised and measured in ways less useful to the development of emotion theory.

Appraisal research

The most common technique used by emotion theorists to investigate the place of goals in emotion involves researching cognitive appraisal. Appraisal research typically involves asking subjects to recall a recent emotional situation, event, or experience, to describe it, and then rate it along a number of dimensions. A series of questions, each thought to tap a different appraisal dimension, is presented, and the responses compared across subjects (e.g. Smith & Ellsworth, 1985; Roseman, et. al., 1990, 1996) and cultures (e.g. Scherer, Wallbott, & Summerfield, 1986; Scherer, 1988, Frijda, et. al., 1989). The results gathered within this framework have generally been consistent with the assertions of appraisal theory, although substantial work remains to be done (see above). However, this research pays little in the way of *direct* attention to the vital idiographic goals that are purported to underlie the entire response process.

Scherer's (1988) *International Survey on Emotion Antecedents and Reactions* for example, asks subjects to categorically answer a number of questions about an

emotional event and their responses to it[14]. Subjects make ratings about the expectedness of the event, its pleasantness, how fair it was, who was responsible for it, their coping ability, any regulation of emotional displays, morality, and self-esteem and relationship consequences. However, in what is a comprehensive and important study, the only item that even *mentions* goals (see Item 9 in Appendix C) states: "How important was the event for your goals, needs, or desires at the time it happened?"

Even in this item, the goals themselves are missing. We have little idea as to what the goals are about, how or where they fit within the individual's motivational hierarchy, or what it is about them that is central to the emotional response, although we do gain an appreciation of whether the event was motivationally congruent or not. It could of course be argued that directing the subject's attention to a supposed contingency between their goals and any associated emotional responding would 'guarantee' relationships through demand – implying that the subjects *should* feel something about their goals (cf. Russell, 1993, 1994, 1995). Conversely however, the absence of articulated goals in appraisal research essentially means that the data derived do not directly address goal-emotion relationships, but bear on appraisal-emotion relationships alone. While the term 'appraisal' is generally considered synonymous with goal-relevant cognition, the actual goals that life events are supposedly being appraised in respect of are missing.

In considering this research program somewhat further, it appears as though the individual goals that are purported to underlie emotional responding can only be considered 'present' by inference and definition. Because we can demonstrate that a particular pattern of appraisal ratings is associated with a given emotion, we give goals themselves little further thought. We simply *assume* that there is a goal somewhere 'behind' the appraisal processes. Little of the appraisal research has been conducted within naturalistic settings or has examined goal-emotion processes over time (see below). Rather, cognitive theory has tended to concern itself with examining normative appraisal processes via hypothetical vignettes, imagery and role

[14] I have focussed on Scherer's (1984, 1993, 1997) stimulus evaluation check model of appraisal simply because it represents a well-known investigatory framework. The concerns I outline in respect of appraisal methodologies and their suitability to uncovering goal-emotion relationships apply equally to most appraisal research (e.g. Smith & Lazarus, 1988; Ellsworth & Smith, 1988a; Roseman, et. al., 1990, 1996;).

playing, and through retrospective memory procedures. The consequence of these methodologies and interests is that while the emerging data are consistent with cognitive theory, they offer little direct support to the notion that emotions arise in respect of goals, and do nothing to identify the characteristics of goals that influence the structure of the emotional response.

Motivation theory

Motivational theories have long advocated the consideration of a relationship between goals and emotion. At its broadest level, motivational research has demonstrated that intimacy motivation is correlated with increased happiness in women and less strain and uncertainty in men (McAdams & Bryant, 1987, cited in Emmons, 1991). Developments in achievement motivation theory have emphasised the role of affective processes and goals (e.g. McClelland, 1955; Atkinson, 1964; Atkinson & Raynor, 1974), and there is good evidence to suggest that depression is associated with the blockage of self-defining goals (Higgins, Klein, & Strauman, 1985; Higgins, 1987; Higgins, et. al., 1997) and that goal conflict is associated with stress and negative affect (Pervin, 1983).

The essence of control theory (e.g. Powers, 1973; Campion & Lord, 1982; Lord & Hanges, 1987; Locke & Latham, 1990, 1994; Carver & Scheier, 1990, 1998) is similar in many regards to the cognitive theories of emotion, particularly in emphasising affect as a form of goal status or progress feedback. Aptly termed a 'cruise control' model of affect, Carver and Scheier's (1998) model suggests that affect arises from a 'meta-monitoring loop' that continually checks the *rate* at which the action system is reducing the discrepancies between extant and desired states (goals). According to them, where progress towards a goal is slower than the reference value, negative affect results, and the action system increases effort. Conversely, where progress rates exceed the reference value, positive affect results and the action system 'coasts' until equilibrium is restored. Their model is important for it removes the emphasis on end states or a sequence of end-states (subgoals), replacing it with a nonlinear and continuous *process* of goal striving and monitoring (see also Austin & Vancouver, 1996), a key point that is returned to below. Their

1998 book denotes a large array of evidence consistent with the predictions of their model.

Perhaps ungenerously, my central comment in respect of this (abridged) review is that affects are not emotions (Forgas & Vargas, 1998). While emotions are certainly affective, they represent a more distinct variety of phenomena. In the approach adopted here, each emotion is generally considered to be a *discrete* response to the perception of a very particular type of goal relationship. Furthermore, discrete emotions generate a comparatively precise form of systemic response, variously made up of expressive, experiential/motivational, and physiological patterns depending on the functions of the emotion in question (see Chapter 8.6 below). Because they are not measuring emotion, demonstrations of the relationships between affect and goals do little to advance cognitive theories of emotion, even though they are consistent with them.

Personality theory

Since the mid-1980s personality researchers have been investigating the relationships between goals and things emotional, typically as an entry point into the situation-person debate (Pervin, 1989). In the view of some personality theorists, because personal goals mark what the individual is trying to accomplish, measures of affect are disproportionally represented in events that impact on a person's goals (Fleeson & Cantor, 1995; Lavallee & Campbell, 1995).

Higgins (1987) has suggested that the emotions experienced in respect of goals depend on the standard used for evaluation. His theory of self-discrepancy considers comparisons between actual, ideal, and ought self-goals. Different comparisons among these goals lead to different characteristic affects. At the level of personality, Higgins argues that individuals chronically differ in their typical focus on either ideal (promotion focus) or ought (prevention focus) self-goals (see e.g. Higgins, Shah, & Friedman, 1997; Shah, Higgins, & Friedman, 1998). More specifically, he has also shown that the attainment and nonattainment of ideal and ought goals have different emotional consequences (Higgins, Shah, & Friedman, 1997). Specifically, attaining ideals produces cheerfulness-related emotions (e.g. happiness), while failing to attain

them produces dejection-related emotions (e.g. disappointment). By contrast, attaining oughts produces quiescence-related emotions (e.g. relaxation), where failure produces agitation-related emotions (e.g. nervousness). Similarly, Fleeson and Cantor (1995) have found that particular types of goals remain associated with particular types of affect, even where most contextual effects were controlled for.

In a further study examining the relationships between the organisation and type of goals in a personality, Emmons and King (1989) have shown that individuals with highly differentiated goal systems are less emotionally reactive than their less differentiated counterparts. This finding is in direct contrast to the assertions and research of Linville (1982) who found that subjects with more differentiated selves (higher complexity) were *less* reactive to failure or success in an experimental task and showed less mood variability over time. Emmons (1992) has shown that individuals who articulate their goals at a high level of abstraction experience more psychological distress than low level strivers, who suffer greater levels of physical illness. In control theory terms, he explains this result by suggesting that progress towards higher level goals is typically slower and more difficult to monitor as the standards are more abstract.

Emmons (1991) has shown that power and affiliation strivings strongly influence subjective well being (SWB). Cantor and colleagues (Cantor, et. al., 1991) found that subjects experienced more emotional involvement in events that they perceived as more relevant to their life tasks. This result was partially replicated by Lavallee and Campbell (1995) who found that goal-related events (as rated by judges) were associated with affect.

Personality research has also shown that the impact of daily goal progress on SWB is a part function of the relationship the person believes exists between those daily goals and broader life goals (Cantor, et. al., 1991; Emmons, 1991; Sheldon & Kasser, 1995) or worst fears (King, et. al., 1998)[15]. Sheldon and Kasser (1995) for example found that psychological well being was related to the degree to which daily goals related to future goals, particularly for goals that were intrinsically motivating. In a similar

[15] Paranthetically, it can be noted that Frijda (1996) likewise considers emotional intensity to depend on the degree to which an event is relevant to the eliciting motive.

study, King, et. al. (1998) showed that seeking daily goals instrumental in one's life goals only weakly predicted SWB, while seeking daily goals that help avoid worst fears was strongly associated with lower SWB (see also Lavallee & Campbell, 1995).

A noteworthy addition to the research on affect-goal relationships from the personality literature is that presented by Fleeson and Cantor (1995). Utilising a clever design, they found that variations in individual goal relevance remained associated with variations in affect while statistically controlling for additional variations in situational, interpersonal and temporal contexts. So the affective experience of everyday life events, such as "a night at the library" is systematically related to the content and importance of the goals the individual is pursuing at the time. As such, an evening at home alone could be experienced as very pleasant if one desired relaxation, but quite distressing if intimacy goals take center stage.

Of more specific relevance to emotion theory, personality research has also shown that both commitment to, and progress on, daily goals are systematically associated with the experience of subjective well-being (e.g. Emmons & Diener, 1986; Emmons, 1989, 1991, 1992; King, Richards, & Stemmerich, 1998). Emmons and Diener (1986) for example, found that both positive and negative affect (PA and NA) were correlated with goal attainment ($r = 0.46$ and -0.19 respectively), the relationship with PA clearly stronger (see below). They also found that having important goals was as highly associated with affect as was progress towards such goals ($r = 0.47$ and -0.18), although goal attainment and importance were themselves strongly related ($r = 0.77$). These findings regarding the place of goal importance are critical to the current research and are returned to below.

Concluding remarks on the state of knowledge

The review above has been brief, and somewhat partisan. In critiquing the relevance of the three research areas, the review has deliberately been written from the point of view of an emotion theorist. This orientation, I believe, has been necessary in order to underscore the need for direct and naturalistic goal-emotion studies generated and conducted within emotion frameworks.

The first general comment that bears making about the review is that a greater proportion of the research into goals and emotion has not been conducted within emotion theory, but within personality and motivational frameworks. The basic consequence of this 'starting point' is that the research design reflects completely different interests and questions. In the personality literature, goals and emotions are often treated as potential moderators, rather than the variables of most direct interest. We know a great deal more about the way in which broad goals and broad measures of affect relate, particularly in respect of situational choice behaviour, than we do about the basic goal-emotion relationships relevant to emotion theory.

From the point of view of emotion theory, the measures of 'emotion' used in this research are invariably too broad to be properly evaluated within a discrete functionalist perspective. Almost all researchers have operationalised emotion though measuring *subjective well being* (e.g. Emmons & Diener, 1986; Emmons, 1989, 1991, 1992; King, 1995; King, et. al., 1998) or another equally broad mood measure (e.g. Emmons & King, 1989; Cantor, et. al., 1991; Fleeson & Cantor, 1995; Lavallee & Campbell 1995; Carver & Scheier, 1998). One notable exception to this trend is the more recent work of Higgins and colleagues (e.g. Higgins, Shah, & Friedman, 1997; Shah, Higgins, & Friedman, 1998), although some of their 'emotions' (e.g. relaxation) would not be considered emotions by a discrete theorist.

The second remark concerns the generality of the goal measures these researchers have tended to employ. Although goal-personality concepts like *personal strivings, current concerns, personal projects*, *life tasks*, are thought to represent "idiographic instantiantiations of nomothetic motives" (Emmons, 1991, p. 455), this level of operationalisation is again better suited to the interests of a personality researcher. From the perspective of an emotion theorist, it seems likely that widely shared goals such as achievement and affiliation (see e.g. Fleeson & Cantor, 1995; Cantor, et. al., 1992) will be differentially susceptible to demand. Normative goals, even where they are idiographically instantiated, are probably sensitive to a greater number of rules, shared meanings, expectations and theories regarding how and where these goals should be pursued[16], and how one should feel when succeeding or failing. Again, the

[16] This concern is in fact acknowledged by Cantor, Norem, Langston, Zirkel, Fleeson, and Cook-Flannagan (1991) when they "begin with the assumption that individuals of particular ages, living

interests of personality research have lead to data unsuited to examining the basic goal-emotion relationships that might interest an emotion researcher. Illustrating the importance of daily and weekly goals to emotional responding is an important part of this research.

On a more positive note, it is worth remembering that goals are central, explicit, and at least nominally individual in personality research. This orientation stands in stark contrast to the research conducted within appraisal frameworks, which while possessing the advantage of operating at a discrete emotions level, has somehow managed to avoid studying goals in a direct fashion. Surprisingly, there has been little in the way of cross-fertilisation between these two research areas, even though emotions are fundamental in many models of personality (see Chapter 6) and goals are central to personality (see Chapter 1). It is my belief that combining the strengths of these two approaches will produce methodologies and data of interest to both personality and emotion researchers.

The current hypotheses

The discussion above provides a general rationale for studying the basic relationships between goals and emotion within a theoretical perspective that emphasises emotion. Below, more theoretical detail is provided as relevant to the major hypotheses of the two studies presented here. In the interests of brevity, data from the second study are only presented in respect of the longitudinal hypotheses, although passing reference is made to some key parallels.

Initially, it was thought important to demonstrate some baseline relationships between affective measures and specific individual goals. In part, I simply wanted to demonstrate that the status of an individual's daily goals was systematically related to affective experience. It was predicted that:

1. Goal specific mood ratings will be dependent on the amount of progress made on that goal

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together in specific social groups, share an understanding of the life tasks that are deemed appropriate for their current age and living environment" (p. 427).

However, it was also important to begin generating greater precision in the measures of both affect and goals. In respect of affect, I wanted to show that people could feel quite positive about a certain goal *despite* feeling more negative in a general sense – that fine-grained, and goal-specific discriminations of affect were obtainable. In considering a number of possible goal dimensions that might mediate this relationship, it was thought that the *importance* of a goal would be a key factor in determining in how closely goal specific and general mood were associated – the extent to which that feelings about that goal contributed to general mood. The status of more important goals, being higher in the motivational hierarchy, should contribute a greater amount to general mood. Consequently, it was thought that:

2. Ratings of *goal specific mood* will be more strongly associated with general mood ratings the more important a particular goal is.

Related to this hypothesis, it is worth remembering that Emmons and colleagues (e.g. Emmons & Diener, 1986; Emmons, 1989) have found that having important goals was strongly associated with positive affect *irrespective of attainment.* King et. al. (1998) failed to replicate this finding, showing that while daily goal importance was moderately correlated to progress ($r = 0.43$), that importance was not related to SWB. Although these authors explain the inconsistency between their and Emmons' data through reference to sample and methodological considerations, a weak correlation between importance and affect would be expected from a emotion theory informed approach to goals and affect. From a functionalist perspective on emotions, failure on a goal where investment is high should lead to strong negative (rather than positive) mood, as the system motivates withdrawal from the goal (as in sadness) or increasing effort (as in anger and shame). In combining these ideas with those above, a further hypothesis was derived:

3. That as goal importance increases, so too will the possible *range* of mood consequences. More important goals will produce more strongly positive mood when progressed towards, but more strongly negative mood when not.

As noted above, Carver and Scheier's (1990, 1998) control theory suggests that goal-related affect derives from the *rate* at which a goal is progressed on, while Higgins et. al. (1997) suggest that it derives from the *type* of goal-focus present. Bearing emotion theory in mind, it Carver and Scheier's (1998) theory appears more likely, although ratings regarding goal progress may be problematic in that they do not tell us whether the rate or amount progress is high *enough.* In seeking to fine-tune the operationalisation of the goal feedback variables relevant to affective responding, goal *progress* and goal *closeness* measures were separated.

While this is clearly a complex issue, it seems reasonable to suppose that progress rates vary more across time than do proximity or closeness estimates, which in most cases can only increase (i.e. you can only get closer to most goals). Within limits, the endpoint for most goals remains *static* over time, meaning that closeness ratings should provide a stable longitudinal measure indexing how proximate the subject is to the endpoint. In addition however, it may well be that closeness ratings indicate both how quickly the goal is being approached (as a goal gradient), and indirectly whether the subject feels they are approaching fast enough. In respect of these issues it was predicted that:

4. Both goal progress and goal closeness will be associated with goal specific mood, but that closeness estimates will be more highly predictive of mood for longer term goals.

Finally, the current studies sought to examine something of the coping processes people engage in when goals are not being attained. Carver and Scheier (1998) have suggested that where progress is less than the reference value the affect system will indicate a necessary increase in effort. However, it also seems reasonable to suppose that this process should be indicated by both negative mood and by a variety of other goal adjustments. Following the developments based on Lazarus and Folkman's (1984) coping model, it seems likely that there at least two major types of coping technique – emotion versus problem focussed coping. In this case, when individuals are 'failing' in long-term goal pursuit, they may 'cope' either by continuing to grapple with the goal (and showing negative affect), or by reducing the importance of the goal and thence its ability to contribute to their emotional experience.

5. That where progress on long term goals is not being made, at least one of two effects will occur. Subjects will either reduce the importance of the goal and show a lesser affective consequence (better mood) or will maintain goal importance and show more negative mood.

Methods

Overview

All of the studies presented here have employed essentially the same research framework, although there have been some small variations in implementation. Given the highly temporal nature of both goals and emotions, it was thought that tracking goal processes over time might provide additional insights into goal-emotion relationships (van Geert, 1997; King, et. al., 1998). Following increasing use in the emotion literature (e.g. Malatesta-Magai & Culver, 1991; Oatley & Duncan, 1992; Vittengl & Holt, 1998), a diary structured around goals and emotions was used. Each version of this method required subjects to record individual goals relevant within a particular time frame and to rate a number of goal dimensions (e.g. importance and likelihood), as well as their emotions about the goal and in general.

Goal criteria and instructions

In these studies, the subjects were free to articulate any goal they chose but with three restrictions. Initially, they were informed that the goal must be of at least *moderate* importance to them. The simple reason for this is that ratings about things that do not matter were of no interest. Secondly, subjects were told that the goal must be *reasonably attainable* within the stipulated timeframe, *neither an impossibility nor a certainty.* Finally, subjects were encouraged to state their goal with as much specificity as possible. So far example, rather than state "I want to get a lot of work done on my essay" they were encouraged to operationalise their goal at a more precise level, for example "I want to have finished a complete draft on the first half of my essay." As is expanded upon below, goals frequently encapsulate an *implicit criterion*

regarding their performance. In making criteria more explicit, it was felt that more of the relevant variance would be captured by the measures used.

Pilot study

The initial study was preceded by a pilot study conducted approximately one month earlier. This was undertaken in order to assess practical difficulties such as compliance and to provide an opportunity for senior peer feedback on the methodology. Twenty senior postgraduates completed the basic goal diary twice daily for five consecutive days and filled out a detailed 'comments' form. Following complaints regarding the time involvement, several items were removed on the basis of (a) effectively measuring the same phenomenon as another item ($r > 0.75$) or (b) failing to be associated with any other item (e.g. an item on the quality of sleep).

Study 1

Participants

Twenty-five female (M_{Age} = 23yrs, s.d. = 5.89) and 23 male (M_{Age} = 21.6yrs, s.d. = 3.7) psychology students at the University of Canterbury (New Zealand) participated in the initial study. Of this group, 42 undergraduates were recruited from stage one laboratory sessions, while six postgraduates were approached by the experimenter and asked if they would be willing to participate. Subjects were not rewarded for their efforts. Participation in the study was very good. Sixty-five diary forms were handed out, of which 51 were returned. Six subjects withdrew from the study for personal reasons (external stressors, personal bereavement), while eight could not be contacted for the return of the forms.

Procedure

Participation in the study required that subjects complete a structured goal diary form (see Appendix 4) morning and night for five consecutive days. On the morning of the first day, subject's formalised a single goal for the following week (the weekly goal), and two goals for that day (daily goals). On each of the remaining four days, the

weekly goal remained the same while two fresh daily goals were generated for that day.

Each morning, participants made three 7-point Likert ratings about each of the two daily and single weekly goals. Goal importance was rated, as was the likelihood of the goal's achievement and the subject's current mood. In the evening, ratings were made about the amount of progress that had been made, the way they felt about each goal, their general mood, the amount of effort that had been made and the opportunity they had had to achieve the goal. Completed forms were deposited anonymously in a collection box.

Study 2

Participants

Nine female (M_{Age} = 30.4yrs, s.d. = 9.27) and seven male (M_{Age} = 25.9yrs, s.d. = 4.67) postgraduate psychology students at the University of Canterbury (New Zealand) participated in the second study. Of this group, three males and one female subject did not provide enough data be used (less than 18 of 36 ratings) so have been excluded from analysis. Subject reward involved a monetary raffle with 5 prizes from a pool of $NZ 250.

Procedure

Upon indicating a willingness to participate, subjects completed an induction session with the experimenter. An "account" for each subject was created within the Departmental computer system, and subjects were given a login and password to the study. Subjects then recorded a single goal relevant over a three-month timeframe using the same directions as in the study above, and completed the first set of ratings while the experimenter remained nearby in case of difficulty. Subjects were informed that 36 separate sets of ratings (sessions) were required in the study, and that each set of ratings could be completed no sooner than 48 hours after the last set. Subjects completed the remaining 35 ratings as they wished over the next three months. To

facilitate compliance, each participant's name was added to the Departmental login script which then reminded them to complete the study each time they used any of the Departmental computers.

While the method employed in this study is essentially similar to that used in study one, a computer-administered methodology has a number of practical and theoretical advantages over the paper-based method. Initially, it is of note that the administrative software continuously presented the subject's goal (at the top of the screen) during the time ratings were made, ensuring that the goal was kept highly salient during this period, and reducing the likelihood that the goal would change in unmeasured ways[17].

Item order was randomised at each session, reducing the likelihood of demand created by theoretically undesirable item ordering. Only one question could be viewed at a time, reducing conscious comparisons among temporally proximate ratings. To further reduce demand, the second study used simple bipolar scales rather than the Likerts used in study one. Subjects simply indicated their response by shifting a marker to the appropriate place (see Appendix 5 for an example). The use of computers in doing this enabled the sensitivity in the dependent measures that had been indicated as necessary by study one. Additionally, it made it difficult for subjects to remember how they had answered each item on previous occasions, again reducing demand.

Results

The initial step in the analysis was to evaluate whether the stated goals were fresh each day, and to examine the types of goals recorded. Where the same goal was recorded as a daily goal on more than one occasion, only one was counted towards the subjects total of daily goals. All but one participant recorded 10 discrete daily goals (Total N = 479), and all 48 subjects recorded a weekly goal.

[17] As noted earlier, it seems likely that most goals have implicit criteria regarding the level of their performance. It seemed possible that subjects would unconsciously revise the criteria for the goal, effectively meaning that they were no longer rating the same goal. This point is returned to following the presentation of the study.

Reported goals were primarily academic for both daily (43.2%) and weekly goals (47.9%), a finding which was to be expected when drawing from a population of full-time students. Nonetheless, substantial numbers of goals were observed in other categories. Observed goal types for daily and weekly goals were coded by the first experimenter, and are displayed in Table 8.1 below.

Goal Type/Content	% Daily Goals	% Weekly Goals
Academic	43.2	47.9
Interpersonal	10.9	12.5
Domestic	14.1	10.4
Exercise/fitness	9.8	14.6
Intrapersonal	6.8	8.3
Leisure	7.1	2.1
Employment	5.4	2.1
Health	2.7	2.1

Table 8.1 – Distribution of goal types/content for daily and weekly goals

The distribution of goal types showed in the table above give good grounds for confidence that the goals gathered represent a fair distribution of daily and weekly goals, at least for stage one university students. A preliminary analysis across these goal types showed no major differences as a function of goal content, so goals are collapsed across categories for the remainder of the analyses.

Given the absence of this level of research, the next step in the analysis was to examine the basic relationships between the daily and weekly goals that people recorded, their ratings of mood regarding them, and the success or failure of their goal pursuit. Correlations showed that the way in which subjects felt about each daily goal (goal specific mood) was strongly related to the amount of progress made on that goal ($r = 0.62$, $p < 0.0001$). Progress was also positively related to goal specific mood on Day 1 ($r = 0.57$), Day 2 ($r = 0.61$), Day 3 ($r = 0.46$), Day 4 ($r = 0.63$), and Day 5 ($r = 0.45$) of weekly goal ratings (all p-values < 0.005). Correlation coefficients of similar magnitude were also present in the relationship between mood and progress for goals in the three-month diary (see below).

Does having important goals lead to happiness?

It was important to demonstrate that the relationships between mood and progress observed in respect of *daily* goals have real significance for the way in which people feel more generally. Based on a hierarchical model goal organisation, it was predicted that the relationship between goal specific mood and general mood would become progressively stronger the more important (or higher in the motivational hierarchy) each goal was. As can be seen in Table 8.2 below, the relationship between goal specific and general mood ratings increased systematically as a function of daily goal importance.

Daily Goal Importance	Goal specific x general mood correlation	Number of daily goals
1	0.59	9
2	0.06	18
3	0.07	25
4	0.12	65
5	0.17	102
6	0.36	150
7	0.34	110

Table 8.2 – The correlations between goal specific and general mood as a function of daily goal importance

As can be seen in the table above, there was a systematic relationship between goal specific and general mood as a function of daily goal importance. The more important a goal was, the more highly associated goal specific and general mood ratings were. The exception to this trend is the strong positive relationship between the two mood ratings where importance is very low ($r = 0.59$). However, there are only nine goals at this level, and the trend in the 'remaining' 470 ratings suggests that these observations are misrepresenting the trend. When excluding goals of very low importance, the correlation between importance ratings and the strength of specific-general mood relationships is a staggering 0.94. Although these data are correlational, it seems reasonable to infer that the increasing relationship between the

two mood ratings is directly related to a goal's relative placement in the motivational hierarchy. Goals may contribute to overall mood proportionally to their importance[18].

As noted above, Emmons and colleagues (Emmons & Diener, 1986; Emmons, 1989) have shown that having important goals is predictive of PA notwithstanding whether the goal is actually attained. The current study predicted that goal importance would be associated with the *range* of mood consequences, with more important goals producing more positive mood at high progress rates, but more negative mood at low rates. Importance and progress ratings were recoded, so that ratings of one, two, or three represented goals of 'low' importance, ratings of four and five as being of 'moderate' importance, and ratings of six and seven as being of 'high' importance. These results are shown in Table 8.3 below.

	Goal Progress Rating			
Importance	Low	Moderate	High	Mean Range
Low	3.69	4.25	4.75	1.06
Moderate	3.63	4.67	5.48	1.85
High	3.35	4.35	6.06	2.71

Table 8.3 – Mean goal specific mood as a function of importance and progress (NB: No account of repeated measures has been taken in these data)

Table 8.3 shows the mean goal specific mood ratings as a function of goal importance and the amount of progress made. As predicted, goals of low importance produced a lower range in goal specific mood (1.06), than either moderate (1.85) or highly important (2.71) goals. Also notable is the fact that goals of high importance were associated with the most negative mood in the low progress category (3.35) and the most positive mood in the high progress category (6.06). Conversely, goals of low importance were associated with the least negative mood in the low progress category (3.69) and the least positive mood (4.75) in the high progress category. In each case, goals of moderate importance were associated with mean moods between these two extremes.

[18] This interpretation is also supported by the correlation between goal specific and general mood when analysed across the three timeframes employed here. Goal specific mood and general mood were correlated at 0.29 for daily goals, 0.43 for weekly goals, and 0.61 for three-month goals.

In preparing these data for further analysis, several steps were taken. Firstly, it was felt that treating different subjects' ratings of importance and progress as *directly* comparable was problematic. Equating ratings directly across subjects would effectively be assuming that a goal rated by one subject as being of '5' importance was of exactly the same *relative* importance as a goal also rated as a '5' by a different subject. To account for this potential difficulty, progress and importance ratings were z-standardised within each subject across the ten daily goals they provided. In addition to ensuring that ratings actually represent relative importance, this procedure has the advantage of maximising the likelihood that each subject would produce data within each of the nine cells in the ANOVA (see below).

The transformed data was then split into three groups of equal size. Standardised importance ratings were split into groups of low, moderate, and high importance, and standardised progress ratings were split into the same three groups. However, not all subjects produced all nine combinations of progress and importance in their ten daily goals, despite the standardising procedure maximising this possibility, hence missing cells were replaced with the respective cell mean.[19] Where subjects produced more than one rating per cell, only the first was used. A 3 x 3 repeated measures ANOVA was then run. As predicted, there was a massive (and significant) main effect for progress ($F(2,94) = 173.67$, $p < 0.000001$). There was also a main effect for goal importance ($F(2,94) = 8.34$, $p < 0.001$). Finally, as indicated by the ranges and means shown in Table 8.3 above, there was a significant interaction between progress and importance factors ($F(4,188) = 3.46$, $p < 0.01$). The means for this analysis are shown in the interaction plot below.

[19] This is less than ideal, particularly when, on average, each subject only produced 6 cells worth of data. It is difficult to imagine a naturalistic setting in which subjects would spontaneously generate the combinations of importance and progress desired here. Having a greater number of goals might help, although I suspect experimental designs might be better suited to this issue.

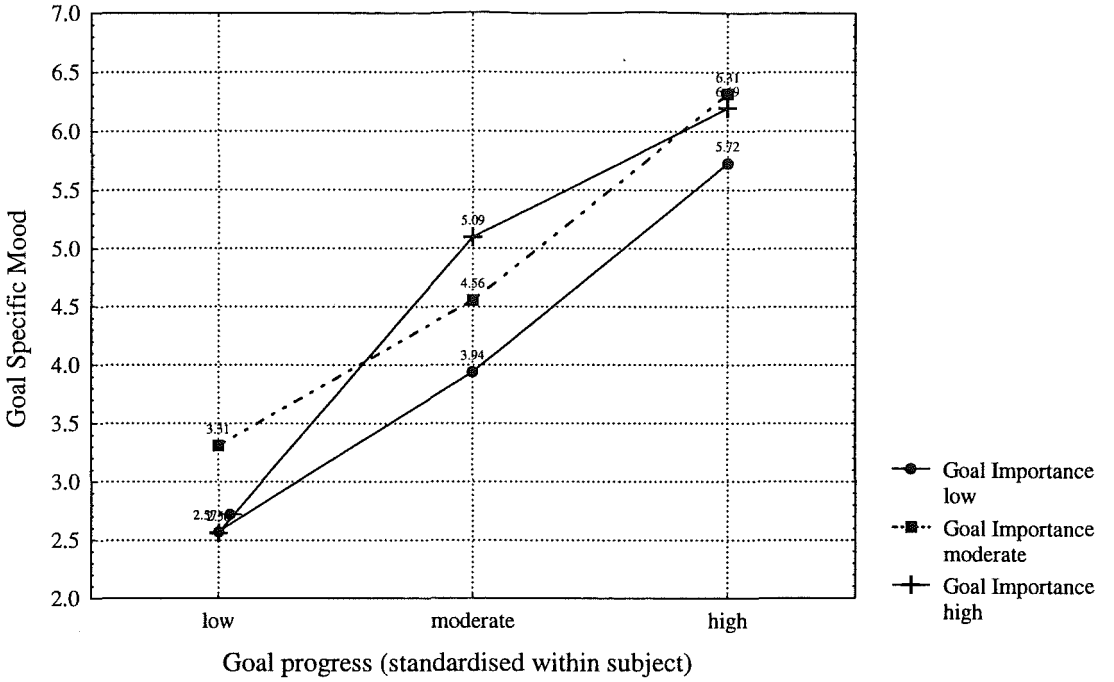

Figure 8.2 – Interaction plot showing mean goal specific mood as a function of goal importance and goal progress (NB: Both importance and progress ratings have been standardised within-subject prior to this analysis)

Figure 8.2 clearly demonstrates the strong relationship between the amount of progress made on a goal and the way people feel about it. Greater amounts of progress are consistently associated with significantly better mood, irrespective of importance. However, the importance of importance is also clear. The curve linking the means for goals of moderate importance is consistently above that for low importance goals (main effect for importance), a point that is returned to below. Finally, the line linking the means for goals of high importance is probably that responsible for the interaction effect. Where progress is low, mood regarding an important goal is also low (2.56) although not significantly lower than either the low or moderate goal mood ratings at this progress rate. However, while mean goal specific mood climbs steadily to 3.94 (moderate importance), the curve for important goals becomes steeper, climbing to 5.09. These two means are significantly different according to a Scheffe post hoc ($p = 0.02$), and are the only two means of the same progress rate to differ. In all, these results can be taken as supportive of the predictions outlined vis-à-vis the interactions between importance and progress and their impact on mood.

A mountain walk: Is it the journey or the summit view that makes us happy?

Of interest in the three month diary study was the possibility that there might be key differences in how ratings of goal progress and goal closeness related to mood. For the daily goals measured in the first study, these two variables were so highly correlated as to be effectively measuring the same aspect of goal processes ($r = 0.89$, $p < 0.001$). The same can also be said for the way in which progress and closeness ratings relate across each of the five days of the weekly goal. Progress and closeness ratings were highly correlated on Day 1 (0.71, $p < 0.05$), Day 2 (0.73, $p < 0.05$), Day 3 (0.79, $p < 0.05$), Day 4 (0.91, $p < 0.05$), and on Day 5 (0.65, $p < 0.65$). This pattern of data suggests that progress and closeness ratings are measuring a very similar aspect of people's goals, although they may also indicate that closeness needs to be more carefully operationalised to separate it[20].

Despite these similarities, closeness ratings appear to have additional utility when examining the processes people engage in during the pursuit of *longer-term* goals (e.g. three months). In these exploratory analyses, time was coded into nine categories, each typically about 10 days or four sets of ratings. Subject ratings of both progress and closeness to the goal were then correlated with the time category, with the expectation that closeness ratings would show a more stable relationship with time.

As can be seen in Table 8.4 overleaf, 11 of the 13 subjects showed a significant relationship between closeness and time. Although these relationships were in both directions (see below), the relationships were nonetheless consistently strong, with an average correlation (ignoring direction) of 0.58. In contrast, progress was less strongly related to time with an average correlation of 0.29. A t-test for dependent measures showed this difference to be significant ($t(12) = 3.83$, $p < 0.005$), a finding which indicates a conceptual separation between closeness and progress. So while the relationships between static measures of goal proximity such as closeness, goal progress and mood clearly require further investigation, closeness is nonetheless a variable of considerable potential in longitudinal goal research.

	Closeness Rating x Time	Progress Rating x Time
Participant 1	0.66*	0.14
Participant 2	0.58*	-0.15
Participant 3	0.35	0.02
Participant 4	0.51*	0.36
Participant 5	-0.23	-0.30
Participant 6	0.68*	0.28
Participant 7	-0.69*	-0.15
Participant 8	0.46*	0.34
Participant 9	0.82*	0.44*
Participant 10	-0.80	-0.55*
Participant 11	-0.46*	-0.44*
Participant 12	0.78	0.59*
Participant 13	-0.47	-0.04
Average	**0.58**	**0.29**

Table 8.4 – The correlations between closeness and progress ratings with time for 13 participants in a three-month diary (NB: Time has been categorised to nine 10-day slots).

To examine the relationship of closeness with mood somewhat further, the thirteen participants were divided into two groups on the basis of their correlation between time and closeness ratings (i.e. whether they generally getting closer over time or not). Five participants (numbers 5, 7, 10, 11, 13) were assigned to the "no closer" group, while the remaining eight subjects were assigned to a "closer" group.

From this point, goal related ratings were plotted as a function of time (see Figures 8.3 and 8.4 below). Of primary interest were the relationships between goal specific mood and closeness, although following the fifth hypothesis presented above, the processes people engaged in during failure were also of interest.

[20] As is expanded upon below, post hoc consideration of the anchors on the closeness item in Study 1 (see Appendix, 4) suggest that the closeness anchors represented a dynamic measurement of proximity more analogous to progress than closeness.

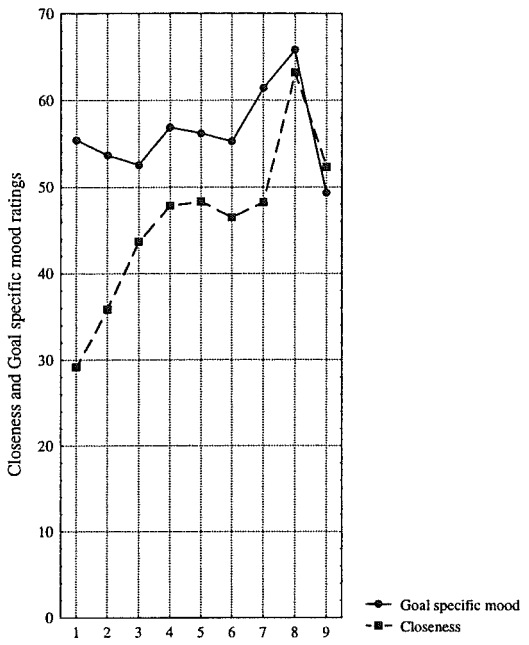

Figure 8.3a

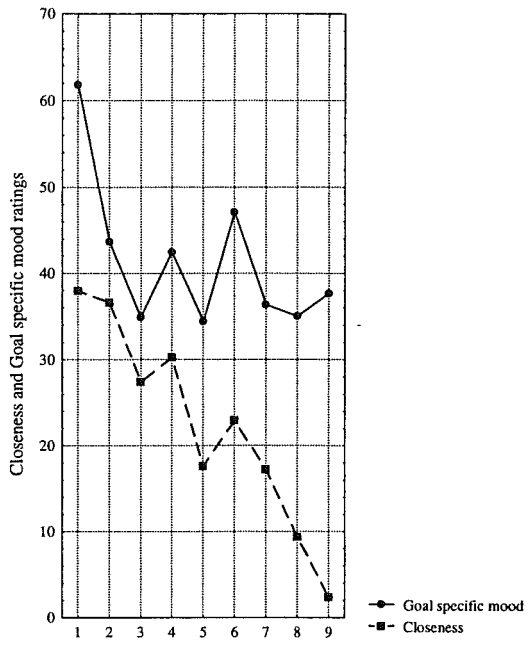

Figure 8.3b

Figures 8.3a and 8.3b – Mean closeness and goal specific mood ratings for individuals getting closer (8.3a) and failing to get closer (8.3b) to a three month goal.

Although the figure tends to exaggerate the differences between the two groups, it is nonetheless clear that the mood of people who are getting closer to their goal over time is gradually feeling more positive about their goal, with the closeness and mood curves gradually becoming more intertwined. The general impression given by this curve is that people feel more and more positive as they get nearer the target, although the precise relationship of closeness estimates in goal specific mood remains unclear A further problem for these data is that both closeness and mood ratings drop sharply in the final time period. Possible reasons for this are discussed below.

In contrast, the mood of people who are generally getting further away from their goals drops sharply over the first two time periods. From this point however, their mood appears to 'stabilise' somewhat, although the curve is very noisy. Given what has been demonstrated above regarding the relationships between closeness and goal specific mood above, this stabilisation begs the question of what is happening at these times. Why does the status of their goal no longer seem to bear such a strong relationship to their mood?

One possible answer is uncovered in a brief consideration of the final hypothesis offered above. Hypothesis five suggested that where people were failing to attain a goal, they would either (a) suffer a reduction in mood, or (b) reduce the impact the goal is capable of having on their mood by reducing its importance (see above). Figure 8.4 below shows the mean importance, perceived difficulty, and perceived opportunity ratings as a function of time and group.

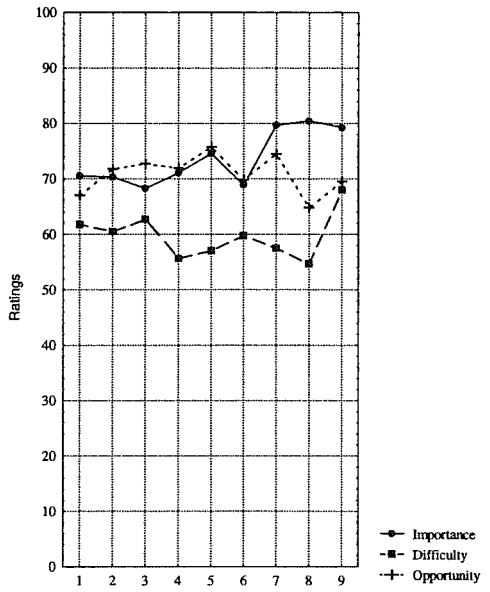

Figure 8.4a

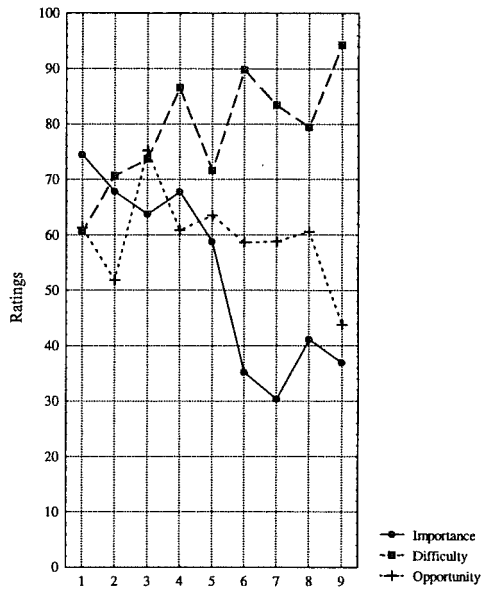

Figure 8.4b

Figures 8.4a and 8.4b – Mean importance, perceived difficulty, and perceived opportunity ratings for individuals getting closer (Fig 8.4a) and failing to get closer (Fig 8.4b) to a three month goal.

It is immediately evident in the figures above that a far greater number of changes are occurring in the ratings for the group that were failing to achieve their goal. For the most part, individuals who were getting closer to their goal show little variation in these measures across time. Goal difficulty, importance, and opportunity fluctuate somewhat, but the essential pattern is of consistency during the pursuit process.

In inspecting the data for the group who are failing to get closer to their goal (Fig 8.4b), one can note that these goals were rated as progressively more difficult, and (more importantly) progressively less important. It is this latter observation that is critical, for it was predicted earlier. As some individuals fail their goals, they appear

to regulate their mood by reducing the importance of the goal, in effect saying "Ah well. It doesn't matter." As noted above, a given goal's ability to impact on mood is strongly related to its importance, hence reducing importance will typically lessen the impact of failure. Additionally, a closer inspection of the curve for goal importance in Figure 8.4b shows a pleasant parallel to the data presented in Figure 8.3b (above). It will be recalled that goal specific mood for the "no closer" group dropped sharply across the first two periods and then stabilised. In contrast, the importance curve for this group remains stable (Figure 8.4b) for the time that mood is dropping, then drops as mood stabilises. The interactions between these adjustment process and their possible links to personality are discussed below.

Discussion

Although complex, the data presented above can nonetheless be taken as unequivocally indicating that self-reported daily, weekly, and three-month goals are systematically related to affective experience. This is an important finding for it extends previous research to the consideration of a level of goals not previously studied, to a greater variety of goals, and to goals that are highly idiographic. The current research has also shown that the way in which people feel about particular goals bears a systematic relationship to the way in which they feel more generally.

The way people feel about a goal has been demonstrably related to both the importance of a goal, and to the amount of progress made on it. More important goals were moderately associated with more positive affect, particularly for longer-term goals, while progress on a goal was strongly associated with the way an individual feels across all timeframes. Although the interactions between importance and progress appear quite complex, goal importance may operate as a constraint on the extent to which progress on that goal affects mood.

Contrary to the hypothesis, goal closeness was difficult to distinguish from progress on a goal, and was no better a predictor of mood. However, goal closeness was shown to be a useful measure in longitudinal goal research. It appears to provide a more stable estimate of static goal proximity, and enables us to examine the processes accompanying goal failure in a manner not possible with progress estimates. In this

regard, unsuccessful striving (declining closeness ratings) was shown to be associated with a surprisingly stable pattern of mood decline and goal adjustment.

In all, the relationships between goals and affect described here are encouraging. They are consistent with a series of hypotheses derived from within emotion and motivational theories of personality, and have been replicated when examining self-articulated goals and affect across a number of timeframes. That said, there is a sense in which the questions created outnumber those answered. The discussion below considers some of the implications these data have for theories of emotion and personality, emphasising the complexity of the relationships between goals and affect and the need for more research.

In extending previous knowledge, the current research has demonstrated that goals and affective experience remain systematically associated even when operationalised at a very high level of temporal and descriptive resolution – daily goals and goal specific mood. While the measures of affect employed here are still too broad to be taken as directly supportive of cognitive emotion theory, demonstrating that affective responses occur equally systematically at the level of single daily goals provides a closer approximation to a theory test than we have seen so far.

The general finding that affective experience is systematically linked to the importance of, and progress on, an individual's goals is consistent with previous work in personality theory (e.g. Emmons & Diener, 1986; Emmons, 1989, 1991, 1992) and with the premises of cognitive emotion theory (e.g. Lazarus, 1991a). In extending this research, the way an individual feels about a particular goal has been shown to be an interactive function of the goal's relative importance and the amount of progress made.

The current data offer a useful framework within which to examine exactly how much the status of a particular goal influences *general* affective experience. The analysis of daily goals has shown that goal specific and general mood ratings were differentially correlated depending on the relative importance of the goal. In this pattern, mood ratings regarding an important goal were more closely associated with variations in general mood than are ratings regarding less important goals.

This relationship is again evident when comparing specific and general mood ratings *across* the three levels of goal duration. As was briefly noted earlier, goal specific mood and general mood were correlated at 0.29 for daily goals, at 0.43 for weekly goals, and at 0.61 for three-month goals. Although changes in the methodology prevent direct comparisons among the importance of the goals from the different timeframes, it seems reasonable to suppose that longer goals will typically be more important than shorter goals. As in the analysis within daily goals, an analysis across goals of varied duration also supports the idea that a goal's relative importance is a key variable in the relationship that goal bears to general mood. Although the nature of the data prevents causal claims, it seems plausible to infer that goals of greater importance *exert* a proportionally greater influence on general mood (depending on progress) because they are higher in the motivational hierarchy.

Whether this assertion is ultimately shown to be true, the pattern is at least consistent with hierarchical models of personality and affect like Carver and Scheier's (1998) control model, and with the approach to motivation and personality adopted in this dissertation. Previous research has shown that the impact of daily goal progress on SWB is related to the relationship that the person *believes* exists between these goals and broader life goals (e.g. Cantor, et. al., 1991; Emmons, 1991). While beliefs regarding the relationships between levels in a goal hierarchy were not examined here, the current research is strikingly consistent with such an interpretation.

In this regard, the measurement of daily, weekly, and three-month goals via their relative importance provides an additional means of assessing how these goals relate to more stable personality goals, one that avoids the limitations inherent in a framework that necessitates conscious awareness. While the direct measurement of goal relationships via belief is a useful approach, it cannot examine the relationships between goals where the individual is unaware that the goals are even related. These relationships may be of considerable interest to researchers, for example, in examining the relationships between core personality goals and their dysfunctional manifestations. However, by using simultaneously measuring mood ratings as they relate to two potentially connected goals, we may be able to indirectly investigate goal relationships that people are not aware of. In addition, this technique provides a potential means through which to assess goals and goal processes in populations that

are not able to describe their beliefs about goal relationships or contingency (e.g. children).

Although measures of goal importance and progress have been employed in previous research, the interactions between goal progress and goal importance described here should not be underestimated for they suggest that we may need to reformulate our ideas regarding the place of importance in goal-affect relationships. While important goals *may* be associated with positive mood, irrespective of progress ratings (c.f. Emmons & Diener, 1986; King, et. al., 1998), the interactional effect uncovered suggests that goal importance may also help delimit the likely range of mood consequences associated with different rates or levels of progress.

The idea that goal importance constrains and influences emotional responses at different levels of progress is implicit within hierarchical theories of personality and motivation (e.g. Carver & Scheier, 1998, the current dissertation). In this view, more important goals should produce greater extremes of affective responding depending on the progress made. Interactions between goal importance and goal status are likewise implicit in a functionalist view of affect. If affective responding operates in order to motivate people to address particular goal relationships (see Chapter 8.6), then there should be affective consequences to goal failure. More specifically, these consequences should be *more* severe (rather than less) the more important the goal is.

In everyday terms, it simply does not make sense to hold important goals, fail, and feel *better* than you would have were the goal to have been less important to you. Taken to an extreme, equating importance with happiness would completely undermine the motivational functions of emotion and mood, in that one could progressively fail a series of important goals, and feel happier than if they had not mattered so much. Although several studies, including the current one have found and replicated an effect on mood for goal importance, the conceptual problems are such that I nonetheless believe it will ultimately prove more profitable to seek our answers in an examination of personality variables and methodologies.

In explaining the main effect for goal importance on mood, Emmons and Diener (1986) have previously suggested that it may be "because most people in this setting

are confident, based on past experience, that if they have goals, eventually they will achieve them" (p. 322). They correctly note that the direction of causality among goal variables and affect is unclear. It might be, for example, that happy people are better equipped to achieve important goals, or that happy people differentially ascribe more importance to goals. It is likewise possible that because people typically exert more effort towards important goals, that they either (a) attain them, or (b) simply feel better about the goal simply because they have tried.

Finally, it would also seem likely that people engage in both self-protective and self-enhancing ascription practices both when pursuing goals, and when making ratings about goal processes. People may ascribe importance to goals they are confident of achieving (Emmons & Diener, 1986), and downplay the importance of goals they are not so sure they can attain. In the analysis of daily goals, importance was positively related to the likelihood of their attainment ($r = 0.32$), although this could reflect the increased effort people exert toward more important goals ($r = 0.33$). However, it seems possible that people seek to enhance positive affect and minimise negative affect by moderating the importance they ascribe to their goals based on their estimations of that goal's likelihood. Clearly, a great deal of research is needed in this area.

Methodologically, one further reason for the continued association of goal importance with positive affect may lie in the difficulty involved in measuring goal importance. As was argued in Chapter 7, goal importance can be usefully conceptualised at both trait and emergent levels, in that the importance a person attaches to a particular goal in a general sense probably differs from its importance within contexts of varying relevance (cf. Fleeson & Cantor, 1995). As such, rated importance of the same goal may vary considerably, perhaps within a certain range as indicated by the goal's trait importance. If this is true, then the measurement of both goal-related emotional responding and ratings of goal importance must be very carefully formulated and temporally sensitive. If we ask people how important a given goal is *at a time* when they are aware they are failing, the data presented above suggests they will reduce the importance of the goal. If however, we ask them to rate importance *prior* to the time at which mood ratings are taken (as in the current studies), and they make their mood

rating during a time that they know they are failing or have failed, the importance of the goal may drop in *unmeasured ways* during the interim.

The complexities described above underscore the importance of a longitudinal perspective when considering the relationships among goal processes (van Geert, 1997; King, et. al., 1998). The temporal nature of goals and goal pursuit is clear in the data described here, as is the need for multiple measurements of goal and affective dimensions over time. Specifically, it seems clear that multiple measures of goal status may be required to adequately describe the adjustments and effects involved in successful and unsuccessful goal pursuit.

This noted, the data presented here cannot be taken as supportive for the separation of goal progress and goal closeness estimates in terms of their relationship to mood. Closeness was no better a predictor of goal specific mood than goal progress ratings for goals of any timeframe. One initial possibility is that people are temporally bound in their awareness of longitudinal goal pursuit processes. If this is true, their mood ratings might be based on perceptions of progress without an appreciation for the larger timeframe within which a goal is being pursued, or the rate of progress that is needed (e.g. Carver & Scheier, 1990, 1998). This does however seem unlikely. Although individuals may well differ systematically in the degree to which their mood ratings are based on perceptions of progress, ideas about the *amount* of progress needed, or the static place in relation to the end state they wish to be, it is unlikely that people are not aware of anything other than the amount of progress they have made.

Accepting this suggests that operationalising alternate measures of goal status such as closeness, requires more methodological precision than has been employed this far. In retrospect, the anchors for what was intended to be the closeness item in Study one (daily goals) for example, appear more likely to measure progress (see Appendix 4). Although the 'top' anchor, "completely achieved," (high closeness) would appear suitable, the 'bottom' anchor "no closer" which was supposed to represent low closeness, clearly is not. An examination of the anchors used in Study two reveals a similar problem. Again, the anchor representing high closeness or proximity to the goal "almost completely achieved" appears adequate, while the anchor representing low closeness simply states "not very close at all." The difficulty with both these

anchors, and particularly the latter one, is that they are not *relative* to any particular stage of the goal pursuit process. This is a problem, given that the *concept* of closeness implies relativity, stretching at least a far as the last rating, and preferably to the beginning of the observations. Although subjects appear to have interpreted the item as desired (see below), future studies of this type should more carefully operationalise closeness, preferably implementing a closeness measure that has unambiguous and static anchors.

Despite these problems however, the distinction between progress and closeness/proximity has clear theoretical and methodological import, and encourages some interesting questions. It would be interesting to know for example whether an individual who has almost achieved their goal, but who has not made recent progress, is likely to feel better or worse than a second individual who is not as close to completing their goal, but who is currently making high progress. Furthermore, we can wonder what degrees of progress, proximity, or combinations of the two are associated with a variety of mood states, and for which individuals.

Carver and Scheier (1998) would argue that it is the rate of progress the person perceives themselves as making that will determine their affective response – operationally, the rate at which subgoals are being attained. However, accessing and validly measuring a multitude of highly abstract and inchoate subgoals regarding progress rates may prove problematic. Nonetheless, if a more precise measure of static goal proximity could be developed, it could potentially be used to assess both the degree of closeness and the rate of progress. Proximity could be assessed as a static measure, while the rate of progress could be derived through calculating the gradient of the closeness curve.

In any event, goal closeness ratings, even when assessed in the comparatively primitive form employed here, nonetheless enabled the examination of some interesting effects. In the analysis presented above, participants who were generally getting closer to their goal across the three-month study showed few changes in either their goals or their affective responses to them. Their goals remained of approximately the same level of importance, their goals seemed no more or less

difficult, and their mood steadily increased as they approached the goal[21]. In contrast, their less successful colleagues rated their goals as being progressively less important and increasingly difficult. Moreover, this latter group showed an interesting (if unproven) trend whereby changes in affective and goal dimensions occurred in tandem. In the small sample studied here, the subjects who were generally failing across the course of the study initially showed quite severe mood consequences to failure in the early stages of goal pursuit. Following the initial drop however, mood stabilised, and the importance of the goal immediately began to decline.

Although speculative, it seems reasonable to perceive the beginnings of normative coping and regulatory processes in goal failure here. Consistent with the motivational model of affect described above, subjects could not avoid the initial affective consequences of goal failure, probably because the goals were too important to be immediately discarded. However, within a matter of weeks, subjects were able to adjust the goal itself and their mood consequently stabilised. To an extent, mood and goal importance appear to dance in intimate counterpoint during longitudinal goal failure processes.

It has been suggested that goal importance constrains the consequences of goal success or failure, hence it is not surprising that goal importance is the key goal variable to bear the weight of failure. It appears as though most individuals cannot, or are unwilling, to tolerate the mood consequences associated with protracted periods of low progress-high importance, although this remains to be seen. Future research should look to examine how deliberate or unconscious changes in mood and importance are, and the extent to which they vary across or within individuals. As Schultheiss and Brunstein (1999) have noted "individuals may differ . . with regard to the extent to which they try to attain a goal and persist in goal-directed action in the face of difficulties" (p. 4). Moreover, in terms of the effects uncovered here, it would

[21] In fact, both mood and closeness ratings dropped sharply in the last time period. Exactly why this occurred remains unclear, although Carver & Scheier (1998) have suggested that goal attainment can paradoxically lead to negative affect. In their view, 'success' will only be positive, where other goals become available and where attainment of one goal slides smoothly into a sense of progress towards other goals. Alternately, it may be that people become more realistic regarding their closeness estimates as they get closer to a goal. People may have realised that more work remained than they had thought. Importantly however, their mood also dropped.

be interesting to know whether different people exhibit differential tendencies toward goal or mood adjustments during goal failures.

Overall, the studies presented here provide a useful addition to our knowledge regarding the manner in which goals and emotional responding interact over time. Although the patterns of goal and affective responding described here are entirely based on self-report data, and the sample such that it is difficult to make generalisations with complete confidence, they nonetheless portray a remarkably consistent pattern of goal-affect interactions across a number of timeframes. While these studies do not provide the evidence needed to directly support the premises of cognitive theories of emotion, they are nonetheless consistent with this literature. Future research in this area should seek to extend an examination of goal-affect processes to discrete emotions and should employ more precise, and alternate, measurements for the key goal dimensions like importance (see e.g. Locke & Latham, 1990). There is likewise a clear need to relate the data presented here to well-recognised personality dimensions, to the content and form of different goals (cf. Higgins, 1987), and to measures of coping style.

Chapter 8.5 – Fleshing out the characterisation III: The functions of emotions

Introduction: Being clear about function

> *The definition of proper function may also be read as a theoretical definition of "purpose"*
>
> Millikan (1993, p. 17)

In considering function in contemporary emotion theory one is immediately struck by the sheer number of theorists describing their approach as a functionalist one (see e.g. Campos, Mumme, Kermoian, & Campos, 1994). Most theorists seem to accept that emotions fulfil key functions (Frijda, 1994b), and functionalists attempt to explain phenomena through reference to the function or functions that they serve (Keltner & Gross, 1999). In contemporary emotion theory there is so much agreement on the importance of function to an understanding of emotion that some authors have suggested that "current approaches . . have converged on a functional perspective" (Ellsworth & Smith, 1988b, p. 302; see also Barrett & Campos, 1987).

Be this as it may, any apparent 'convergence' retains a number of difficulties, and some theorists are not so sanguine regarding the consideration of function in emotion theory. Johnson-Laird and Oatley (1992), Barrett and Campos (1987), as well as Ekman and Davidson (1994) have complained that the broad issue of function is somewhat neglected by emotion theorists (see also Scherer, 1982). The current dissertation would take this censure somewhat further, suggesting that not only is function neglected in general, but that true or original function is frequently ignored, obscured or confounded with a consequence that the terms *function, functionalist,* and *functionalism* are perpetually misused.

For example, cultural relativists like Markus and Kitayama (1994) have suggested that "the functionalist sees emotion as an assortment of socially shared scripts" (p. 5). According to them, emotions will only be shared across cultures insofar as each culture shares common ecological conditions and prototypic models of social relationships. As such, they suggest that an understanding of function in emotions is

necessarily found at the cultural level. Even more perplexingly, other theorists have argued that "functionalism in emotion theory is concerned not with evolutionary survival value, but rather with the link between emotion and what a person is *trying to do*" (Campos, et. al., 1994, their *italics*)[22].

In considering such remarks, one is immediately struck by the discrepancy between the manner in which these theorists have described 'function,' and the more general use of the term in psychology. Although function in emotion theory is usefully described at a number of levels (see below), the most fundamental level of a functional analysis should remain that of evolutionary biology (e.g. Malatesta & Wilson, 1988). In fact, Parrott (1995) has suggested that it is evolutionary theory that is responsible for the incorporation of functionalist perspectives in emotion theory. Moreover, if we accept that emotions are adaptations to historically recurrent evolutionary challenges (cf. Tooby & Cosmides, 1990a, 1990b, 1992; Lazarus, 1991a; Ekman, 1992; Levenson, 1994a, 1999), then the function of them must initially be construed in terms of that challenge. According to Griffiths (1992), the function(s) of a thing are what the thing is for (see also Johnson-Laird & Oatley, 1992, p. 204).

As such, the first question we should ask ourselves when considering the function of emotions is not "How does an emotion operate in its *current* contexts?" or "What functions does this emotion *appear* to serve?" but rather "Why was this emotion selected for in the first place – what is its original evolutionary purpose?"

This emphasis is not intended to suggest that the manner in which emotions function and appear to serve functions within a particular culture, person, or context are not critical areas in emotions research. However, such 'functions' are not necessarily directly related to evolutionary function in themselves (Keltner & Gross, 1999). As was noted in Chapter 7, the identification of evolutionary function on the basis of the way in which a certain adaptation functions (abduction) is a complex process that

[22] The position adopted by Campos and colleagues provides a good example of the 'adaptiveness' view of function (Tooby & Cosmides, 1990b). This view stresses the role of present contexts and the individual, and appears partly a reaction to the teleology implicit in the alternate 'adaptionistic' view emphasising past challenges. This author takes the latter adaptionistic view, but eschews the implication that adaptations like emotions were *designed* in order to meet challenges. More valid it seems, is to suggest that adaptations like emotions were selected *because* they met challenges.

requires an *explicit* consideration of the challenges that we have previously faced as a species (Malatesta & Wilson, 1988).

To infer function without bearing the relationship between original function and subsequent functioning in mind is to ignore an extended history of selective pressures and shared evolutionary challenges that have shaped our makeup as a species (Tooby & Cosmides, 1990b, 1992). Moreover, in terms of *explaining* emotions, not only will such an approach tend to miss 'the point,' but in ignoring proper function will ignore data critical to any level of functional analysis. As Buss et. al., (1998) note, the fact that a mechanism currently enhances fitness in a particular way, does not necessarily explain *why* the mechanism exists or (more to the point in the current case) how it is likely to be structured or operate.

The importance of proper or original function thus underscored, there is however no reason to suppose that emotions initially evolved in order to fulfil only one function. In this sense, searching for *the* function of an emotion may be erroneous (Averill, 1994b; Clark & Watson, 1994), in that emotions may not have always existed as they do now.[23] Likewise we should not presuppose that a given emotion, initially selected for a particular purpose, was not subsequently maintained on the basis of serving different or additional functions. As Johnson-Laird and Oatley (1992) note, "evolution is notoriously a "tinkerer" not a grand architect" (p. 204). Rather than create completely new structures, the process of evolution frequently appears to co-opt existing capabilities within new adaptive systems. Finally, there is no particular reason to presuppose that every aspect of all emotions has a functional history or serves function, in that they may be either by-products or vestiges (Frijda, 1994b).

In evolutionary psychology, acquired or co-opted 'functions' are sometimes described as *exaptations*, to distinguish them from the original adaptation (see e.g. Gould, 1991; Buss, Haselton, Shackelford, Bleske, & Wakefield, 1998). *Exaptations* refer to mechanisms (such as components of emotions or emotions themselves) that are now useful to an organism in a role that differs from that which caused the original selection (Gould, 1991; see also Griffiths, 1992, p. 123-5). For example, it could be

[23] It is for this reason that theorising regarding function in emotions needs to develop to the point where we can theorise about individual components of discrete emotions.

argued that the baring of teeth characteristic to the facial expression of anger was not *originally* a social-communicative bluff (cf. Frijda & Mesquita, 1994), but rather a functionally adaptive behaviour that simply prepared the organism to bite. In this sense, any communicative or bluff 'function' that anger expressions may currently serve, are later co-opted functions to the original function – an exaptation.

In addition to acquiring new functions, adaptive mechanisms occasionally produce effects that have little or nothing to do with the reasons why the mechanism was selected in the first place. Merely because an effect exists is insufficient reason to presuppose that the effect represents function (see Frijda, 1994b). The whiteness of bones for example, is a *by-product* of their containing large amounts of calcium, which was presumably selected for on the basis of its strength rather than its whiteness. In emotion, the facial flushing associated with anger (Izard, 1991) may not constitute function, but may represent a by-product of the arousal or action readiness changes associated with anger. Even where this aspect of the anger response later acquires utility in a communicative sense (exaptative function), flushing will never be the original function of anger.

Although the details of the evolutionary frameworks used to consider function are beyond the scope of this chapter, the discussion above does suggest that emotion theory could substantially benefit from incorporating some of the distinctions contained within this literature. Broadly speaking, three points have been made. Initially, it has been suggested that emotion theorists need to be more careful in their use of terminologies in considering function and what it means (Ekman & Davidson, 1994). The term 'function' should not be used as a catchall phrase as it contains a number of implicit assertions regarding *explanation* that should be frankly made and critically assessed.

Secondly, it has been suggested that all levels of a functional analysis should be informed by an understanding of function. The simple reason for this is that the original function or purpose of an adaptation determines the basic form of the adaptive mechanism and *thus* the manner in which it functions. This does not mean that other levels of functional analysis are undesirable, rather that they should be as well informed as current understanding permits. Finally, we should not assume that

emotions necessarily serve a single function, or that merely because an effect or phenomenon can be observed that it necessarily has a function, or has anything to do with function. As a consequence of these concerns, the discussion uses the term 'function' to denote the original evolutionary purpose of emotions, rather than the manner in which an emotion functions, or the functions they *can be seen* as serving.

Levels in a functional analysis

As was noted earlier, a functional analysis need not limit itself to a single level of description or explanation (Averill, 1994b; Keltner & Gross, 1999; see e.g. Keltner & Haidt, 1999 for a *tiered* analysis of social functions). While all analyses should ideally be informed through a consideration of proper function, function can nonetheless be profitably examined at multiple and complementary levels. The discussion below outlines the beginnings of a four-tiered conceptual analysis for function in respect of nine emotions (anger, fear, sadness, happiness, disgust, embarrassment, pride, shame, and guilt).

The first level is the most global, and involves a description of function at the level of the emotion systems. Although, such a level may seem to conflict with the general 'adaptation as a solution to a *specific* problem' framework described above, this author believes that it provides a useful heuristic device through which to contextualise emotions in a motivational theory of personality. Additionally, many previous functional analyses of emotions have occurred at this level (Levenson, 1999).

The second level outlines four interrelated *types* of function that can be used to more precisely examine function and the emotions. In considering function in the emotions, different theorists have typically emphasised what are herein termed communicative/social, informational, motivational, and developmental/organisational function. The section explores the possibility of a more discriminating approach to function, suggesting that the functions of each discrete emotion are likely to be made *differentially* manifest in different types of function.

The final section briefly describes two future analytic levels that may usefully build upon the first two. It suggests that to understand emotions properly, we must carefully develop functional theorising at the level of discrete emotions (Averill, 1994b), and perhaps even consider the function of individual components of discrete emotions (Keltner & Haidt, 1999). Although space prevents the full application of such an analysis to all nine emotions, some examples are presented to underscore the potential of the approach. Finally, a model depicting four levels of functional analysis and their interactions is presented.

Level 1: A global or heuristic description of function for the emotions

Although some authors have used the term 'functionalist' as a descriptive category for a particular type of emotion theory (see e.g. Griffin & Mascolo, 1998), a conceptualisation of function is nonetheless at the core of any theory of emotions (Averill, 1994b). While this author is of the opinion that functional analyses of emotion need to be undertaken at the level of discrete emotions (and perhaps even at that of components of discrete emotions), global functional descriptions are nonetheless important in a communicative sense. A broad understanding of the purported function of emotions in a given theory provides a working characterisation of each author's explanatory framework and enables the reader to gain a feel for the writer's emphasis.

Frijda and colleagues for example have long considered the function of emotion to involve preparing the organism to 'engage or not engage' in interaction with the environment (see e.g. Frijda, 1986, 1993b; Frijda & Mesquita, 1994). In this view, emotions have two broad functions. They function to signal events that are relevant to the individual's concerns and motivate behaviour to deal with them (Frijda, 1994b). While Frijda's enduring emphasis on 'action tendencies' distinguishes his approach from those of other theorists, he shares with them the notion that the function of emotions is to mediate between stimulus and response, creating flexibility in the response system. Many theorists appear to consider such an approach to constitute the best broad level description of function in emotion.

The so-called 'functional-cognitive' theorists similarly view emotions as a flexible system that mediates between environmental stimulation and response (Ellsworth & Smith, 1988b; Campos, et. al., 1994; Scherer, 1994b). According to them, emotions arise in situations that combine an objective event or situation with the person's goals, and prepare or motivate the person to respond. The basic idea is that emotions are integral to person-environment transactions (Jenkins, Oatley, & Stein, 1998) in that they function to decouple stimulus and response (Scherer, 1984). Johnson-Laird and Oatley (1992) suggest that "the function of emotions is to fill the gap between fixed action patterns and impeccable rationality" (1992, p. 206, see also Scherer, 1994b for a similar comment). Scherer (1982) suggests that this 'decoupling' is adaptive in that it increases the flexibility of behaviour and allows for a continuous re-evaluation of the stimuli and response.

While it is frequently an argument by implication, other theorists have suggested that the emotions have predominantly interpersonal or social functions (e.g. Averill, 1982; Harre, 1986; Armon-Jones, 1986; Campos, et. al., 1994; Frijda & Mesquita, 1994). In this view, emotions are inherently social in origin and consequently, it is reasoned, in function or purpose. Parkinson (1997), for example, suggests that emotions are a means of communicating an evaluation and interpretation as well as a way of directly influencing the relative social relations in a situation (see also Scherer, 1982; Izard, 1991, p. 5).

Finally, differential emotions theorists like Izard (1991) and Malatesta (e.g. Malatesta & Wilson, 1988) following Tomkins (1962, 1963) have suggested that the function of emotions are to be found in their relationships with motivational and developmental processes. Izard and Malatesta (1987) for example suggest that emotions function as the primary motivators/organisers of behaviour and cognition, with additional functions being served in development. According to Malatesta and Wilson (1988) emotions comprise a key part of an adaptive system that serves species survival. At least one aspect of this adaptation was to ensure social bonding between the mother and the infant (Izard, 1991).

Following these authors, the conceptualisation being developed here suggests that the general adaptive function of emotions is to inform, motivate, and organise an

organism's responses to the perception of a change in goal-environment relationships. Unlike most previous theory however, the conceptualisation presented here suggests that emotions achieve this general adaptive function in *two* complementary timeframes (cf. Averill, 1994b). In each microdevelopmental instance, emotions help orient the organism to significant events as well as motivating and organising their behaviour in respect of the eliciting stimulus. Such a description appears to represent the type of function that many functionalists see emotions as serving.

In addition however, I believe a persuasive case has been made (see Chapter 5) to suggest that a key function of emotions may relate to the manner in which they are involved in learning and personality development – a parallel macrodevelopmental function. While the limits of space prevent full consideration of this comparatively speculative idea, there does not seem to be a significant problem in supposing that emotions may serve parallel functions across two interacting timeframes. If one wanted to ascribe a *single* function to the emotions or to a single emotion this 'two birds' strategy would obviously be problematic. However, this is not the case here. As noted, there is no particular reason to suppose that all emotions were selected in evolution in order to serve only one or the same adaptive function.

Nonetheless, having remembered the importance of proper function described above, a critic could be forgiven for wondering if the current author is not attempting to have it both ways. If an understanding of proper function is so important, why then does the current author not base his theorising upon an understanding of proper function.

My 'defense' to this potential challenge is twofold. Firstly, this discussion is not, and was never intended to be a pioneering exploration of function in emotion. While I do not believe that we currently possess either the knowledge or the methodologies we would need to comprehensively understand proper function for the discrete emotions, theorists should nonetheless incorporate proper function insofar as we currently understand it. This has been accomplished here.

Secondly, there is no reason to suppose that emotions were selected in order to serve a single function. Our knowledge is such that it is difficult to know whether the hypothesised developmental mechanism is the original adaptation, an epiphenomenal

result that later was selected for (an exaptation), a simple by-product or a vestige. Only continued theoretical developments and suitably informed empirical work will answer the questions raised in this.

Level II: Four types of function

A critical impediment to functional explanations of emotion is the implicit assumption that all emotions may have the same function (Averill, 1994b). Averill (1994b) suggests that asking whether all emotions serve the same function is like asking whether all thoughts serve the same function, a question he rightly argues is simply too broad to allow a meaningful answer. Although emotions can usefully be thought of as functioning "to rearrange the priorities of goals" (Oatley & Jenkins, 1992; p. 60), is the true function to shift goals or to escape danger (Averill, 1994b)? To understand function it appears that each emotion must be analysed in its own right.

However, moving from a heuristic level analysis of function like that above to a discrete level analysis is not as simple a matter as it might first appear. In fact, the transition is very awkward. On the one hand, if we analyse discrete emotions in the absence of a global or unifying analysis, we risk losing sight of the fact that the emotions are a *group* of related adaptations. On the other hand, if we decide to use the two levels simultaneously we are confronted with a very real difficulty in synthesising the levels of analysis.

The primary problem in translating across these particular levels of functional analysis lies in what each level represents. A global description of function for the emotions is more accurately considered a 'conceptual shorthand' than it is an actual explanation of proper function. In contrast, discrete emotions are thought to possess and be explainable through reference to proper function. Hypothetically, each emotion has been selected for its utility in meeting a particular adaptive challenge – a particular purpose or function. The problem then is in attempting to reconcile an *explanatory* account of function for a discrete emotion or component with a conceptual framework used to *describe* the function for all emotions. In reconciliation, any particular detail regarding a discrete emotion may well be 'incorrect,' and the theorist may be forced to ignore contrary data or to manufacture

similarities where in fact none exists. More broadly, given that some aspects of emotions may well be extrinsic to the function of the emotion in question (Frijda, 1994b), how do we decide which parts are of greater or lesser importance, and to which emotions?

Given the difficulties that arise when attempting to denote the relationships between these two levels, the analysis presented here suggests that we should use a 'bridging' concept or analytic level – a typology of function. While discrete emotions are presumed to have arisen to meet discrete types of evolutionary challenges, and thus have distinct functions and functioning, considering *types* of function provides a conceptual bridge between global and discrete level analyses.

Below, four types of function are discussed as categories for organising theory regarding the functions of discrete emotions. The categories are not necessarily functions in themselves, although they may be. In general, they are better thought of as a typology of function or the domains in which the functions of discrete emotions are differentially manifest. As will become clear, the categories offered here are not themselves completely discrete in that certain elements of each function type overlap with others for some emotions. I have used four categories, but a different theorist might prefer more or fewer categories.

Informational Functions[24]

Given the importance of cognitive approaches to emotion, it is perhaps unsurprising that emotions are thought by many to serve a critical function in informing the organism of goal-relevant environmental change (e.g. Schwartz & Clore, 1988; Malatesta & Wilson, 1988; Schwartz, 1990; Clore & Parrott, 1991; Johnson-Laird & Oatley, 1992; Clore, 1994c). Clore (1994c) for example suggests that a primary function of emotion is to provide information about how a situation has been appraised. This information is conveyed internally by experience (see Chapter 4) and

[24] Some theories have tended to emphasise the value of emotion signals in informing conspecifics. However more recent theory places equal emphasis on the function of emotion in informing the self (Malatesta & Wilson, 1988). The current dissertation uses the term 'informational function' to denote the function of emotion serves in informing the self as to relevant environmental change. Social or communicative functions of emotions are considered within a different category.

serves as data for judgement and decision making. A similar point is made by Oatley and Larocque (1995) who suggest that emotions sometimes provide the first indication that something has gone wrong.

Frijda (1994b) offers a similar conceptualisation of emotion-as-information, suggesting that emotions can be seen as a key mechanism whereby the organism signals to its cognitive and action systems that events are relevant. According to him then, affects are signals that indicate the relationship between the desired state of affairs and the current state. He describes this function of emotions as being one of 'relevance signaling,' a function described by Scherer (1994b) as one of 'relevance detection,' and by Malatesta and Wilson (1988) as a 'signaling system.' Overall, there appears to be a high level of agreement across theorists regarding the functions of emotion in informing an organism of relevant environmental events (Ekman & Davidson, 1994).

Motivational Functions

Motivational functions appear likewise central to the functional analysis of emotions. Although theorists vary in the degree to which they emphasise the motivational aspects of function, many have proposed that a key function of emotions is to prime particular action tendencies (Ekman & Davidson, 1994). According to Frijda (1994b) emotions act as a *motivator for the behaviour* that is meant to deal with the event the emotion has signaled as relevant (see above). Scherer (1982, 1994b) is somewhat less explicit in emphasising motivation, but nonetheless suggests that the emotions physiologically and psychologically prepare the organism for action appropriate for dealing with the relevant stimuli. According to Oatley and Larocque (1995), each emotion functions to bring into readiness a suite or repertoire of stored plans and action types.

Of the function types considered here, motivational function appears to be that which has historically been the most explicit and sensible in its incorporation of evolutionary reasoning (see e.g. Plutchik, 1980, 1991; Malatesta & Wilson, 1988; Buck, 1991; Izard, 1991). Frijda (1994b) for example, argues that emotions are the proximate source of motivation for adaptive behaviours. "What" he asks, "does "survival" mean

to the individual besides the distress of pain or the horror at the idea of death?" (p. 118). Following Tomkins (1962, 1963), Izard (1991) is similarly explicit in emphasising the importance of a motivational function for emotions. According to him, emotions represent the primary motivational system. For these theorists, a large part of the adaptive function of emotions is achieved through the manner in which they motivate goal-directed behaviours.

However, not all theorists consider emotion and motivation to be suitable bedfellows. Brehm (1999) for example asks, "How can one think that emotions are motivational states, when there are several, sadness being one example, that produce overt passivity, rather than activity" (p. 4). It should be admitted that sadness is sometimes seen as a problematic emotion for a functional theory that supposes emotions are necessarily motivational. After all, sadness appears to be a comparatively amotivational state. However sadness may still be 'motivational' in that it motivates the organism to *cease* directing effort towards a lost goal (see below). The passivity induced by sadness may thus 'save energy,' allow meaning change to take place (Frijda, 1994b), or motivate the organism to introspect and rearrange goal commitments (Johnson-Laird & Oatley, 1992; see Chapter 7).

Perhaps because of the difficulty in arguing that all emotions are motivating, some theorists have argued that emotions are motivational both in experience and in the *anticipation* of certain states and experiences[25]. Frijda (1994b) following Averill (1968), suggests that emotions can be motivational via their anticipation (see also Averill, 1994b). Although Frijda's (1994b) discussion focuses on explaining how sadness fits within a motivational approach to function (incipient sadness motivating efforts to *prevent* a potential loss), a more general comment would be to note that emotions motivate behaviour both through their anticipation and in situ. Shame and guilt for example, serve as social regulators by motivating certain pro-social behaviours that *prevent* their occurrence (Frijda, 1994b). Finally, it is of note that the behaviours motivated by emotions are not thought to be a simple approach-withdrawal dynamic as implied by some theorists (e.g. Lang, 1994; Russell, &

[25] The interplay between general conceptualisations and specific functions evident here provides a nice illustration of how different levels of a functional analysis can inform, complement, and (thus)

Feldmann-Barrett, 1999). Rather, the behaviours engendered by different emotions are qualitatively distinct, commensurate with the function of the discrete emotion, and for primary emotions systems constitute an innate part of the emotion systems (see Chapter 8.7).

Communicative/social functions

In many theories the emotions serve critical social functions, often although not necessarily, through the facial, verbal, vocal or postural communication of the particular emotion (see e.g. Frijda, 1986; Keltner & Haidt, 1999). Below, communicative functions are described as being one of three types, a regulative-informative function, an intention-signaling function, and a group-coordination function.

According to some authors, emotional displays indicate to social others that a particular event has emotional potential or content (Levenson, 1994a; Buck, 1999). In this view, the display of an emotion such as fear indicates the likely presence of something to be frightened of and so forth. As such, displays and the communication of the emotions are thought to be functional in that they inform social others of potential dangers (Levenson, 1994a), social infringements (Frijda & Mesquita, 1994), and more generally impart the emotional value of events and objects, thus contributing to the acquisition of shared values. Within large groups, expressed emotion informs the individual whether their behaviour conforms to group norms, and help to define an their position within societal structures.

In Plutchik's (1980, 1982) theory, an important social function of emotions is to communicate information to others about one's intentions, internal states (see also Izard, 1991), and probable courses of action, typically expressed in communicative facial displays (see also Levenson, 1994a; Jakobs, et. al., 1999). Scherer (1982; 1994b) likewise indicates a function for the communication of states, reactions and intentions to the social surround, his analysis emphasising the function of emotion in signaling behavioural intention. Given the importance of deceptive capacities to

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mutually develop one another. Weaknesses at one level of explanation necessitate developments at another which, in turn, produce development at the originally weaker level (see Figure 8.2).

human fitness, describing exactly how or why signaling intention would be functional for the individual remains understandably unelaborated in most theories, although Johnson-Laird and Oatley (1992) have suggested that emotions enable social species to coordinate adaptive behaviour.

While acknowledging that *some* emotions have critical social functions, the analysis presented here questions the viability of general 'explanations' derived from this, or any other, single aspect of an emotion or emotions, particularly when applied to all emotions. Too often theorists begin with a certain effect or purported function that they have observed in association with a particular emotion in a particular context or contexts, and *on this basis* attempt to construct an explanatory model of function in emotions generally.

In implicitly treating one possible aspect of function for one or some emotions as a 'conceptual touchstone,' these models often ignore critical aspects of theory construction and testing processes. They must often discount or ignore data and theory from other levels of analysis, and are forced to create artificial explanations at the other levels. Although this criticism is a general consideration, it is clearly a problem for the models that overemphasise communicative/social functions of emotion. In stressing, for example, the function of emotions in communicating intentions to social others, the model subsequently labours to create complementary explanations at the broader and more specific levels of functional analysis.

When moving to a broader functional description, an 'intention signaling' analysis struggles to adequately describe how this might occur for all emotions. If we examine the emergence of emotions and the ability to infer mental states across species and human development, the primary emotions of happiness, sadness, anger, fear, and disgust appear prior to any ability to infer mental states. If this is the case, then at least these five emotions are likely to have arisen in our phylogenetic history considerably earlier than our ability to infer intention. Consequently, primary emotions were successfully meeting adaptive challenges (fulfilling function) at a time when our phylogenetic ancestors were *incapable* of attributing mental or motivational states to other organisms. This inconsistency indicates that an adequate explanation of proper function is unlikely to *necessarily* involve the communication of intention to

others[26]. Likewise, when moving to a more precise functional account of discrete emotions an 'intention signaling' model has difficulty explaining emotions that have few known expressive characteristics (e.g. shame or guilt).

Overall there appears a fair degree of agreement across theorists that emotions serve key communicative or social functions. Although the analysis presented above has suggested that these aspects of emotion are unlikely to constitute *the* function for all emotions (see Frijda, 1986; p. 60), some emotions certainly seem to have essentially social or communicative functions. The emotions of embarrassment, shame, guilt, and pride for example appear predominantly social in origin and function. These emotions would seem to have little relevance outside of a social context. Yet merely because some emotions appear to serve social functions, or because emotions are currently elicited by social stimuli, we should not suppose that all of them were selected or constituted for this reason. Such may be the case for some emotions, but not necessarily, and certainly not for all emotions.

Developmental/Organisational Functions

Finally, many theorists believe that emotions serve what is termed a developmental/organisational function. Johnson-Laird and Oatley (1992) for example suggest that emotions permit reconciliations between concurrently active goals, including mutually exclusive ones. According to them, emotions operate in *real time* to redistribute cognitive resources and manage goal priorities (see also Oatley, 1992, p. 36). Levenson (1994a) makes a similar point when he suggests that the essential function of emotion is organisation. In his view, the primary function of emotions is to organise or coordinate response systems (see also Levenson, 1999). He suggests that the emotions shift behavioural hierarchies, recruit physiological support, and occasionally act to short circuit cumbersome cognitive processing in situations where hesitation could prove fatal.

[26] That we can infer and attribute motivational or emotional states to social others is an important adaptation, but not one that describes the function of the emotions themselves. As Tooby and Cosmides (1990b) note, the value of providing or obscuring emotional information will depend on the situation, which is partially defined by who is present. More likely if anything, is that emotions might have been selected in order to communicate the likelihood of specific behaviours (see Chapter 8.7).

In the theory presented here, emotions serve a critical developmental or organisational function simultaneously across two complementary time frames. In real or microdevelopmental time, each occasion in which a particular goal-environment relationship is appraised produces a discrete emotional state (see Chapter 8.4). As an innate part of these response processes, an emotion creates a new attractor for a response commensurate with the indicated relationship. So for example when a relationship of 'threat' is appraised, the emotion of fear results and creates an attractor for the behaviour of the organism, typically one involving their moving away from the threat.

This assertion is similar to that made by Ortony et. al. (1988) who suggest that many of the goals people have are constructed as and when needed. In both their and the current theory, these 'goals'[27] are assumed to result from the interactions between goal-relevant emotional processes and relatively specific local considerations. It is likewise similar to Levenson's (1994a) notion of emotion as shifting behavioural hierarchies, although the current theory sees no reason that the emergent response or behaviour has necessarily been enacted previously. Rather, a behavioural attractor emerges *in situ*, as a function of the emotion, the eliciting motive and its interactions with other motivations and the situation.

Additionally, the model presented here suggests that emotions serve an important developmental or organisational function across macrodevelopment. As noted above, most theorists have implicitly considered emotions as serving achieving functions in microdevelopment (although see Averill, 1994b). This seems a reasonable place to begin the consideration of emotions and function, but we should remember that a mechanism need not necessarily or only achieve function in an immediate sense.

So as well as organising the individual's response at each microdevelopmental juncture, emotions also function as a macrodevelopmental learning mechanism by which the individual internalises the relationships between goals and environmental stimuli – the process of personality development (cf. Tomkins, 1962, 1963; Izard, 1971, 1991: Izard & Malatesta, 1987; Malatesta, et. al., 1989). Across life

[27] See Killeen (e.g. 1989, 1992) for a discussion of the relationships between goals and behaviour in a dynamic systems framework.

development, repeated microdevelopmental responses are internally instantiated in a progressively more elaborate motivational state space. As discussed in Chapters 5 and 6, the state space can be taken as representing an idiographic conglomeration of emotion-indicated goal-environment relationships[28]. Although this action is unlikely to represent an original function for emotions, what may have initially been an effect could well be maintained as achieving this end.

Levels III and IV: The functions of discrete emotions and the components of emotions

Many authors appear to explicitly (e.g. Izard, 1971m 1991; Tooby & Cosmides, 1990b, 1992; Averill, 1994b) or implicitly (e.g. Johnson-Laird & Oatley, 1992) deem discrete emotions the most useful level for the functional analysis of emotions. This emphasis seems well placed given that discrete emotions are thought to have been selected in evolution on the basis of their meeting a particular class of adaptive challenge (see above).

There are however few functional analyses of discrete emotions (although see Plutchik, 1980; Lazarus, 1991a; Izard, 1991). More often, functional theorising at the level of discrete emotions occurs in a relatively ad hoc manner, with theorists limiting their analysis to a single emotion (e.g. Averill, 1968, 1982; Isen, 1993; Isen, et. al., 1998). A notable exception is Izard's (1971, 1991, 1993) differential emotions theory. In his latest book (Izard, 1991), he devotes entire chapters to the consideration of the ten emotions his differential theory addresses (joy, surprise, sadness, anger, disgust, contempt, fear, shame, guilt, shyness). While the details of his comprehensive and mature conceptualisation of function and emotion is beyond the scope of this discussion, suffice to say that the product of a rigorous functional analysis at the level of discrete emotions speaks for itself. A further example is the treatment of discrete emotions by Malatesta and Wilson (1988). In their functional analysis, the discrete emotions serve particular 'communicative' functions at two complementary levels - within the self and within the social surround (see also Barrett & Campos, 1987; Clore, 1994c).

[28] In some senses, the function being described here is involved in the creation of an internal analogue of the world and the self that other theorists might wish to call an internal working model.

There is also good reason to suspect that components of emotions may in fact serve different functions (Keltner & Gross, 1999) for different emotions. So for example, the facial expression of an emotion like sadness may serve a different function from either the cognitive or motivational changes associated with it. If distinct functions exist for the components of a sadness response, then the function of the facial expression, typically purported to be to elicit assistance or social support (e.g. Izard, 1991; Frijda & Mesquita, 1994), may be distinct from the function of the motivational changes associated with sadness (see Chapter 6).

Although any different functions for the components of an emotional response might conflict with one another, it seems more likely that the individual functions served by the different components of a discrete emotion *complement* one another, co-operatively and interactively enabling the organism to respond appropriately to the stimulus. One possibility is that the different components of an emotion may serve co-operative functions across different timeframes. The facial expression of shame (Keltner, 1995; Keltner & Buswell, 1996) for example may serve a comparatively immediate function, instantly communicating to social others that we know we have erred (e.g. Frijda, 1993a; Frijda & Mesquita, 1994; Einstein & Lanning, 1998). In contrast, the function of shame *experiences* appears to be more longitudinal, functioning to motivate the avoidance of certain acts or situations and the acquisition of the skills and attributes needed to redress inadequacies.

Nonetheless, and however likely, the assertion that components of emotions serve interactively supportive functions, should not be taken as necessarily true. While the adoption of such a premise may well improve our knowledge of function in emotions, a great deal of theory and research are clearly needed. Even so, I am of the opinion that considering the components of emotions as potentially serving specific functions adds a much-needed element of complexity to our explanations for the functions of emotions. Within each emotion, we need not assume that all components of an emotional response are serving only one or the same function. Nor need we assume that a particular type of function is equally relevant to each emotion, or that the same component of the discrete emotions is serving the same function in every case. Finally, theorising at the very level of individual components has the potential to help

reduce the tendency for emotion theorists to unnecessarily generalise across emotions, function types, or components (see below).

To this point, the discussion has spent a considerable amount of time arguing that emotion theory needs to develop functional theorising at the level of discrete emotions and the components of discrete emotions. Having made this point, it would seem appropriate to present a functional analysis of the nine emotions included in this theory and their components. Unfortunately, this is not possible for a number of reasons. Initially, it can be noted that neither the data, nor the conceptual consensus that would be needed for such an analysis are available. More salient however is the size of the undertaking described above. To adequately consider the functions of discrete emotions and the components of discrete emotions is no less than a Herculean task. Hence, while necessary and important it is beyond the focus of this dissertation.

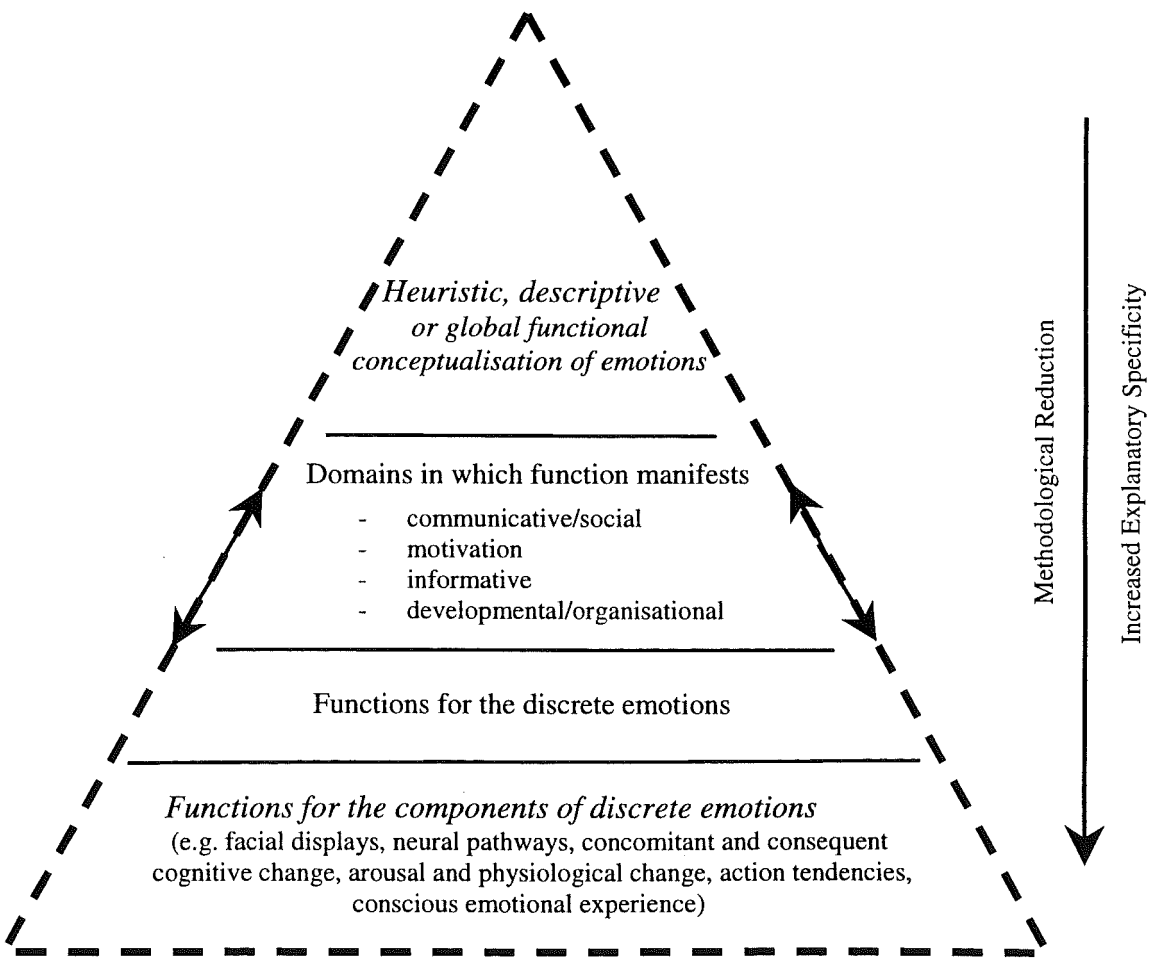

Figure 8.5 – A conceptual pyramid describing four interacting levels of functional analysis for the emotions

Figure 8.5 shows the four levels of functional analysis combined within a single model. The 'top' level (1) is the level of functional analysis most common within contemporary emotion theory. It describes function or functions for the emotions *as a group*. This level is most accurately thought of as representing a descriptive/heuristic device or conceptual shorthand, rather than a true explanatory level. As indicated by the arrow to the right, explanations deriving from this level are lacking in specificity. The second level (2) denotes a level of functional analysis considering the domains in which function is made manifest. As noted earlier, different emotions tend to be made differentially manifest in particular domains of activity, depending on the function of each (3). This latter level of analysis is the focus of level three (3). The final level (4) is the most speculative of the pyramid addressing the possibility that particular components of discrete emotions have their own functions.

Although the depiction of the model may tend to suggest it, the model is not a literal hierarchy. As indicated by the arrows around the outside of the pyramid, a particular level of functional analysis can be thought of as complementing and informing the other three levels of analysis, as well as being complemented and informed by them. Different theorists typically have their own preferences for where to begin examining function in the emotions, this author's being for the level of discrete emotions (3). Such a choice however is merely that, a choice. Each level in the analytic scheme presented has its own strengths and weaknesses, and contributes to development of functional explanations at the other three levels. Finally, the comparative size of each level can be taken as a rough indication of how much theoretical and empirical work remains to be conducted at each.

Concluding remarks on functions in emotions

If anything has been made clear in the analysis presented, it is that the functional approach to emotions is at once necessary, widespread, and (in places) dangerously underdeveloped. One can say with some confidence that emotions are no longer typically contrasted with reason (Keltner & Gross, 1999). Instead, emotions are thought to serve important functions in most, but not all instances (Forgas & Vargas, 1998). This is an important development for emotion theory, as an understanding of function appears critical to an understanding of the emotions. Although there is

considerable diversity in the functions that different authors ascribe to emotions, there is consensus insofar as a functionalist approach is seen as both necessary and desirable.

However, the discussion has also suggested that contemporary emotion theory suffers somewhat from the way in which it has and continues to use 'functional' explanations. It has been argued that we should be far more careful in our consideration and use of the term 'function.' More specifically, it has been suggested that we should not treat any particular level of a functional analysis as if it were a sufficient *explanation* for all aspects of all emotions. In tacitly assuming this stance, emotion theory is weakened in that it typically directs the theory construction process from one or two levels of function alone (see Figure 8.2). Sometimes a theorist seems to begin with a certain heuristic-level function for the emotions in general and then attempts to fit multiple discrete emotions within this framework (Levenson, 1999). Levenson (1999) describes this as a "one-size-fits-all" (p. 493) approach to function. In this approach, broad assumptions and preferences for a general conceptualisation are unambiguously embraced, and unnecessary trouble is then necessarily taken to 'force' all other emotions and aspects of emotions to fit.

In other instances an examination of the functions of a set of discrete emotions is weakened because little more than a superficial attempt is made to link the purported functions to a broader conceptualisation of all emotions. The result of this practice is that several different functional accounts for several different emotions are created[29], rather than an account of emotions that explains all emotions simultaneously on multiple levels. Finally, theorists occasionally adopt a particular aspect of emotions (e.g. facial expression) or type of function (e.g. communication), treat it as some kind of *sine qua non,* and proceed to construct a theory for all emotions and all functions.

In contrast to what appears a comparatively ad hoc approach, the analysis above has suggested that substantial benefits may accrue through a more careful and informed functional theorising. This theorising should occur simultaneously across different levels of functional explanation; generally, across functional domains, at the level of

[29] Levenson (1999) suggests that this is in fact what is needed in emotion theory. I disagree.

discrete emotions, and perhaps even at the level of components of emotions. My argument then, is that not only is each level of this functional analysis *necessary* to the adequate understanding of the others, but that each will ultimately support and help advance developments at the others.

Chapter 8.6 – Fleshing out the characterisation IV: Systems and the relationships between the components of emotions

We don't truly know how all this works

Lazarus (1991a; p. 198)

Introduction

In the model presented here, emotions are characterised as a set of qualitatively distinct responses in which the key components typically occur as a set (see Chapter 8.2). To this point however the nature of the relationships between the components of emotions has not been explicitly considered. Rather, the notion that they are innately connected in some way has simply been presented by implication.

However, a conceptualisation of the relationships between the components of emotions inevitably lies at the core of any theory of emotions (M. Lewis, 1998b). As such, it is an issue that cannot and must not be avoided. Such a conceptualisation is related to matters of definition, to the issues involved in considering cognition-emotion relationships, to matters of innateness, universality, and discreteness, and to the developmental and process/operation aspects of a theory of emotions. While each of these areas is important, the discussion below will focus on three particular aspects – the heritable or developed nature of component relationships, on how the components interact in emotion processes, and on emotional behaviour.

To begin, the developmental relationships among components of emotions will be discussed. The two major approaches purporting to describe how the components of emotions are related across development are described. In briefly evaluating them, it will suggest that the available developmental, comparative, and cross-cultural

evidence is more consistent with the 'innate tie' than the 'emergent' position, but that conclusive findings are still missing. It is suggested that not all of the components of the nine emotions discussed here are as heritable or fixed as the others. Neither are the relationships between components necessarily as fixed for each emotion.

The section will then consider the process and interactive aspects of the relationships between the components of emotions in emotion processes. Following the discussion of cognition-emotion relationships above, it is suggested that while emotional states necessarily follow particular appraisal patterns in each instance, that activation of any particular component of the emotions can and does influence subsequent activity within the other components.

Finally, the section will present two studies investigating the relationships between felt emotions and overt behaviour. The study of emotion and behaviour has a history dating back to Darwin (1872), yet more recent psychological research has continued to focus on facial behaviour (e.g. Ekman, et. al., 1972; Russell & Fernandez-Dols, 1997) or *felt* action tendencies (e.g. Frijda, 1986; Frijda, et. al., 1989), rather than on overt behaviour. A rationale for emotion-behaviour relationships is developed, two studies are presented, and a conceptualisation of the overt behaviour 'component' in emotions, and the role of emotions in generating adaptive behaviour is offered. It is argued that emotional responses, particularly those that are either primary or highly intense, interact with situational and personality variables to produce an emergent, though evolutionarily based behaviour *type* that is identifiable across cultures.

The components of emotions

Before beginning the discussion, the reader should be given some idea as to the phenomena that are being described when the term 'component' is used. Although the number of, and name given to, components is a comparatively arbitrary affair, the relationships between the various aspects of emotions are discussed within four categories.

- Cognitive components – can be thought of as being antecedent (i.e. appraisals), concomitant, or consequent to the full emotional response.

- Behavioural components – facial, postural, and vocal expression as well as both *felt* action tendencies and *overt* behaviour.

- Physiological components – can be thought of as being either central or peripheral

- Experiential components – within the current theory these are described as being either non-conscious/pre-reflective or conscious/reflective (see Chapter 7).

Systems in emotions I: Development and the relationships between components

While different theorists would no doubt carve the 'bits' of emotions in a manner differently to the manner in which I have done, arguing about the categories themselves would do little more than obscure a more fundamental disagreement regarding how the components are related. At root, the conflict concerns whether emotions are more validly considered discrete response 'packets' that are genetically hard-wired in the human system as suggested by Izard and Ekman, or whether the individual components of emotions become progressively connected across development as argued by Camras (see M. Lewis, 1998b for a recent discussion of the two views).

The innate position is most clearly exemplified and well-developed by differential emotions theorists (DET) like Izard (e.g. 1971, 1991, 1994a, 1997) and Malatesta (e.g. Izard & Malatesta, 1987; Malatesta-Magai & Izard, 1991; see also Ekman, 1992, 1994a, 1999). DET suggests that the connections between components for a limited number of emotions (basics) are hard-wired, innate, and universal (Izard, 1997). In this view, emotional experience and emotional expression are innately tied to emotion-specific neural processes (Izard & Malatesta, 1987; Ekman, 1994a). Functionally speaking, emotions and expressions are 'pre-adapted' due to their importance in caregiver relationships (Izard & Malatesta, 1987; Izard, 1994a), and because hard-wiring helps fast processing (Ackerman, et. al., 1998).

In their view, the basic motivational/feeling state of an emotion and its relationship to expressive and neural components is *invariant* across development (Izard & Malatesta, 1987), with only the relationships between cognitive and emotional components (affective-cognitive structures) changing across development (see e.g. Izard, et. al., 1995). The basic emotions themselves however are modular systems (Ackerman, et. al., 1998; Izard, et. al., in press), and comprise the least flexible elements of the personality sub-systems. The DET school suggests that the "contribution of innate structure and hardwiring to system assembly is greatest for a discrete emotion" (p. 4)[30]. DET acknowledges that expressions can be inhibited and are highly modifiable, but suggests that each discrete emotion nonetheless retains a genetically-based expression that can be taken as indicative of an emotions presence (Izard, 1997).

However, not all emotion theorists accept the isomorphic or "innate tie" position advocated by DET (see e.g. Camras, 1988, 1991, 1992; Camras, et. al, 1993; Fogel, et. al., 1992). Disputing the notion of centrally directed development (see Chapter 5), these theorists have argued that an application of dynamical systems (DS) principles to emotional development offers a more viable framework for considering the connections between the components of emotions.

In its more gentle formulations, the DS position suggests that there should be no *a priori* acceptance of an innate connection between emotional states and expressions (Camras, 1988). Perhaps facial expressions are not tied to emotions, or are only linked to relatively diffuse hedonic states (Michel, Camras, & Sullivan, 1992). Instead, the components of an emotion may initially develop in a comparatively independent fashion and only later become organised into the target emotions (Camras, 1994; Scherer, 1994c; Dickson, Fogel & Messinger, 1998; Frijda & Mesquita, 1998).

It has also been suggested that emotions might better be regarded as self-organising systems (Fogel, Nwokah, Dedo, Messinger, Dickson, Matusov, & Holt, 1992). These

[30] At the time of writing, this chapter cited had not yet gone to press. Hence page references and quotes may vary slightly between the version used and the published copy.

authors argue that the development of emotions must inevitably reflect variations in the interactions between the components of emotion, all of which emerge through reciprocal constraints upon one another (see also Michel, et. al., 1992). While the interactions between these components have the potential to interactively create an extremely large set of states, it is suggested that mutually regulating subsystems (like those involved in emotions) have a tendency to settle into a finite number of generally stable patterns (Mascolo & Griffin, 1998; Mascolo & Harkins, 1998). At some point in development a critical factor or control parameter (see Chapters 5 and 6) will emerge, driving the system through a comprehensive re-organisation or phase shift, and produce a new emotion (Camras, 1992).

Exactly what these parameters might be remains poorly articulated in DS theory (see Chapter 5), although continued theoretical development may see improvements in this regard. Importantly however, the DS view of development does not presuppose that the control parameters for development remain constant (Camras, 1991). Rather, it suggests that changes in cognitive, expressive, or motor development might catalyse comprehensive restructuring of the emotion systems. Moreover, the developmental story is not necessarily synchronous across emotions, but might differ for different emotions, depending on their particular affective, cognitive, and action components.

Finally, the application of systems principles (i.e. the absence of a meta-processor), suggests that no components of emotion (including facial expression) should be recruited for an emotion episode unless they are specifically appropriate in the action context (Camras, 1988, 1991; Frijda & Mesquita, 1998). In Camras' (1991) view, the 'task' assembles both behaviour and expression (see also Mascolo & Harkins, 1998).

Although Scherer's work is not primarily a developmental model, the principles of his theory are consistent with the theory described by Camras. His self-termed 'componential patterning theory' (e.g. Scherer, 1994c) argues that the evidence is more consistent with the idea that there are universal 'response elements,' than with the idea of a limited number of universal response 'patterns'. He acknowledges that some combinations occur more frequently and normatively than others, and suggests that we term these *modal* rather than basic emotions. Panksepp (1994c) is similarly cautious in his ascription of innate connections among components of emotions. He

notes that only the general groundplans for brain connections are encoded within the genes, those that are present being comparatively indirect.

Perhaps unsurprisingly, the best critiques of each position are found in the writings of the 'opposing' theorist. Below, the strengths and weaknesses of each approach are presented as they bear on empirical, interpretation or theoretical issues. Of course, no literal separation between these concerns is intended or possible, but rather is simply used to organise the literature.

The first major concern relates to the availability of data to support or contradict either position. While a review of the infant expression literature is not possible here (see e.g. Izard & Malatesta, 1987; Camras, 1992 for reviews), the data that have emerged are more consistent with DET than they are with the DS position. For example, a recent study of 88 infants found no cross sectional or within-subject developmental trends in the frequency of interest, joy, sadness, and anger expressions between 2.5 and 9 months (Izard, Fantauzzo, Castle, Haynes, & Slomine, 1995).

In contrast, and while it may reflect little more than the relative maturity of each approach, DS approaches have been criticised for failing to provide directly supportive evidence (Izard, 1994a), particularly that suggesting that the morphology of the innate/universal expressions actually *changes* (Malatesta-Magai & Izard, 1991; although see Camras, et. al., 1993, 1996). However, a growing body of empirical work by DS theorists has examined interest (Michel, et. al., 1992) and surprise (Camras, Lambrecht, & Michel, 1996), the interpretation of which casts some doubt on the strong DET position, particularly in its methodological inferring of emotional states on the basis of facial action alone.

Despite such criticism, the DS position itself has yet to provide an entirely convincing empirical demonstration of its tenets. A possible exception to this absence is the now-classic study by Camras of her infant daughter Justine. Camras and colleagues found that distinct facial configurations were produced, but that these expressions were not associated with body actions differentiable to adults (Camras, Sullivan, & Michel, 1993). Furthermore, the infant would frequently cycle among the configurations

within a single bout of crying (see also Malatesta, 1981 for a DET discussion of innateness in vocalisation).

Overall, Camras suggests that the empirical evidence is less consistent with the position taken by DET than its proponents suppose (Camras, 1994). As she notes, some situations are generally acknowledged to elicit particular emotions (as indexed by action responses), and yet the corresponding expression is not necessarily seen (see also Camras, 1991; Camras, et. al., 1996). Furthermore, the supposedly 'discrete' expressions of emotions contain a high degree of in-category variability (Camras, in press). Finally, the expressions can be seen to occur in such a wide range of situations that they might more reasonably be interpreted as expressions of either (a) qualitatively undifferentiated 'distress' signals (Camras, 1992, 1994; Michel, et. al., 1992) or (b) coordinative motor structures that are available for a variety of purposes, not all of which must be emotional (see Camras, in press). Camras interprets the infant expressive data as suggesting that the facial configurations emerge as synergistic expressions of states related, but not identical to, adult emotions. It is only during the course of development that these configurations are eventually associated with the adult emotions.

As with Camras' argument, the DET reply (e.g. Malatesta-Magai & Izard, 1991) suggests that this disagreement may rest on a matter of interpretation. They argue that the presence of cycles or alternations in infant facial display does not interfere with their position,[31] and suggest that expecting infants to manifest only one response to a situation imposes a standard we would not expect in an adult. Similarly, they argue that the fact that an emotional expression appears 'inappropriate' to an adult does not mean the corresponding expression is not present.

The two positions have spent surprisingly little time critiquing the theoretical assumptions of the other. Camras (1992) briefly notes that the 'invariant experience' assertion of DET is unfalsifiable by its very nature (see Chapter 6). DET theorists are similarly brief, only noting that the DS position undermines the adaptive value of emotions and emotion expressions, leaving too much room for pathology (Izard &

Malatesta, 1987) and critical miscommunications between caregiver and infant (Malatesta-Magai & Izard, 1991).[32] However, it can also be noted that many DS approaches to development, including that of Camras (1988, 1991, 1992, 1994) in emotions, remain vague in their specification of control parameters (see Chapter 4), and struggle in comparison to discrete approaches (e.g. Ackerman, et. al., 1998) to reconcile their view with a functionalist view of emotions.

Concluding remarks on component relationships in development

Overall, this author's sympathy rests with the proponents of DET, although I share some concerns regarding the unfalsifiable nature of DET's theoretical claims, particularly in its definition of emotions as necessarily involving a *distinct* expression and invariant experience (see Chapter 8.6). Nonetheless, the assertion that the relationships between the components of many emotions are genetically fixed (or at least prepared to link) appears more consistent with the available data, particularly that of a comparative (across species) and cross-cultural nature (see Chapter 8.7). Additionally, the position appears more viable within a functional perspective.

Yet as appears common in matters of such complexity, the 'right' answer to the issue of component relationships may well lie somewhere in between the DET and DS positions (see e.g. M. Lewis, 1998b). The DET position does not preclude developmental or emergent processes (Izard & Malatesta, 1987), or suggest that having genetic determinants for emotions means that they have to in place or fully functional at birth (Izard, 1994a). Conversely, moderate DS approaches do not rule out the possibility of some pre-existing links between the components of emotions (see e.g. M. D. Lewis, 1997; Lewis & Granic, 1999; Chapter 5.4).

In the theory presented here, the core cognitive, expressive, motivational, and physiological components of the nine emotional states discussed are considered heritable. However, it is difficult to know whether the relationships between the core

[31] More generally, following Chapter 8.4 it can be argued that emotional expressions, states, and experiences can change as rapidly as situation and response are reappraised. As such, cycles or alternations bear little relevance to the issue of component relationships.

components (whether emotional states develop) are as heavily fixed as suggested by DET (M. Lewis, 1998b). A possibility to be explored in future is that the relationships between components of emotions are not either fixed or emergent, but that they exhibit *degrees* of fixedness (or flexibility) depending on the emotion or component in question. DS theorists Marc Lewis and colleagues (e.g. M. D. Lewis, 1997; M. D. Lewis & Douglas, 1998; M. D. Lewis & Granic, 1999) have argued that the relationships between components in dynamic systems like emotions need not be considered either completely fixed or flexible. Lewis and Douglas (1998) for example note that some aspects of their personality variable, called emotional interpretations (EIs), are *normative* attractors. In this, the authors mean that the components of some EIs cohere in roughly similar ways for most individuals (Lewis & Douglas, 1998; see Chapter 5). Others however, exist only for some individuals, and even normative attractors may vary across individuals as a function of heritable and emergent constraints.

Following the discussion of function earlier, it is suggested that the relationships between the components of emotions may be constrained to greater or lesser degrees depending on the component and the emotion under scrutiny (Izard, et. al, in press). Referring to emotions in a general sense, it is suggested that the relationships between the components of the five primary emotional states (anger, fear, sadness, happiness, and disgust) are likely to be more constrained than are those between secondary emotions. [33] In particular, it is argued that at least four of the five emotions described as primary exhibit a more intimate relationship with overt behaviour than do the four secondaries studied (see Chapter 8.7 below). In DS terms, the systems that comprise these primary emotional states include an innate link to a particular type of behavioural attractor.

In respect of particular components, it is suggested that the antecedent cognitive (appraisal) aspects of the emotion systems are innately fixed to a particular state level emotional response (see Chapter 8.4 and Figure 8.6 below). However, and with some minor innate constraints (see Chapter 7.6), it is also suggested that conscious

[32] Given that parents have relatively few cues to the internal state of an infant, an initial concordance between state and expression would seem a necessary prerequisite for effective signalling between infants and caregivers.

emotional experience is not genetically linked to the remaining components of emotions (e.g. Lewis & Michalson, 1983; M. Lewis, 1998b). Although the 'flavour' of conscious emotional experience is typically related to the motivational/action tendency component of emotional states, conscious emotional experience is typically a more complex, motivationally constructed variant on a state or series of states. So while conscious experiences often follow emotional states, they are also highly variable at a qualitative level (which states are not) between individuals and situations.

Systems in emotions II: Feedback and feedforward

During the discussion of cognition-emotion relationships it was noted that the interactions between these two aspects of human functioning did not occur in a single direction. While particular appraisals have been suggested as necessarily resulting in particular emotional states, components of the emotional states and their consequences almost certainly affect temporally later appraisals (Mascolo & Harkins, 1998).

In examining the emotion literature, it is probably fair to say that more recent theorising regarding the relationships between both the components of emotions and the interactions between emotions and other organismic processes have tended to avoid unidirectional causal accounts (e.g. M. Lewis, et. al., 1984; Scherer, 1984, 1994c; Lazarus, 1991a; although see Panksepp, 1994c). Instead they have emphasised non-linear, systemic relations between emotions and other processes, and between the components of emotions. The emerging view of emotions appears to one of them as ongoing processes rather than discrete or modular states. Scherer (e.g. 1994c) for example, has recently defined emotions "as an episode, a time window, during which the different components get synchronised and desynchronised in a highly differentiated fashion" (p. 27). In his view there exist multiple feedback and feedforward effects depending on the recursive evaluation of the situation.

[33] This might constitute a further reason to differentiate between primary and secondary emotions.

Richard Lazarus (e.g. Lazarus, 1991a), likewise acknowledges the reciprocal relationships between aspects of the emotions in an ongoing encounter or process. He suggests that "it is possible to imagine an arrangement of the components of an emotional process as relatively independent" (p. 196) that produce the *appearance* of an innate, organised and universal process. In this view, the emotion systems would be both highly structured, but complex and flexible. Each component might function and coordinate in a more flexible way while still following biological constraints (see also Frijda, 1986; p. 83).

Finally, the description of emotions provided by DS theorists like Mascolo and Harkins (1998) likewise suggests that appraisal generates physiological (CNS and ANS) reactions and a concomitant feeling tone or experience. In their turn, these processes feedback, influencing the selection of feeling generating appraisals from a pool of competing goal relevant appraisals (see Chapter 6). They write, "even though event-appraisals participate in generating physiological changes and corresponding feeling tone, feeling tone functions to bring these appraisals into the psychological foreground, and the emotion process continues" (Mascolo & Harkins, 1998; p. 193). In this way, they suggest, appraisal, CNS and ANS activity, and experiential systems coact and mutually regulate one another in the formation and evolution of an emotional episode.

While most of the investigations in component relationships have focussed on the relationships between cognition and emotion or between facial expressions, physiology, and feeling (see below), it is nonetheless *generally* concluded that the relationships between the components of emotion are not unidirectional. Although appraisal is still seen by most theorists as the entry-point to the emotions systems, it is accepted that current emotional states, including expressions, action tendencies, and physiological states influence one another as well as affecting appraisal. These interactions are presented in Figure 8.6 below.

The figure displays this author's thinking regarding the manner in which the components involved in emotion processes interact. Central to the model is the notion that appraisal processes typically constitute the entry point to the emotions systems in that they directly activate emotional states. Likewise important is the notion that the

states thus engendered constitute biological givens with the relationships between the three key components (physiological, motivational, and expressive) substantially constrained by phylogeny and the function of the emotion in question. The figure depicts the components of emotional states as exerting an influence on conscious emotional experience and behaviour *as a unit*, rather than independently, a speculation that is further considered upon below. Finally, the figure also denotes two highly speculative interactions among emotion components – those between overt behaviour and emotional states and between overt behaviour and conscious emotional experience.

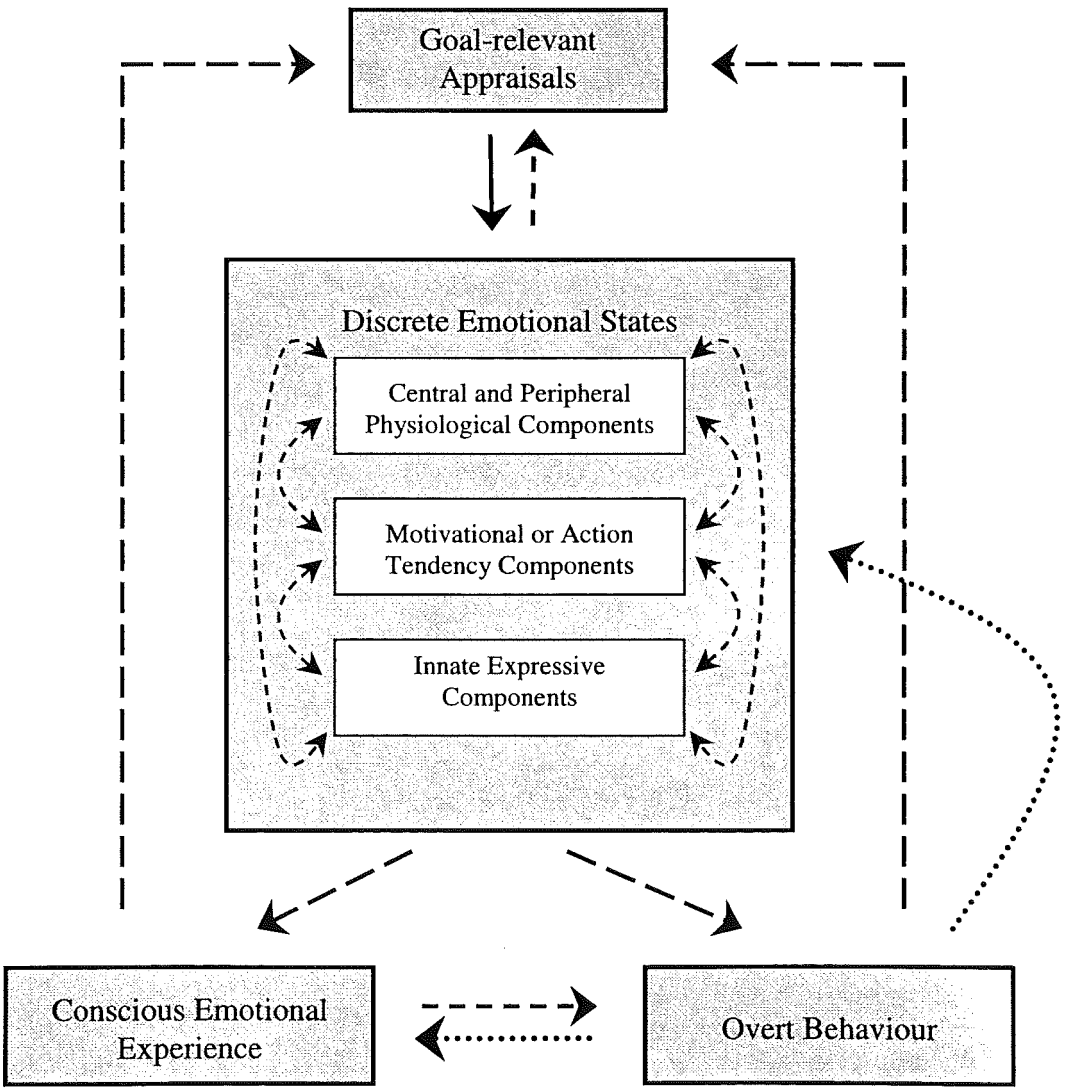

Figure 8.6 – The relationships between the components of discrete emotions (The solid line between appraisals and emotional states represents an inevitable

relationship/influence that must occur in each instance, the dashed lines likely influences, and the dotted lines speculative/possible relationships).

In considering the model somewhat further, a brief review of the literature on facial expression, physiological responding and felt emotion is first presented. Although the data from this area are both complex and equivocal, the area constitutes the most heavily researched domain of core component interactions (Malatesta, 1981). Consequently they represent an excellent opportunity to consider how component relationships may inform general conceptualisations of emotions (McIntosh, 1996).

The data presented are then used as a lead-in to the consideration or what this author views as critical questions in component relationship research. Initially, the discussion focuses on whether the components of emotional states influence behaviour and conscious experience as a state-level unit or as individual components. Following this, some attention is devoted to the possible influences that overt behaviour may have on other components of the emotion process. Specifically, the possibility that overt expressive behaviours may exert a direct influence on conscious emotional experiences or emotional states independently of reappraisal processes is explored. Finally, some general directions for future research are given.

Facial expressions and the generation/mediation of physiology and feeling

Proponents of facial feedback theories claim that facial expressions of emotion have a causal role in the generation of emotional experience (McIntosh, 1996), a view supported by over 20 years of research (Izard et. al, in press). This view can be traced back to those of James (1890) and Darwin (1872), and has been more recently revived by Tomkins (1962), Izard (1971), and Ekman (1972). More generally, this view suggests that emotion programs (innate discrete states) are of a nature such that activating one part of the response set stimulates the others.

In support of this view, the results of many studies have indicated that voluntarily configuring the facial muscles associated with discrete emotional states elicits both feeling and physiological change (see Gross & Levenson, 1993, 1997; McIntosh,

1996; Rosenberg & Ekman, 1997 for recent reviews). Duclos and colleagues (Duclos, Laird, Schneider, Sexter, Stern, & Van Lighten, 1989, cited in McIntosh, 1996) for example had participants contract the facial muscles involved in fear, anger, sadness, and disgust, then rate their emotions. Although the effect did not hold for all emotions, ratings of fear were significantly higher following the utilisation of the fear musculature, with a similar effect occurring for anger experiences. Overall, Izard and Malatesta (1987) suggest that the evidence is "substantial, though not conclusive" (p. 522) that the manipulation of facial behaviour contributes to emotional feelings.

While there have been some substantial critiques of the methodologies typically employed in testing facial feedback hypotheses (see e.g. Fridlund, 1994; McIntosh, 1996), paradigms that avoided potential confounds have nonetheless delivered supportive results. Zajonc, Murphy, and Inglehard (1989, cited in McIntosh, 1996) for example, had subjects produce an *ü* (activating musculature associated with scowling/anger) or *o* (relaxed face) sound for one minute. They found that the *ü* sound produced increased forehead temperature (an indicator of negative affect) and that the sound was liked less. Overall it seems that both openly and covertly manipulated facial configurations increase the associated emotional experience, providing some support for the feedback position.

On the other side of the equation, feedback theories like DET also suggest that innate expressive behaviours are so important to emotions that the other aspects of emotion are diminished if the expression is inhibited or suppressed (e.g. Izard, 1971). However, in a manner reminiscent of Freud, other theorists have argued that rather than decrease the activity in other components, that expressive inhibition leads to *increases* in activity for the other components – the emotion finds other outlets (e.g. Polivy, 1998; Pennebaker & Susman, 1988). Given the implicit presence of this view in much of psychotherapeutic practice (see e.g. Singer, 1990), there have been surprisingly few studies, particularly those of an experimental nature, that have directly examined the changes that occur in which other aspects of which particular emotions when expression is consciously suppressed (Gross & Levenson, 1993; Levenson, 1994b, although see Notarius, 1982).

In two such experiments, Gross and Levenson (1993) randomly assigned subjects to either a 'suppression' or 'no-suppression' condition, with the suppression subjects instructed to "try to behave so that someone watching you would not know that you are feeling anything at all."[34] They showed subjects a stimulus film (depicting a limb amputation) designed to elicit disgust. They found that suppression subjects were able to reduce the overall signs of visibly felt disgust in both face and body, although there was some 'leakage'. Consistent with a 'hydraulic' view of emotion component relationships, the suppression of expression was associated with significant increases in parasympathetic arousal as indexed by skin conductance, finger pulse amplitude, and heart rate[35]. Additionally, and in direct contrast to the DET position, inhibiting the facial expression of disgust had no effect on the subjective intensity of disgust experiences.

A sister study by Gross and Levenson (1997) describes data that parallels those described by Gross and Levenson (1993) for the emotions of happiness and sadness. While the general aspects of component relationships discovered were similar to their earlier work, they failed to replicate the lack of experiential differences between suppression and non-suppression subjects for both the emotions studied. While inhibiting sadness expressions did not reduce felt sadness, the change in the level of amusement was significantly different for the two groups, with subjects who were suppressing expressed emotion experiencing the amusement eliciting film as significantly less amusing.

On balance, the data from the component relationship research described above can be taken as more consistent with the assertions of feedback theories than not. This said, the data are not altogether supportive, and a more parsimonious interpretation of the data gathered thus far might be that while facial expressions probably cause activation in the other components of the state, that suppressing expressions may or may not reduce activity in the other components. As Gross and Levenson (1997)

[34] As the authors correctly note, instructing subjects to suppress all signs of emotion (rather than just those for the target – disgust) has the unwelcome consequence of meaning that the results cannot separate the effects of suppressing emotion per se, from those of suppressing disgust in particular.

[35] Although this type of finding is typically taken as supportive of the hydraulic view of emotion component relationships, theorists such as Tourangeau & Ellsworth (1979) have noted that the increase in arousal associated with suppression may result from the effort or concentration required, rather than as a direct consequence of the suppression.

note, it may be that suppression effects do not operate equally across emotions or across the components of emotions. Specifically, their research thus far suggests that suppressing expression of negative emotions like disgust (Gross & Levenson, 1993) and sadness (Gross & Levenson, 1997) does not affect the subjective experience of these emotions. However, suppressing the expression of amusement had a significant effect on the experience (Gross & Levenson, 1997). One possible explanation for this is that people are more practiced (and thus able to tolerate) dysjunctions between experience and expression for negative emotions.

Concluding remarks and future directions

Following Gross and Levenson's (1993, 1997) data, a less well researched, but more general explanation for inter-emotion differences in component relationships might simply be that the components of emotions relate slightly differently for different emotions. In this view, the relationships between the components of discrete emotions may be more or less constrained, and thus influential upon one another, depending on a number of factors[36].

Following the discussions of function and the development of component relationships above, the most obvious place to begin such an examination would be in an examination of function. It may be for example that the three key components of discrete emotional states interact differentially depending on the importance of the component to the function of the emotion in question (Frijda & Mesquita, 1998). As they note, not all combinations (of components) are possible due to the functional nature of the relationships between the components. So for example, the facial configuration for an emotion where the expression is critical to the function of that emotion should exert a greater influence upon other components than the expressions of emotions where the expressive component is less important. The same type of logic could clearly be applied in respect of other components.

[36] Although they cannot be discussed here potentially important factors in the relationships between the components of emotions include individual differences (M. Lewis, 1998b; McIntosh, 1996), differences between conscious and unconscious processes and manipulations, involuntary versus deliberate component activity, differences between component interactions across emotions, the timecourse of interactions, and the difference between causal, mediative and modulating effects ascribed to components.

A number of other issues also remain unclear. Initially, we are little closer to knowing whether experimentally induced activity (or lack of activity) in a single emotion component can alter the status of other components without cognitive mediation (reappraisal). Theorists strongly disagree on this matter. Lazarus (1991a) suggests that activity among components potentiates emotions, rather than causing them directly, while McIntosh (1996) suggests that "physical processes appear enough to generate feelings" (p. 138). Although I am inclined towards Lazarus' position on this issue, it never be methodologically possible to separate the role of neurochemical, hormonal or expressive change from the potentially mediating effects of cognitions (Lazarus, 1991a). One possibility is that we use hypnotic suggestion (e.g. Bryant & McConkey, 1989) to induce expression or expression-suppression. In this manner, we could potentially prevent (or at least reduce) the likely influence of appraisal processes in these processes (see Levitt & Chapman, 1972; Friswell & McConkey, 1989 for a discussions of hypnosis, induction and the investigation of component relationships).

Relatedly, it is still difficult to determine whether activity within a *single* component of an emotional state *individually* influences either conscious experience or behaviour, or whether influence is directed via the state as a whole. While it is certainly possible that the activation of certain components like ANS physiology may exert a direct influence upon these latter variables, I am currently of the opinion that emotional components are more likely to exert an influence via the state as a whole. Although this opinion appears untestable given our current methodologies, the notion that emotions form a response pattern that coheres across expressive (Malatesta, 1981; Lewis, 1998b) or other modalities seems a more reasonable initial supposition than otherwise.

Finally, the place of overt behaviour in these processes remains critically under researched. As is expanded upon in the following section, behaviour is typically treated as little more than a very indirect 'readout' of emotions. Yet given the highly interactive nature of the other components in emotion processes it would seem likely that overt behaviours exert a direct influence on the activity of other components of emotions (Frijda, et. al., 1989; Frijda, 1996; Frijda & Mesquita, 1998; Mascolo & Harkins, 1998). More broadly, given the importance of emotions in promoting

behaviour, and the possible presence of innate behavioural prototypes for primary emotions (see Chapter 8.7), this area remains a tremendous opportunity for research in component relationships, with key implications for broader issues in emotion theory.

Unfortunately, denoting exactly *how* overt behaviour might influence either the components of discrete emotions or other components of the emotion process can only be a matter for speculation. Despite my convictions regarding the causal role of behaviour in generating and mediating appraisal, emotional states and experience, I am unable to decide exactly how these influences might transpire. Consequently, while I have adopted reasonably firm positions on most issues in component relationships, I feel unable to do so in this regard.

That said, a number of possibilities are evident. Firstly, behaviour may have no impact on other components of emotions at all, although this would seem unlikely. A comparatively conservative alternative prospect would be to claim that behaviour can only exert an influence on emotional states via appraisal. More speculatively, if we afforded 'emotional behaviour' a place in theory and research that even faintly approximates that currently given to facial expression, we might argue that behaviour can influence emotional states or their components independently of reappraisal. Finally, and most radically, we might cease treating behaviour as if it were nothing more than a consequence of emotional states, and instead consider it (in some cases) to be a component of the emotional response as well as a causal agent in other aspects of the emotion processes. This final comment is returned to below.

Systems and emotions III: The links between emotions and overt behaviour

> *Emotion mode should govern the construction of organised behavioural sequences that solve adaptive problems.*
>
> Tooby and Cosmides (1990b, p. 414)

Introduction

From a lay or folk psychological perspective, it is almost painfully self-evident that emotions are centrally and directly involved in the generation of behaviour. While a trifle Aristotlean in outlook, our common sense explanations for other people's

behaviour frequently refer to their emotions (Fitness, 1996). He's crying *because* he's sad, or even, she's *only* doing that because she's angry, and so forth. A similar scientific view is explicit in the view of evolutionary psychologists who suggest that (ultimately) all psychological mechanisms, including emotions, have almost certainly been selected for and retained based on their utility in generating and regulating behaviour (Tooby & Cosmides, 1990a, 1990b).

Yet despite the evolutionary-functionalist zeitgeist in contemporary emotion theory and the intuitive appeal of a relationship between emotions and behaviour, most theories of emotions have been comparatively unclear regarding the relationships between emotion and behaviour (Ellsworth, 1991) and few systematic investigations exist (Mesquita & Frijda, 1992). Exactly why this discrepancy arose, and remains, has scarcely been addressed in emotion theory, although this author suspects a combination of methodological, institutional, and metatheoretical issues have made the area unattractive to researchers[37]. It is my intention that the following discussion go some way towards compensating for this deficiency.

The discussion will outline a theory describing the relationships between emotions and behaviour, particularly the place of emotions in generating behaviour. It will begin by expanding on the necessity of theory in this area, specifically describing the need to explicitly incorporate evolutionary-functionalist reasoning and cross-species comparisons. Previous conceptualisations of the relationships between emotions and behaviour are described, with attention focussed on the important theories of Nico Frijda (e.g. Frijda, 1986, 1996; Frijda, Kuipers, & ter Schure, 1989; Frijda & Mesquita, 1994, 1998) and Robert Plutchik (e.g. 1980, 1984, 1991, 1994).

Following this review, it is suggested that while the theoretical and empirical work comprising these two theorists' contributions constitute the best-developed views of the relationships between emotions and behaviour, that much remains to be discovered. In beginning this process, it is suggested that we need to move beyond an emphasis on action tendencies or felt urges to a focus on behaviour itself. Initially,

[37] The variability evident in behaviour and the difficulty in studying its relationship with behaviour combine to create a methodological and institutional situation where investigations of emotions and behaviour are seen as both problematic and unlikely to result in publication.

we can focus on how emotion-behaviour relationships vary between primary and secondary emotions, and on how the intensity of emotions influences the manifestation of emotions in overt behaviour. Two studies examining the recognition of emotional behaviour are presented, a new dynamic systems theory of emotion-behaviour relationships is presented, and directions for future research are given.

Evolutionary functionalism and the *need* for emotion-behaviour theorising

Virtually all emotions get expressed
(however minimally) in behaviour

Solomon (1993; p. 11)

Some time ago Plutchik (1977) suggested that we should consider the emotions (as they appear in humans) from a broad biological and evolutionary view. According to his evolutionary view, emotions are adaptive response patterns that have evolved in order to deal with the survival issues basic to *all* organisms, not only humans (Plutchik, 1962, 1980, 1994; see also Frijda, 1986). To this extent, the view that the emotions have evolved to help organisms respond adaptively to evolutionarily recurrent situational types dominates contemporary emotion theory (see Chapter 8.3).

Yet despite the popularity and plausibility of this approach to emotions, few theorists have extended the evolutionary-functionalist logic to include an examination of how emotions impact on, or are manifest in, behaviour (Frijda, et. al., 1989; Smith & Pope, 1992; Frijda, 1993a; M. Lewis, 1998b). In modern emotions theory, most writers appear content to view emotions as providing a broad link between 'functionally equivalent' stimuli and 'functionally equivalent' behaviour (e.g. Smith & Pope, 1992)[38]. Because the same self-reported and *subjective* ends can be achieved by multiple behavioural pathways (see Chapters 2 & 6), the experience of any emotion is thought to result in the production of just about any behaviour (Plutchik, 1980; Scherer, 1984; Ortony, et. al., 1988). Instead, other factors like beliefs (Frijda &

[38] Other views are of course available. Cognitive theorists like Forgas & Vargas (1998) for example suggest that "the same affective state can have congruent, incongruent, or *no* effect on subsequent . . action, depending on subtle changes in people's information processing strategies" (p. 206, *italics added*). I completely disagree with this statement, instead choosing to believe that emotions were 'designed to' and always influence behaviour, although not necessarily immediately, or in a manner our current methodologies and emphases enable us to discern.

Mesquita, 1994), perceived difficulty or deterrence (Brehm, 1999; Brehm, Brummett, & Harvey, 1999), and situations (Ortony, et. al., 1988) are thought to be as strongly influential on behaviour as the emotion itself. Certainly, emotions provide a strong motivational incentive to react in some particular way (an action tendency), but such action may or may not occur (Smith & Pope, 1992).

Taken at face value, this seems an eminently reasonable position to adopt. After all, we do not always (or even often) strike when we are angry, weep and withdraw when we are sad, or flee when we are afraid. Behaviour thus *seems* among the most flexible elements of emotional processes and consequence. At a different level, this view represents a surprisingly robust theoretical position in that one can posit mechanisms or tendencies rather than specific acts (Tooby & Cosmides, 1990b), with a consequence that few specific predictions can, or must, be made.

However, the generality of the theorising regarding emotions and their relationship to behaviour available leaves much to be desired and would be deemed unacceptable in another domain[39]. Exactly *what*, for example, does the term 'functionally equivalent' mean? Should it be taken to suggest that the behaviour is consciously aimed at, or unwittingly achieves, the same ends? If so, how are these 'ends' most precisely described? Are they ends as reported or desired by the individual, ends inherent in the emotional or behavioural response itself, or a combination of these two concerns? If a given behavioural sequence does not achieve the desired end, does it remain functionally equivalent to a 'successful' behaviour, or not? If not, how should we then characterise it? Most broadly, is functional equivalence being conceptualised at the evolutionary or individual levels?

In addition to the problems evident in current conceptualisations of the relationships between emotions and behaviour, it is also important to remember that from an evolutionary perspective, adaptations (such as emotions) have *absolutely* no value unless they are ultimately reflected in an organism's behaviour (e.g. Tooby &

[39] Malatesta-Magai and Izard (1991) suggest that the lack of research on behaviour is partly due to the historical place of facial expression in emotions (see also Malatesta, et. al., 1989) and partly due to the fact that methodologies are available for faces. Less generously, there also appears something a little 'comforting' in the rationalist undertones captured by the position taken by most emotion theorists, encapsulating elements of free will and personal responsibility with regards to behaviour.

Cosmides, 1990a, 1990b). These authors argue that the mechanisms involved in the generation of action should be very sensitive to emotional states. Specific acts and courses of action should be 'more available' in some states than in others, and highly stereotyped behaviours may be released (Tooby & Cosmides, 1990b).

More generally, if we fundamentally accept that emotions are adaptations, and that adaptations must ultimately be represented in behavioural changes, then emotions too must be represented in behaviour. This comparatively simple logical sequence appears to have been bypassed by much of emotion theory (despite its purportedly evolutionary approach) with a consequence that we know very little about the relationships between emotions and behaviour (Smith & Pope, 1992). As Frijda (1986) noted some time ago, an adaptive view of emotions requires "that expression not be linked to emotion in a haphazard way or in one primarily determined by the conventions of a given culture" (p. 63). According to him, a finite repertoire of expressive behaviours belongs to the biological disposition of humans as well as of other higher animals.

Overall, whether one is completely taken by the rhetoric and concerns expressed above is irrelevant to the key issue at hand here. It is impossible to deny that the relationships between emotions and behaviour are among the most poorly understood aspects of emotion theory, despite their potential for a more general impact (Malatesta-Magai & Izard, 1991). While the subjective and agentic aspects of the relationships between emotions and behaviour will always remain, so too will the difference between the fact the one *might* hypothetically behave in any manner, in any situation, and in the presence of any emotion, and *the fact that one does not!* Despite important variations across individuals, situations, cultures, and emotions, the emotions themselves are generally conceived of as heritable, normative, and adaptive phenomena. At the very least then, there is a clear need for theory and data regarding emotion-behaviour relationships that complements the increased specificity of hypothesised antecedent cognitions (Smith & Pope, 1992). More strongly, it can be argued that emotions *must* exert a systematic influence on overt behaviour commensurate with the function of the emotion in question.

A few notable exceptions

In some senses, the length to which I have gone to illustrate the magnitude and import of the discrepancy between emotion theory in general and any 'specific' statements regarding emotion-behaviour relationships in particular has been excessive. Across the history of what is a comparatively young science, there has been a smattering of commentators who have stressed matters evolutionary, comparative, and behavioural. Three of these analyses are briefly described below.

Exception I: Robert Plutchik

Robert Plutchik (e.g. 1977, 1980, 1991, 1994) has long been a key commentator in the evolutionary consideration of emotion. His analysis assumes that all primary emotions are in some way identifiable at all phylogenetic levels (Plutchik, 1962, 1994). His theory offers eight such emotions (joy, sadness, acceptance, disgust, fear, anger, expectation/anticipation, and surprise), and a variety of blend/mixtures of these primaries called secondaries (see e.g. Plutchik, 1980, 1991, 1994). More specifically, he also argues that the eight primary emotions correspond to both behavioural and functional languages. The primary emotion of fear for example is represented in both 'escape' behaviours, and with a more general function of 'protection' (see e.g. Table 2.1 in Plutchik, 1991)[40].

In explaining the link between emotions and overt behaviour, Plutchik alludes to the vulnerable state of the human infant at birth. He suggests that the *altricial* or highly underdeveloped state of the infant (cf. Eibl-Eibesfeldt, 1989) constitutes a critical adaptive challenge, and explains the basic reason behind the behaviours that are present or available slightly after birth (Plutchik, 1994). According to Plutchik (1994), these behaviours increase the chance of survival, while, he argues, the absence of them would mean that the infant had to wait until it 'trained' the caregiver to give it what it needs. In this regard, the views he expresses are similar to those of Malatesta

[40] Plutchik's (1962, 1980) treatment of emotion and behaviour appears to owe a great deal to the early work of McDougall (1908/1921). McDougall organised his original treatment of emotions around seven core (and five less clearly defined) instincts, with each instinct being accompanied by a particular emotion.

et. al. (1989) who suggest that "prior to the onset of enculturation and learning, there is an innate connection between feeling states and behaviour" (p. 129).

While it could of course be argued that the 'emotional' behaviours displayed by infants have evolved primarily in order to communicate needs to the caregiver[41], it is also possible that the emotional infant is *attempting* to behave in a way that has previously been successful regarding this type of organism-environment relationship (see also Izard & Malatesta, 1987). The fact that infants are comparatively ineffectual in this regard (see discussion of motor development in Chapter 5) and develop inhibitory abilities very quickly, are interesting and important considerations, but should not deter us from examining the possibility that certain behaviours may constitute an innate part of some emotional responses. This notion is returned to below.

Overall, Plutchik's theorising has contributed much to a very small field of research. Like Plutchik, the current author does not accept that the emotions are a set of adaptations that is limited to humanity, and suggests that cross species comparisons can and should inform theorising about emotions in humans. Although Plutchik's formulations of emotion-behaviour relationships have occurred at a level inconsistent with the conceptualisation of emotions as engendering flexibility (Frijda, 1986), they represent one of the few coherent attempts to relate human emotions to the activities of other species and to adaptive behaviours that are not exclusively communicative.

Exception II: Animal research in the emotions

The emphases of Plutchik's phylogenetic analysis are also evident in the growing literature on emotions in other species and the activity of brain substrates. Panksepp (1994b) for example, describes evidence from his research program demonstrating how comparable 'emotional' behaviours can be elicited in many species through

[41] The notion that emotions were selected on the basis of communicative value is important, but runs into difficulty upon more rigorous evolutionary examination. My suggestion is that emotions do hold communicative value, but not only in order to communicate the emotional value of environmental events (e.g. Levenson, 1994b). In addition, emotions also indicate behavioural intention (e.g. Scherer, 1982; Plutchik, 1982). If this is true, then we must wonder why or on what basis they do so. My suggestion is that emotions are able to communicate behavioural intention because they are (or at least have been) reliable predictors of behaviour. If they are reliable predictors of behaviour, how then can we believe that any emotion can lead to any behaviour?

direct brain stimulation, even in animals that have had little chance to learn behaviours. The question he correctly delivers is how we can explain such behavioural commonalities without reference to biological or genetic causes.

Like Plutchik (1982, 1994), Panksepp (1994b) criticises the tendency to provide humans with a privileged metaphysical status. In his analysis, the so-called "blue-ribbon grade-A" emotions coordinate diverse response processes so that they are well-integrated within relatively stereotyped action tendencies. Cacioppo, et. al. (1999) likewise suggest that while specific behaviours may differ depending on stimuli and context, that there is an underlying commonality to these behaviours. While these authors have argued, *contra* Plutchik, that commonalities exist at the level of approach and withdrawal, other theorists like Ekman (1994a) note that there is no definitive evidence to suggest that all positive emotions always involve approach and that emotions like anger, fear, and disgust can certainly involve either. In delineating the neural mechanisms mediating emotion-behaviour relationships, Rolls (1990) notes that the amygdala, which is central to emotions (cf. LeDoux, 1989, 1992) has a strong output to the ventral striatum. This connection is of fundamental importance in that it may allow the affective evaluations performed in the amygdala (see Chapter 6) to access the basal ganglia and thus influence motor output.

Overall, animal research provides a key domain in which we might more precisely examine the basic relationships between emotions and behaviour. Although arguments regarding whether the responses of other species constitute 'emotions' may never be settled, accepting that other mammals have emotions enables the investigation of emotion-behaviour links where the potential confounds imparted by sophisticated subjective and inhibitory processes are greatly reduced. Because we have no means to directly ask our animal subjects how they feel and cannot as readily read their faces (M. Lewis, 1998b), we are often 'forced' to infer their emotions on behavioural observation alone, hence much research has been conducted here (M. Lewis, 1998b). The research that has emerged thus far is supportive of a general link between emotions and behaviour.

Exception III: Nico Frijda

Of the leading emotion theorists, Nico Frijda (e.g. 1986, 1994b, 1996; Frijda, et. al., 1989, 1994, 1998; Mesquita & Frijda, 1992) continues to be the most explicit in his incorporation of matters behavioural. According to him, the relationship between emotions and behaviour is an 'intimate one' (Frijda, 1992) and emotions are always and necessarily linked to behaviour, or at least to changes in action readiness (Frijda, 1992; Mesquita & Frijda, 1992). According to Frijda (1986), changes in action readiness characterise emotions, and represent and define the major aspect of the emotional response and experience. Emotions are "first and foremost, modes of relating to the environment, states of readiness for engaging, or not engaging" (Frijda & Mesquita, 1994). In his theory, the term 'action readiness' refers to a state of readiness or unreadiness for achieving a particular change in the subject-object interaction or for interacting with the environment in general (Frijda & Mesquita, 1994). The action readiness concept includes elements of general activation or deactivation and may also include action tendencies, which are distinguished by their intentional content.

Frijda (1986) originally offered 17 major modes of action tendency, each corresponding to a basic emotion within his scheme: The modes of approach, avoidance, being-with, attending, rejecting, nonattending, agnostic, interrupting, dominating, submitting, deactivation, bound activation, excitement, free activation, inactivity, inhibition, and surrender. He acknowledges that the list does not exhaust the variety of action tendencies, and stresses that emotions do not strictly consist of one or a blend of the 17. Nonetheless, every emotional reaction can be analysed in these terms.

Like Plutchik and Panksepp, Frijda (1986) suggests emotional expressions are "not mere movements, but forms of behaviour: modes of interaction with the environment" (1986; p. 11). According to him, there are degrees of both 'primitivity' and impulsivity to expressive behaviours, as they are largely innate, prewired, or preprogrammed. They may show what he terms a 'weakness of stimulus control' in that they disregard control-relevant features of the situation or ignore context.

Additionally, he notes that certain behaviours may remain during episodes of emotion, even though they can currently serve no purpose. Crying when alone for example. Frijda (1986) takes this type of observation to suggest that the emotions have properties that promote behavioural activation "that is relatively unspecific in its manifestation, though still tied to its origins" (p. 36). In this regard, his position appears somewhat similar to that recently taken by Averill (1998) who suggests that "rather than automatic and highly stereotyped behaviour" that "emotional responses during an episode are flexible and often creative. What remains consistent, if anything, is the message, not the medium." (p. 852).

There is one further line of argument presented by Frijda (1986) that is of interest here. It is a comparatively simple point, yet one that seems to escape many theorists, and (moreover) one that bears on the choice of methodology described below. Frijda notes that people frequently ascribe emotions to others on the basis of facial and other behaviour. Such ascription, he argues, is not a complex matter, and the reasonable success of social interaction can be taken as attesting to the connections between expressive elements and emotions.

Despite his emphasis on innateness, Frijda has been careful to stress that expressive emotional behaviours are not fixed action patterns, as the properties of the stimulus and situation have profound influences on overt behaviour. Behaviours are frequently suppressed or inhibited (e.g. Frijda, 1986; Polivy, 1998), and the behaviours resulting from emotions are partially dependent on the 'availability' of the behaviour, and expectations regarding its effectiveness (Mesquita & Frijda, 1992). Differences in overt behaviour may thus result from different behavioural repertoires, differential accessibility within such repertoires, to differences in the extent to which the environment provokes or prescribes particular behaviours and to differential regulation of available behaviours (Mesquita & Frijda, 1992; Frijda, et. al., 1994).

Frijda's contributions to the understanding of emotion in general, and emotion-behaviour links in particular cannot be overstated. Viewed from one perspective, Frijda's conceptualisation of emotion and its relationships with behaviour has been, and remains, an exceptionally astute theoretical maneuver in the arena of emotion theory (see Frijda, 1986; p. 71). Less cynically, his 1986 book (Frijda, 1986) and

1989 paper in particular (Frijda, et. al., 1989) go a considerable distance towards bringing behaviour, or at least action tendencies (see also Arnold, 1960a), back to the fore in emotion theory. Through considering the emotion-behaviour link at a level of abstraction equivalent to other areas of emotion theory (i.e. in emphasising mechanisms/tendencies rather than acts) at a detailed level, he has operationalised behaviour in contemporary emotion theory in a manner palatable to most theorists (Ekman, 1994b).

The current hypotheses

The discussion above thus provides a general backdrop and rationale for studies like those presented below. Below, some small attention is focussed on the aspects of theory and previous data that underlie the specific hypotheses of the two studies presented here. Although the argument presented suggests that the emotions must be systematically represented in behaviour, there has been little empirical research that bears directly on the questions involved in considering emotion-behaviour relationships in humans. That said, the research that does appear relevant is consistent with the idea of an innate link between emotions and behaviour.

Rime, Boulanger, Laubin, Richir and Stroobants (1985) found that subjects from Belgium, the United States, and Zaire make comparable emotional interpretations when viewing abstract moving objects. Similarly, Wallbott and Scherer's (1988) 27 country, cross-cultural has been taken as suggesting that action readiness reports are consistent across cultures[42]. Joy was characterised by approach behaviour as well as smiling and laughing, sadness by crying and the absence of hand movements, and anger by changed movement and speech qualities. Sogon and Masutani (1989) found no difference between American (52%) and Japanese (57%) subjects judgements of emotional cues in filmed body movements. Although not explicitly attended to in their cross-cultural study of pride, shame, and anger, Fischer, Manstead, and Rodriguez Mosquera (1999) data shows that self-reported actions differ less across cultures than do antecedents, consequences, or normative beliefs.

[42] Strictly speaking it would be more accurate to state that their ANOVAs showed a greater effect for emotion than for country.

Finally, in a comprehensive discriminant analysis, Frijda, Kuipers, and ter Schure (1989) found that action readiness cues enabled 34% (Study 1) and 46% (Study 2) of 32 emotions to be correctly classified. As noted by these authors, the figures probably represent a fairly conservative estimate of predictive power because of the number of near-misses such as mistaking joy for happiness, or rage for anger. Although appraisal and action readiness cues did overlap, each appears to add some independent predictive value in the labeling of emotions[43]. Most importantly, action readiness cues were at least as good as appraisal information in discriminating among emotions (Frijda, et. al., 1989).

Fridja's research and theory has deliberately mentioned last in the discussion above as it constitutes the most developed theory of emotion and behaviour in humans. As such, it is perhaps ironic that I take his particular theory as a basis from which to express my particular digressions and emphases. Despite immense respect for Frijda's contribution, it is suggested that action readiness changes or action tendencies are not themselves behaviour. Following the evolutionary-functionalist logic presented above, a *tendency* to act in a manner commensurate with the function of a discrete emotion is only adaptive and can only be selected for at the level of phenotypic display i.e. in *behaviour* itself. Put another way, if emotions are genuinely characterised by adaptive action tendencies then emotions should be recognisable in actual behaviour as well as in self reports of consciously felt urges. Consequently, the first two hypotheses examined here run as follows:

1. Descriptions of emotional behaviour (behaviour clips) will be correctly recognised at greater than chance rates for all emotions.

2. There will be few differences between cultures in recognition rates for any emotions (see Hypothesis 5).

However, given the socio-regulatory processes that influence most of our behaviour, it was also thought that *felt* action tendencies might provide a closer approximation to

[43] Frijda et. al., (1989) also note the possibility that some appraisal dimensions actually represent action readiness items. For example, the appraisal dimension of *interestingness* might be considered a response or action readiness variables.

the tendencies associated with the emotional responses themselves. Consequently, it was predicted that:

3. Behaviour descriptions derived from self-reported urges and modified urges will be more readily recognised than actual behaviour descriptions.

Given the lack of clear theory or data regarding the relationships between emotions and behaviour, more specific hypotheses (while consistent with the theory being developed here) were derived in a somewhat eclectic manner. Initially, it was thought that the distinction between primary and secondary emotions (see Chapter 8.3 above) was a viable place to begin more precise consideration of emotion and behaviour. Ekman (1994a) has suggested that if no particular pattern of motor behaviour is relevant to the function of the emotion, then there would be "no reason to expect a specific pattern of ANS activity to have been established for that emotion" (1994; p.17). According to him, specific patterns of ANS activity have only been established for fear, joy, sadness, and anger. Relatedly, it seems reasonable to suppose that the emotions that appear capable of achieving their functions prior to conscious self-awareness (see Chapter 4) should bear a more intimate relationship with behaviour, and show less cultural variation (Fischer, Manstead & Rodriguez Mosquera, 1999).

Additionally, a more fine-grained examination of the data from Frijda, et. al., (1989) reveals differences among emotions in the extent to which each is discriminable on the basis of action tendency cues. Surprisingly, the so-called basic emotions of disgust, fear, anger, and sadness were poorly predicted, although it can be noted that several closely related words were available for each of these. However, emotions also differed somewhat in whether appraisal or action readiness cues were more useful in discriminating them. Consistent with Johnson-Laird and Oatley's (1992) view, 'cognitively complex' emotions like jealousy and love were better predicted by appraisal cues, while action readiness cues were more useful in discriminating emotions like anger and sadness. On the basis of this theory and research, two further hypotheses were derived:

4. The four primary emotions of (anger, fear, sadness, and happiness) will be correctly recognised more often than will secondary emotions (embarrassment, guilt, pride, and shame).

5. While the primary emotion behaviours will be equally recognised across all cultures, subjects from the culture in which the stimuli were derived (Australasia) will be significantly better at recognising the behavioural displays associated with secondary emotions.

In addition to a distinction between primary and secondary emotions, it was also thought that the intensity of emotion would be directly related to the likelihood that prototypical (hence recognisable) behaviours would result. Frijda (1986) describes this effect as a form of 'trade-off' between urge or emotion-activation and inhibitory/regulatory processes. Presumably in his analysis, the stronger the emotion, and by inference the importance of the goal (see Chapter 7), the more likely a prototype behaviour will emerge (see e.g. Frijda, 1996). In fact, data from Table 3 in Frijda et. al., (1989) show that emotion terms that might reasonably be considered more intense descriptions of the same state (e.g. annoyance to anger to rage) exhibit a pattern of increasing discriminability consistent with this idea.

In a recent microdevelopmental analysis of facial data, Rosenberg and Ekman (1997) showed that 16/20 and 19/20 subjects self reported emotion at exactly the time when video showed them to be presenting the most intense facial expressions. This type of data, coupled with general views of emotion as a systemic response (e.g. Izard, 1991; Plutchik, 1994; Levenson, 1994a; Scherer, 1997) suggest that behaviours that accompany or follow an intense emotion should be less inhibitable and hence more prototypical.

Jack Brehm (e.g. Brehm, 1999; Brehm, et. al., 1999) has recently offered a theory of emotions and motivation that places an emphasis on the importance of emotional intensity in the generating adaptive behaviour similar to that expressed here. For current purposes, the key assertion of his model is that "the function of emotions is to urge behaviour designed to promote or prevent important potential outcomes or to urge adaptation to important outcomes that have already occurred" (Brehm, 1999; p.

4). According to Brehm (1999), the greater the intensity of emotion, the more powerfully it will recruit the cognitive, physiological and behavioural systems to carry out goal directed work. Consequently it was predicted that:

6. The rate at which emotional behaviours are recognised will be positively related to the intensity of the emotional experience.

Method

Overview

Below, data are presented from two studies examining the recognition of emotional behaviour for four primary (anger, fear, happiness, and sadness) and four secondary (embarrassment, pride, guilt, and shame) emotions. Both studies used a recognition paradigm similar to that originally employed by Ekman and colleagues (e.g. Ekman & Friesen, 1971; Ekman, 1972; Ekman, Friesen, & Ellsworth, 1972). In each study, participants were presented with text descriptions of behaviour (see below) and asked to choose which of eight emotions the protagonist had most likely felt immediately prior to the behaviour described.

Although the initial research was designed as a 'stand alone' study, the intra-cultural nature of the data and the unreliability of the coding procedures necessitated by the methodology did not enable firm comment on the hypotheses above. Hence, the study is presented here as a pilot and stimulus generation exercise.

Study 1: Pilot and stimuli generation

Participants

Sixty-five male (M_{Age} = 22.3yrs, s.d. = 7.05) and 189 female (M_{Age} = 22.6yrs, s.d. = 6.43) first year psychology students at the University of Canterbury (New Zealand) participated in the initial study as part of a laboratory exercise (Total N = 254).

Procedure

Given the teaching context, the experimenter provided a brief (three minute) introduction to emotion theory and the place of cross-cultural research in emotions[44]. Participants were then given a page of typed instructions (see Appendix 6), the key points of which were reiterated verbally by the experimenter. The instructions described the general procedure of the study, and gathered the required consent. Participants in each testing session numbered between 25 and 35.

Part I: The derivation of the stimuli

Following this, participants completed a questionnaire that asked them to describe and rate various aspects of two recent emotional events (see Appendix 6). Subjects made six ratings about each event, each subject always receiving a request for ratings about one primary and one secondary emotion. Emotions were counterbalanced across subjects and testing sessions so that approximately equal numbers of ratings were made about each emotion in tandem with each of the other four emotions. Presentation order of the two target emotions was randomised. The first three items on each form (Items a, b, & c) were of no direct interest, and were only included to maximise subject recollection and data validity in the latter items. The final three items (Items d, e, & f) asked the subject to rate felt intensity (Item d), what they first felt like doing (Item e), and what they actually did (Item f) at the time of their experience. The emphasis of the latter two items rested on behaviour, as they were designed to generate stimuli for the second part of the study (see below).

Text data from Item d and Item e were then lifted from the original questionnaire and transcribed to the second (recognition) form (see Appendix 7). Data from Item d (what did you first *feel like* doing?) were coded as an 'urge' description, while data from Item e (what did you *actually do*?) were coded as 'actual' behaviour descriptions. In addition, urge descriptions were re-worded so that statements framed in an "I felt like" manner were represented in the form "I did" to provide a final 'modified urge' description.

Of the 254 subjects in the first study, three refused or were unable to generate information regarding one of the two emotions they had been asked about, while the remaining 251 completed all ratings for both emotions. This provided an initial pool of 1515 text descriptions of behaviour (behaviour clips) prior to coding.

Clip Coding

Understandably, and despite the precautions taken (see Appendix 6) subjects varied in their ability to restrict their responses to a description of observable behaviour as the scientist might see it. Consequently, the 1515 clips were coded so that only a description of observable behaviour remained.

Because the stimuli derived from a given laboratory session were used in sessions the following day, it was not possible to get inter-rater checks completed *during* Study 1. The stimuli used during Study 1 were transcribed and coded by the first experimenter as they were generated by each laboratory class. Given the unseasoned nature of this particular paradigm, the criteria stipulated *a priori* were less formal than those used in Study 2, although they were intended to achieve the same end (see below). This weakness noted, the similarities between the two data sets suggests that the initial coding was successful.

Prior to the initiation of Study 2, seven coding criteria (see Appendix 8) were established to ensure that each clip represented a description of a behaviour that was or would be observable to another person, but nothing else. The first criterion stated that information could be taken from, but not added to the clips before their inclusion. Additional criteria were established to eliminate negatively oriented behaviours (e.g. I *didn't* do X), to eliminate descriptions of thoughts, feelings, or motivations, to restrict the clip to one behaviour only, to remove the content of verbal behaviour, and to remove the 'impossible' behaviours that were sometimes reported[45]. Data regarding the reasons for clip exclusion have been retained for future analysis.

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[44] As will be expanded upon below, demand characteristics are likely to be absent in the design employed here since the key dependent variable (correct recognition rate) is a performance variable that should not be influenced by expectation.

[45] The reader can probably imagine that this particular criterion appears open to abuse. However, it was sparingly used, and only then to remove clips which were *literally* impossible. Typically this

To begin, a sample of 200 clips were randomly chosen from the initial 1515 and were coded by the experimenter and a second rater blind to the design. Having evaluated each criterion, each rater made a simple yes-no decision as to whether a given clip could constitute an observable description of behaviour, and could thus be retained. Inter-rater agreement was 92% for this sample. Given this level of agreement, the remaining 1315 clips were coded by the experimenter alone, with 1122 of the original 1515 clips ultimately retained for further use (see Appendix 9 for examples). In terms of testing the hypotheses above, it is important to note that the behavioural clips thus coded removed much of the context for behaviour, strengthening the capability of the data to make claims about behaviour and emotions rather than situations and emotion.

Part II: The recognition component

Once the first questionnaire was completed by each class, participants were given a second form (see Appendix 7). The second questionnaire contained two behavioural clips (as above) and asked the participant to make four ratings about each. Based on the information contained in the clip, participants were initially asked to estimate which emotion (of eight) the protagonist was "most likely feeling at this time". The same eight emotions (happiness, sadness, fear, anger, embarrassment, shame, guilt, and pride) were always offered, with a consequence that the 'correct' answer was always available. Participants were then asked to describe the reasons for their choice to record any other emotions that they would have liked to report. Finally, participants made ratings regarding how pleasant or unpleasant the event was for the protagonist, and how intense they thought the emotional experience associated with the behaviour had been.

Study 2: Cross-cultural replication

Participants

One hundred and three males (M_{Age} = 27.1yrs) and 213 females (M_{Age} = 23yrs) from nearly 25 countries participated in Study 2 (Total N = 316). Subjects were predominantly university students and were recruited by electronic word of mouth via

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occurred in respect of 'modified urge' behaviours (e.g. "I felt like dying" would have become "I died"

contacts in the International Society for Research on Emotion held by the author and his supervisor[46].

Procedure

The recruitment email contained directions to an Internet address that contained a software program that administered the recognition component of Study 1 (see above) electronically[47]. Participants read an introduction to the research, then recorded a number of demographics characteristics, including nationality as well as details on the countries in which they were born and raised.

Participants then completed a recognition task identical to that described above. The administrative software randomly drew a single behaviour clip from the 1122 available in the battery, and participants made the same ratings as described above. This process was repeated eight times, with each of 316 participants making ratings about eight different behaviour clips (Total ratings = 2528). Data were auto-posted to the experimenter on a daily basis in a spreadsheet compatible format.

In the analysis, participants have been grouped in four geopolitical regions (North America, Europe, Australisia, and Asia), on the basis of their self-reported nationality. Participants from Canada and the United States are in the "North America" group, while those from Australia and New Zealand are in the "Australasian" group. Subjects from Japan, Singapore, and Malaysia have been placed in the "Asia" group, while subjects from Austria, France, Scotland, Wales, England, Germany, Switzerland, and Austria have been placed in the "Europe" group. Initially there were two European groups (English first language versus not). However, a combination of noisy data and no differences meant that these subjects were collapsed for analysis.

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which begs the question as to who had written the stimuli).

[46] I would like to express my deepest gratitude to the colleagues without whose support this research would not have been possible. I have never ceased to be amazed at the lengths to which this group of people went in order to assist a student that they had never met. Those whose support I am aware of include Keith Oatley (Toronto), Jim Averill (Massachusetts), Ross Buck (Connecticut), Carol Magai (New York), Carroll Izard (Delaware), Julie Norem (Boston), Colleen Ward (Singapore), Klaus Scherer (Switzerland), Nico Frijda (Netherlands), Aron Ben Z'ev (Israel), John Shepherd (Aberdeen), Hadyn Ellis (Cardiff), and Anthony Lysons (Swansea). Judging by the subject data, I have also had additional support from unknown colleagues in Australia, Germany, and Brazil. Thankyou all.

[47] I am grateful to Joffre Horlor (University of Canterbury) for his work in this regard.

Finally, data from two Israeli, two South African, and two Brazilian subjects were not placed. Their data are only used in the non-geopolitical analyses.

Results

Before beginning the analysis proper, it was important to examine the base rates at which particular emotions were being estimated. As Tables 8.5 shows, subjects appear to have been systematically more likely to make particular estimates, in the presence of particular stimuli.

	Raw estimates per target emotion (%)								
Target Emotion	Happy	Sad	Fear	Anger	Embarr	Shame	Guilt	Pride	Total Targets
Happy	**197 (0.55)**	39 (0.12)	14 (0.04)	23 (0.07)	21 (0.07)	5 (0.02)	17 (0.05)	41 (0.13)	357
Sad	51 (0.16)	**148 (0.45)**	20 (0.06)	42 (0.13)	16 (0.05)	18 (0.05)	16 (0.05)	18 (0.05)	329
Fear	32 (0.09)	55 (0.15)	**101 (0.28)**	76 (0.21)	44 (0.12)	23 (0.06)	18 (0.05)	14 (0.04)	363
Anger	15 (0.05)	42 (0.13)	14 (0.05)	**187 (0.58)**	13 (0.04)	8 (0.02)	20 (0.06)	22 (0.07)	321
Embarrassment	17 (0.07)	23 (0.09)	24 (0.09)	69 (0.27)	**67 (0.26)**	33 (0.13)	13 (0.05)	13 (0.05)	259
Shame	22 (0.09)	56 (0.22)	28 (0.11)	55 (0.21)	42 (0.16)	**16 (0.06)**	18 (0.07)	21 (0.08)	258
Guilt	42 (0.15)	53 (0.19)	26 (0.09)	57 (0.21)	30 (0.11)	16 (0.06)	**30 (0.11)**	23 (0.08)	277
Pride	174 (0.49)	24 (0.07)	12 (0.03)	25 (0.07)	28 (0.07)	9 (0.02)	21 (0.06)	**71 (0.20)**	364
Estimates per emotion	550	440	239	534	261	128	153	223	2528

Table 8.5 – Showing the distributions of subject estimates per emotion (NB: the 'correct' or 'hit' responses for each emotion are shown in bold)

Subjects chose the correct or target emotion at the highest rate in cases where the stimuli had been derived from an experience of happiness (0.55), sadness (0.45), fear (0.28), anger (0.58), and were also better in the case of embarrassment (0.26). In comparison however, subjects infrequently chose shame when examining shame-

based behaviour (0.06), guilt when examining guilt behaviour (0.11) or pride when examining pride behaviour (0.20).

Subjects were somewhat likely to rate happy as either sad (0.12) or pride (0.13) behaviours, and showed a tendency to make these errors in reverse. Sad behaviours were rated as stemming from happiness 16% of the time, while pride behaviours were rated as happy nearly half the time (0.49). As might be expected, fear and anger behaviours were frequently confused. Interestingly however, while 21% of fear behaviours were rated as stemming from anger, only 5% of angry behaviours were incorrectly rated as fear, with sadness a more likely mistake in this case (0.13). Stimuli derived from embarrassment were often mistaken as angry (0.27) or ashamed (0.13) behaviours. Shame and guilt behaviours were clearly the most difficult to discriminate, with the distribution of ratings suggesting that subjects were effectively guessing in many cases. For shame stimuli, many raters suggested that the behaviour had followed episodes of sadness (0.22), anger (0.21), and embarrassment (0.16), while shame itself was the least most frequently chosen option (0.06). Similarly, guilt-based stimuli were often rated as stemming from episodes of sadness (0.19) and anger (0.21), with happiness also a surprisingly popular choice (0.15).

Upon examining the two 'border' rows of Table 8.5, the reader may have become aware that the frequency of correct identifications ('hits') is confounded by substantial differences in (a) the availability of particular targets, and (b) the rates at which each of the eight emotions were chosen. The first concern relates to the manner in which coding practices excluded particular classes of response. Although interesting, they are of indirect relevance to the main hypotheses and not addressed here[48]. However, notwithstanding the mediation of response bias by this 'availability,' subjects still chose certain responses at disproportional rates.

For example, the proportion of correct identifications ('hits') for stimuli deriving from experiences of happiness was 197 of 357 possibilities (a raw proportion of 0.55). However, as can be seen in Table 8.5 above, subjects recorded happiness as their

[48] If anything, the fact that a substantially greater number of behaviour clips deriving from secondary emotions were excluded is indirectly supportive of Hypothesis 4. Given the more intimate relationship between primary emotions and overt behaviour hypothesised here, it is likely that 'behaviours'

answer 550 times. Consequently, the 'accuracy' of estimates in respect of happiness behaviours is substantially confounded by a base-rate estimation bias, in which happiness is chosen as an answer disproportionately often. To account for this, the biased hit proportions were adjusted using the noted signal detection transformation:

$$P^*(S/s) = \left[\frac{P(S/s) - P(S/n)}{1 - P(S/n)}\right]$$

Green and Swets (1966, p. 129)

This formula represents a correction for chance success, and adjusts the observed proportion of 'hits' (P* (S/s)) according to the observed proportion of 'false alarms' (P*(S/n)) to obtain an adjusted hit ratio. So for example in transforming the proportion of correctly identified happiness clips, the raw accuracy proportion (P(S/s)) is combined with occasions when the subjects recorded happiness *incorrectly* as their answer (false alarm probability or P(S/n)). The ratio enables a more valid estimate of how discriminable the stimuli are. Hits, misses and false alarms, along with the raw and transformed proportions are shown in Table 8.6 below.

Emotion	Hits	Raw hit proportion	Misses	False Alarms	Chance corrected hit proportion
Happy	197	0.55	160	353	0.465
Sad	148	0.45	213	292	0.366
Fear	101	0.28	262	138	0.229
Anger	187	0.58	134	347	0.505
Embarrassment	67	0.26	192	194	0.189
Shame	16	0.06	242	112	0.013
Guilt	30	0.11	247	123	0.057
Pride	71	0.20	293	152	0.134

Table 8.6 – Shows the raw numbers of hits, misses, and false alarms for categorical recognition ratings about eight emotions.

stemming from secondary emotions are less overt or immediate in nature, hence would be excluded by the coding criteria. This consideration is returned to below.

In the table above, it can be seen how the raw hit rate is influenced by the proportion of false alarms to produce a more valid estimate of discriminability. On this basis we can safely note that behaviours deriving from experiences of happiness were correctly identified at a rate 46.5% greater than chance, sad behaviours at 36.6%, fear behaviours at 22.9% and anger at 50.5%. The corrected hit rates for secondary emotions were all lower, with embarrassed behaviours at 18.9%, shame at 1.3%, guilt at 5.7%, and pride behaviours at 13.4%.

From the reader's point of view, the difficulty with this particular approach to the analysis is that the corrected hit rates change depending on the emotions, clip types and cultures one wishes to compare *at any given time*. Additionally, the non-matched, repeated and categorical nature of the data set means that analytic options are sadly limited. While imperfect, the best compromise in this regard was to use the transformed proportions for descriptive purposes (tables and figures), and to use a combination of chi-square analyses based on the raw data for significance testing.

The key assumption of a chi square analysis is that each datum is independent. As such, data in one cell cannot influence the others. In this study, each subject made eight categorical ratings, hence could thus potentially have appeared in more than one cell within a given analysis, and influenced other ratings[49]. One possibility in this regard was to use only the first row of data from each subject in a given chi square. The difficulty encountered in these analyses was that often the combinations needed for analysis were so fine-grained that N often became too small to offer a statistic that represented the data. However, this analysis is used in cases where the number of criteria separating the ratings is low (less than eight).

A related possibility was to run separate chi square analyses on *each* of the eight ratings made by a given subject. Again, this appeared an unhelpful way to proceed. Not only would the reader soon be overwhelmed by statistics and left wondering what was being demonstrated, but additional analyses of the analyses would be required to 'determine' which of the eight was in fact the correct or most representative statistic.

[49] There are in fact statistical procedures available for repeated-measures categorical data such as Cochran's Q or McNemar chi square. Unfortunately, these analyses require that the data represent

Consequently, a variant of chi square is occasionally used in which the frequencies for each cell were calculated for each of the eight ratings, and then averaged before entry into the chi square. Finally, where possible, chi squares were run using only the *first* time that data from each subject that met the desired criteria. For example, the first rating from a given subject with a target of happiness is used, but not the second. Overall, the variant used in each case represents the belief that the resultant statistic is the most representative of the raw data, and hence the most useful. To communicate these variants to the reader, the following notation is used:

- first-row only analyses are presented with an "*a*" in italic subscript
- average-based statistics are presented with a "*b*" in italic subscript
- analyses of the first relevant rating per subject are presented with a "*c*" in italic subscript

Hypotheses 1 and 2

Hypothesis 1 predicted that emotional behaviour clips deriving from all emotions would be correctly recognised at greater than chance rates. The transformed recognition data relevant to this hypothesis are presented in Figure 8.7 below.

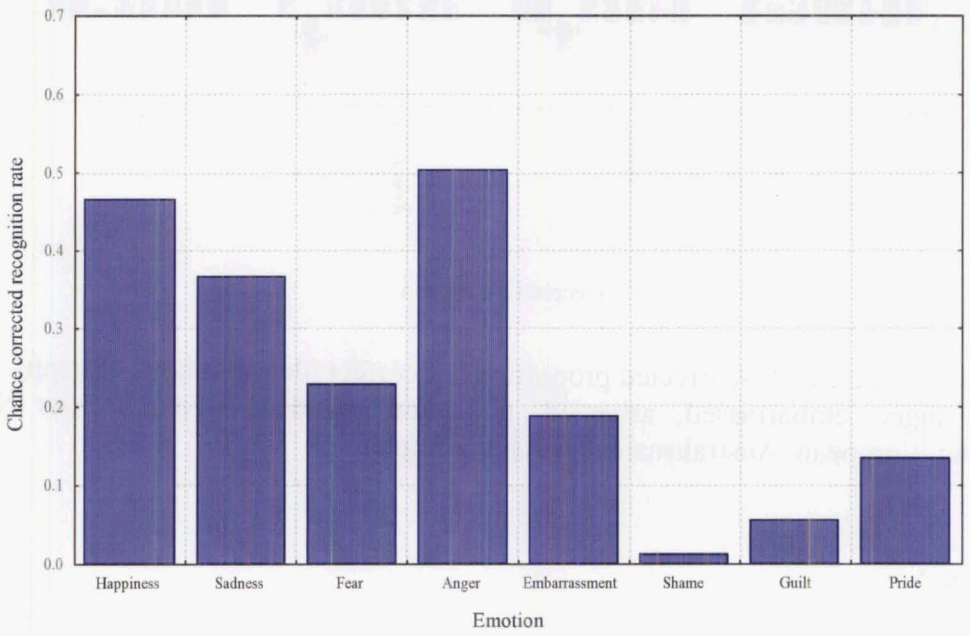

Figure 8.7 – The chance-corrected proportions of correct identifications of happy, sad, fearful, angry, embarrassed, ashamed, guilt and proud behaviour.

matched sets, which the random procedure used here does not enable. This is a weakness of the design, and will be rectified in further research of this type.

From the figure, it is evident that the first hypothesis has been substantially, although not completely upheld. Chi square goodness of fit analyses were conducted in which the expected frequency was stipulated at chance (0.125 or 1/8) levels (as if the subjects were guessing)[50]. Based on the first observation from each subject per emotion, the analyses showed that recognition rates were significantly greater than chance for happy (X^2 (1) = 307.02$_c$, $p < 0.05$), sad (X^2 (1) = 226.68$_c$, $p < 0.05$), fear (X^2 (1) = 54.86$_c$, $p < 0.05$), angry(X^2 (1) = 427.70$_c$, $p < 0.05$), embarrassment (X^2 (1) = 27.24$_c$, $p < 0.05$), shame (X^2 (1) = 5.97$_c$, n.s.) and pride (X^2 (1) = 9.58$_c$, $p < 0.05$) behaviour clips. Contrary to hypothesis one however, guilt (X^2 (1) = 2.43$_c$, n.s.), behaviour clips were not recognised at a rate greater than chance.

In considering the recognition rates as revealed by the geopolitical breakdown, a similar pattern of recognition can be seen.

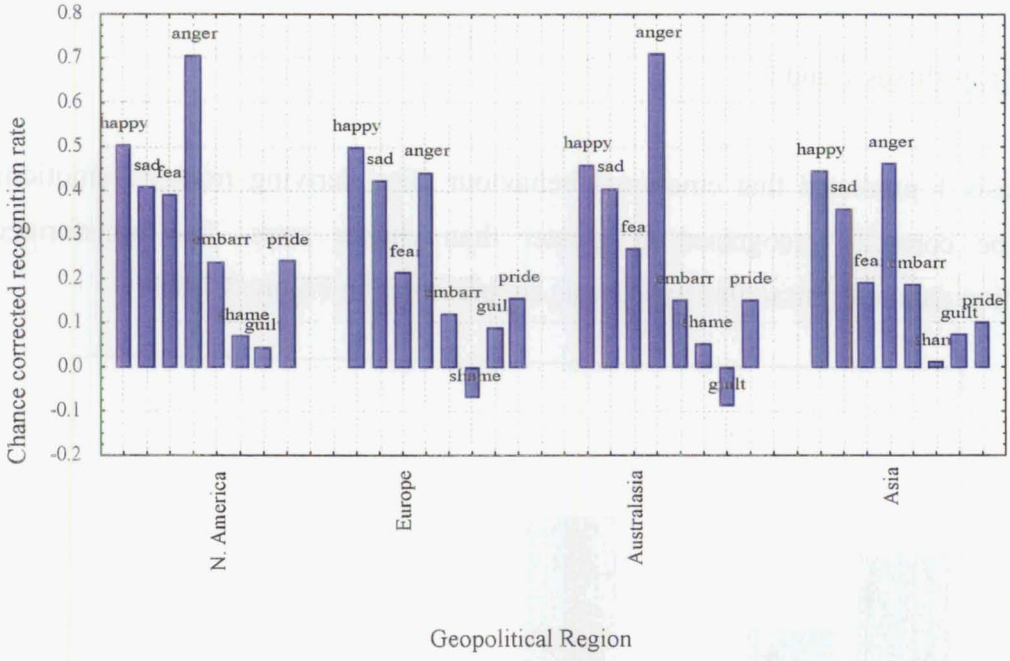

Figure 8.8 – The chance-corrected proportions of correct identifications of happy, sad, fearful, angry, embarrassed, ashamed, guilt and proud behaviour across North American, European, Australasian, and Asian samples.

[50] Russell (1994) among others, has suggested that chance is not the proper baseline for these comparisons in that significance testing on this basis can only reject the null hypothesis that subjects are responding randomly (see also Keltner & Haidt, 1999). However, given the paucity of emotion-behaviour theorising demonstrating this effect is a good start. In the case of at least seven emotions, subjects are clearly not guessing when they make their ratings.

As with the overall results, the North American sample were noticeably better at recognising behaviours stemming from the four primary emotions (happy (0.50), sad (0.40), fear (0.39), anger (0.71)) than they were are at recognising those from secondary emotions (embarrassment (0.24), shame (0.07), guilt (0.05), or pride (0.24)). The European sample recognised happy (0.50), sad (0.42), fear (0.21), and anger (0.44) at similar rates (see below), while recognising embarrassment (0.12), guilt (0.09), shame (-0.07) and pride (0.15) based behaviours at lower rates.

The Australasian or 'source' group recognised happy (0.46), sad (0.40), fear (0.27) anger (0.71), at similar levels, while recognising embarrassment (0.15), shame (0.05), guilt (-0.0.9), and pride (0.15) based behaviours at poorer rates. Finally, the Asian sample appears to have recognised the behaviour clips at a slightly lower rate overall. Nonetheless, the primary emotions were far more likely to be identified, this sample correctly identifying recognised happy (0.44), sad (0.36), fear (0.19), and anger (0.46) clips at rate considerably higher than the rates for embarrassment (0.19), shame (0.01), guilt (0.07), and pride (0.10) based behaviours.

In descriptively summarising the data thus far, it appears that the four primary emotions are consistently identified on the basis of behaviour at a higher rate than are any of the secondary emotions (see below). Among the secondary emotions, pride and embarrassment-based behaviour clips are typically the easiest to identify, with guilt and shame-based clips evidently the most difficult.

As predicted, chi square analyses revealed no differences between the four geopolitical groups in the recognition rates for either primary (X^2 (3) = 0.98_b, n.s.) or secondary emotions (X^2 (3) = 0.22_b, n.s.)[51]. Additional analyses, comparing each emotion across the four groups showed no differences for happiness (X^2 (3) = 1.79_c, n.s.), sad (X^2 (3) = 1.12_c, n.s.), fear (X^2 (3) = 2.84_c, n.s.), embarrassment (X^2 (3) = 2.48_c, n.s.), or shame (X^2 (3) = 2.76_c, n.s.) based behaviour clips. Similarly, the recognition rate for anger (X^2 (3) = 6.74_c, $p < 0.05$) and pride (X^2 (3) = 5.73_c, $p < 0.05$) based behaviours did not differ across the four geopolitical groups, although these results approached significance (p = 0.10 and 0.15 respectively). Inspection of Figure

[51] The finding of no difference in the recognition rate for secondary emotion based behaviours is in contrast to Hypothesis 5, and is presented again below.

8.8 suggests that there may be higher recognition rates for anger (in the North American and Australasian samples) and pride (in the North American sample). Possible reasons for these near-exceptions to a generally supportive data set are considered below.

Hypothesis 3

It was predicted that self reported behavioural urge and modified urge clips would be identified at a higher rate than actual behaviour clips. As can be seen in the figure below, this hypothesis was not supported for either primary or secondary emotions.

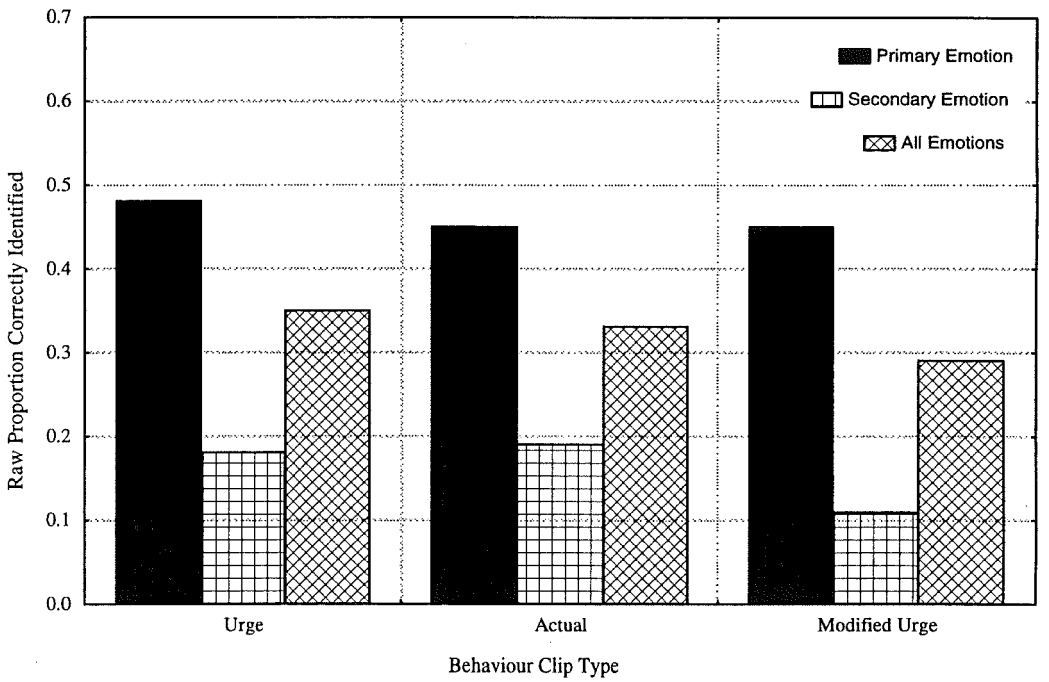

Figure 8.9 – Showing the raw identification rate for primary and secondary emotions as a function of behaviour clip type (NB: No transformations have been applied to these data, as the grouping variable is an independent variable only).

Chi square analyses also show that there is no difference in the raw recognition rates of urge, actual, and modified urge behaviour clips (X^2 (2) = 0.86_b, n.s.) overall, or in the specific analyses of primary (X^2 (2) = 0.14_b, n.s.) or secondary (X^2 (2) = 01.80_b, n.s.) emotions. Contrary to much theory then, these data suggest that consistencies in behaviour are equally (and remarkably readily) evident to other people in *both* felt urges and in actual behaviour.

Hypotheses 4 and 5

Having established some preliminary evidence for cross-cultural relationships between emotions and behaviour, the next stage of the analysis was to test the hypotheses designed to more precisely extend our knowledge about these phenomena. Above, data have been described that suggest that the behaviours deriving from the four primary emotions (happiness, sadness, fear, anger) are more easily identifiable than those from secondary emotion (embarrassment, shame, guilt, pride) behaviours.

Analyses conducted on the first rating by each subject showed a significant difference in the overall frequencies of correct identifications of primary and secondary emotions (X^2 (1) = 22.37_a, $p < 0.05$). Similarly, North American (X^2 (1) = 4.38_b, $p < 0.05$), European (X^2 (1) = 4.49_b, $p < 0.05$), Australasian (X^2 (1) = 4.04_b, $p < 0.05$), and Asian (X^2 (1) = 19.80_b, $p < 0.05$) samples analysed individually were all significantly better at correctly identifying primary emotions.

It was also predicted that subjects from the geopolitical group that provided the stimuli (the 'source' culture) would be better at recognising emotional behaviours derived from secondary emotions than other groups (Hypothesis 5). However, there was no differences in the rate of correct identification of secondary emotion behaviours between the four geopolitical groups (X^2 (1) = 0.22_b, n.s.). Subjects from the source culture were thus no better than any other subjects at recognising secondary emotion based behaviours.

Hypothesis 6

Table 8.7 (overleaf) shows the rate of recognition for each emotion, as well as the overall rate, as a function of the intensity of the emotional experience. As predicted, the overall proportion of correct identification varied strongly with the intensity of the original emotional experience ($r = 0.83$, $p < 0.05$), in which behaviours deriving from more intense experiences were significantly more likely to be correctly identified (see Table 8.7 overleaf).

	Emotion								
Intensity	Happy	Sad	Fear	Anger	Embarr	Shame	Guilt	Pride	All
1	4/12 (0.33)	-	-	3/4 (0.75)	2/6 (0.33)	0/6 (0.00)	2/14 (0.14)	-	11/41 (0.26)
2	-	6/11 (0.35)	7/12 (0.58)	-	2/22 (0.09)	0/24 (0.00)	0/2 (0.00)	-	15/77 (0.20)
3	5/11 (0.45)	5/15 (0.25)	10/42 (0.24)	13/18 (0.72)	7/34 (0.21)	2/23 (0.09)	6/36 (0.17)	0/4 (0.00)	48/188 (0.26)
4	26/38 (0.68)	10/22 (0.45)	13/51 (0.26)	9/27 (0.33)	28/61 (0.46)	0/29 (0.00)	5/30 (0.17)	11/48 (0.23)	102/306 (0.33)
5	61/127 (0.48)	29/80 (0.36)	22/59 (0.37)	21/51 (0.41)	24/101 (0.24)	6/61 (0.10)	8/98 (0.10)	37/167 (0.22)	208/744 (0.28)
6	61/94 (0.65)	43/101 (0.43)	18/79 (0.23)	90/141 (0.64)	0/11 (0.00)	5/54 (0.09)	7/76 (0.09)	13/92 (0.14)	237/648 (0.37)
7	40/75 (0.53)	55/89 (0.62)	31/120 (0.26)	51/80 (0.64)	4/20 (0.17)	3/61 (0.05)	2/21 (0.05)	10/53 (0.19)	196/523 (0.38)
Pearson's r	0.62	0.76	-0.60	-0.28	-0.33	0.57	-0.05	0.49	0.83

Table 8.7 – Raw correct identification (and proportion correct) per emotion and intensity and the correlation between intensity and proportion of correct recognition for the eight emotions (NB: Missing cells indicate that no clips of that combination of intensity and emotion were available for rating. Correlations calculated using N=7 levels of intensity, and using casewise deletion)

However, post-hoc analyses within each of the eight emotion categories suggests that the relationship between intensity and the 'identifiability' of behaviour may be somewhat more complex. While the rate of identification for happiness (r=0.62), sadness (r=0.76), shame (r=0.57) and pride (r=0.49) behaviour clips increased linearly with the intensity of the original emotional experience, fear (r=-0.60), anger (r=-0.28), and embarrassment (r=-0.33) showed the opposite trend, and guilt (r=-0.05) showed no relationship. Behaviours stemming from fear, anger, and embarrassment were less likely to be correctly identified the more intense the original experience had been. Methodological/statistical and theoretical evaluations of these data are made below.

Discussion

If anything, the data presented here demonstrate that people from a large number of countries are not guessing when they attempt to infer another person's emotion on the basis of their behaviour alone. As predicted, behaviours stemming from experiences of primary emotions (happiness, sadness, fear, and anger) were all correctly identified

at rates significantly above chance. The secondary emotions of embarrassment, shame, and pride were also recognised at above-chance rates, while participants appear to have been guessing when attempting to identify behaviours stemming from experiences of guilt. As expected, behaviours stemming from experiences of the four primary emotions were correctly identified at significantly higher rates than those derived from the four secondary emotions. Although the data do not enable a definitive comment, it seems reasonable to suppose that the emotions associated with these behaviours were somehow 'easier' to identify.

Indirectly supporting the idea that there may be a systematic relationship between overt behaviour and emotion is the failure to support the third hypothesis. While it was expected that self-reported urges and modified urges would be less intertwined with self-regulatory and situational variables (hence be more readily identified) than actual behaviour, the data show that the identification of behaviour clips did not vary in this regard. Participants were equally able to identify emotions within the complexities of actual behaviour as they were from urges or felt action tendencies.

As predicted, the rates at which emotional behaviours were correctly identified showed a strong positive correlation with the intensity of the original emotional experience. In these data, the more intense the original experience had been, the more likely it was that the emotion preceding or accompanying the associated behaviour would be correctly identified. The data do however suggest that the relationship between the intensity of emotion and the identifiability of behaviour is complex and may not be the same for each emotion. Positive relationships between intensity and rate of identification were found for behaviours associated with happiness, sadness, shame and pride, while negative relationships were evident in ratings about fear, anger, and embarrassment behaviours, and guilt showed no relationship whatsoever.

Most importantly, the results presented here were consistent across four geopolitical samples. There were no differences between samples from the four geopolitical regions in their ability to correctly identify behaviours from either primary or secondary emotions. Contrary to expectation, further analyses likewise showed that participants from the four regions were equally capable of identifying the behaviours associated with secondary emotions.

Substantiating the forced-choice paradigm

It appears typical in psychological presentations to offer a self-generated methodological critique during either the 'methods' section itself or later in the discussion. However, much of the theory 'supported' by this study rests on a particular interpretation of the data and certain assumptions regarding the method, hence some time will be spent considering methodological issues in advance.

Forced-format methods are widely used in emotion theory, particularly in testing universality theses for facial expression. However, the method has recently been subjected to a series of critiques and their theoretical utility called into question (see e.g. Russell, 1993, 1994, 1995). While Russell's concerns are leveled at recognition and forced-format methods in facial expression, many of the criticisms he outlines are relevant to the methodology and interpretation here, hence are briefly rebutted below.

Throughout the results section, and in the brief discussion thus far, descriptions of the data have deliberately been framed in terms of 'correct identification' rather than 'recognition' per se. The reason for this terminology is not because I have difficulty believing that subjects are in fact recognising the emotions 'behind' the behaviour clips, but rather because the forced-choice paradigm does not actually enable comment on whether subjects 'recognised' the target emotion or whether they simply chose the option that most closely approximated that which they would preferred – the best available option (Russell, 1993, 1994). Free response formats are one obvious answer to this concern (see e.g. Haidt & Keltner, 1999), although these methods have their own particular problems[52].

Russell (1994) has argued that the "forced choice format clearly alerts the subject to the experimenter's expectation that the . . . expression is to be interpreted in terms of emotion, and even which emotions" (p. 116; although see Izard, 1994b for a response). While there are some senses in which this concern must be valid and poses

[52] Although Haidt and Keltner's (1999) research in fact suggests few differences between free response and force choice methodologies, interpretative problems are likely in situations where (for example) the target emotion was 'angry' and the respondent reported that they thought the person was 'enraged'. In this situation it becomes difficult to know whether to score the estimation as incorrect, correct or somewhere in between.

a genuine concern (see e.g. Haidt & Keltner, 1999 pp. 228 – 9), it strikes this author as a generally unhelpful remark. In the current study the key item stated: "Based on the description above, which emotion do you think the person was most likely feeling at this time?" (see Appendix 7). Although it is not explicitly stated that the behaviour clip was emotional, this is clearly implied by the item itself as well as by the nature of the available responses. However, failing to direct the subject's attention to the phenomena of interest would (at best) have produced data relevant to an understanding of whether, how frequently, and how accurately individuals explain contextless behaviour in terms of emotion. Consequently, it would not elicit responses suitable to testing the hypotheses of interest here. If this criticism is taken too seriously we will find ourselves unable to ask people how they feel at all. After all, doing so would presuppose that they actually feel something, which in fact they may not.

Russell (1993) also suggests that many previous studies using forced-choice methodologies are weakened in they cannot prove that a consensus or modal rating of the stimuli is actually the 'correct' answer. Insofar as this criticism goes, I am in agreement with him here, although his concern is somewhat less relevant within the current design. In the current study, the behavioural clip stimuli were derived from *actual* experiences and events, at least insofar as recollective self-reports can measure them. As such, we can be reasonably sure that a 'target' emotion was actually available for identification. While we can of course question the generality of the self-report stimuli on the basis of memory bias and prototype concerns (see below), we have no real grounds on which to challenge the presence of a clear target. If we do not accept our subject's reports of their own states, even where they are recollected, who are we to believe, and on what basis will we infer emotions?

Finally, Russell (1994) has also been critical of both the lack of contextual information in previous research (see also Fernandez-Dols & Carroll, 1997) and of the 'artificial' or posed nature of the stimuli typically used. In considering the first issue, it is simply noted that as much context as possible was deliberately removed from the behavioural clips. The simple reason for this is that the study was designed to illustrate that emotions generate a behaviour type that was recognisable to all people. Unnecessarily including context within the text stimuli could only have weakened the

ability of the data to speak to the issues here, instead creating competing explanations for consistency in terms of commonly shared contextual (Harrison, 1986) or antecedent variables (e.g. Ellsworth, 1994b; Frijda, 1994c; Keltner & Buswell, 1996).

In considering the second issue, it is noted that the stimuli were only as artificial as is necessarily engendered by any self-report measurements of emotions. In creating the behavioural clips, the instructions asked participants to briefly read all items, to recall a recent occasion in which they had felt one of the eight emotions, and to report on what they first felt like doing (the urge) and what they actually did. The stimuli generating items were intentionally placed in this particular sequence in order to maximise the likelihood that subjects would express any discrepancies between felt urges and regulated actual behaviour (e.g. DePaulo, 1993). Although requesting only one episode of an emotion may encourage prototype emotion episodes or events (Keltner & Buswell, 1996), requesting recent occasions, coupled with an indicated opportunity and implicit encouragement to express both felt urges and actual behaviours would seem to minimise the artificiality of the stimuli used here. Finally, subjects were never explicitly made aware which parts of the data they provided would be re-used, although ethical procedures required that they be informed of this possibility in a general sense.

Inferring universals in emotion and behaviour

As noted earlier, the current studies were conducted to investigate a particular conceptualisation of the relationships between emotions and behaviour. Although the paradigm and data could well be used to do so, they were not designed to explore the accuracy with which participants identify emotions from behaviour. Rather, it was thought that a cross-cultural identification paradigm provided a well-developed framework within which to begin investigating the possibility of universals in the relationships between emotions and overt behaviour. While the thinking behind this interpretation is comparatively straightforward, the conceptual shift from identification data to theorising about universals in emotion-behaviour relationships is critical to the theory presented below, hence some time will be spent explaining the logic behind this particular use of the data.

The logical sequence begins with what appears a commonsensical view of emotions and behaviour. When we are attempting to work out how someone else feels we do so using a combination of vocal, facial, postural, and behavioural information, as well as cues about the situation and our knowledge of the people involved. Sometimes however, we make our estimations on the basis of one set of cues alone – we simply watch the *way* people act, and *what* they do. Describing just how effective people are at judging emotions from behaviour has been an important part of this research. However, demonstrating that people can identify emotions from behaviour alone begs a number of key questions. How and why could this ability could come to be? How is it that we can tell what lovers, friends, family and even strangers feel simply by observing the way they act? Equally importantly, why do we do so?

Although the abilities to infer, represent, and utilise perceptions about the emotional states of others are different phenomena from emotion per se, they are clearly related to the 'why' component of this puzzle. It seems fairly evident that being able to infer and attribute internal states like emotions is a very useful adaptation, enabling more precise predictions regarding the likely behaviour of conspecifics, and communicating much about the state of the environment. A man shouting and gesturing violently with his fists is probably angry (and thus dangerous), while a person running quickly whilst looking over their shoulder is probably afraid (of something potentially threatening). Being able to extract these signals from a background of deception and regulation make inference a complex business, yet the adaptation nonetheless works a fair proportion of the time (Frijda, 1986).

Given the evidence that this type of prediction appears useful, the next step then comes in determining how such prediction is made possible. Why does the prediction of emotions from behaviours, and of behaviours from emotions actually work? What is it about some behaviours that makes them so conspicuously emotional? More specifically, why is overt behaviour such a useful guide to internal feeling states, despite the fact that the predictor we are using (behaviour) is almost always confounded by personality, regulatory and situational variables?

One initial possibility considered was that we simply learn that certain types of behaviour are a consequence of certain emotions. In this view, we might watch and

listen to our caregivers, our friends, and ourselves, thus acquiring a working compendium of emotion-behaviour relationships that we subsequently use for both instrumental and predictive ends. Logically, the problem with this view is that it could not explain why our idiosyncratic compendiums continue to operate effectively in completely novel situations, allowing us to infer emotions in people that we do not know, in situations that we do not understand. Perhaps moreover, this view is difficult to reconcile with the data presented above. There were no significant differences between the four geopolitical samples in the rates at which they identified emotions from the behaviours of a single cultural sample (New Zealand). If our ideas about emotions and behaviour are learned, why then do people from nearly 25 countries appear to be learning approximately the same things?

My suggestion in this regard is that the ability to predict emotion-behaviour relationships has arisen and is retained precisely because emotions engender identifiable types of behaviour. If emotions and behaviour were not systematically related, people could not use behaviour to predict emotions and would fail an identification task. They would not be able to identify emotions from behaviour with anywhere near the accuracy levels that have been demonstrated, even within a given culture, much less across cultures.

Other competing explanations for these data can be made through reference to a common English language and the comparatively 'Westernised' nature of the cross-cultural sample. The nature of the stimuli, the use of the Internet as a collection method, and the consequent necessity for the sample to read and write English as well as have familiarity and access to the Internet mean that the sample is still reasonably homogenous, hence the data can probably be explained in terms of language[53].

Although this explanation cannot be discounted, a serious application of a linguistic perspective would have predicted differences between the groups that speak English as a first language and those that do not. This was not the case here. Parenthetically, it can also be noted that a similar rationale led to the fifth hypothesis. It was thought

[53] Future research of this kind should use a variety stimuli (e.g. non-text based and as non-prototypical as possible). It should likewise investigate a wider range of emotions and a more strongly cross-cultural sample, systematically considering how emotion and action relate.

that secondary emotion based behaviours would be more 'symbolic' and steeped in cultural meaning than primary emotions, with a consequence that the source sample would be better at identifying them. Again, this was not the case here, hence the equivalent identification rate across the groups in the identification of the eight emotions still begs for explanation.

A more parsimonious interpretation of these data is that there are universal relationships between some emotions and overt behaviour. Notably stronger in the case of the four primary emotions considered here, these relationships are equally evident to people, irrespective of their facility with the English language or cultural background. It has been argued that we are only able to use behaviour as a cue to emotional states because they continue to be a reliable predictor of them. That people from a number of cultures were equally capable of identifying emotions from behaviour, is, I believe a reasonable basis upon which to theorise about biological universals in the relationships between emotions and behaviour. This is the focus of the next section.

Emotions and behaviour: A conceptualisation and theory

This final section is organised in three parts. The first of these reiterates how important an understanding of emotion-behaviour relationships is to the scientific study of emotions. It revisits the conceptualisations offered by Frijda (1986) and Tooby and Cosmides (1990a, 1990b), and discusses the data in terms of evolutionary-functionalism and its implications for emotion theory. The second section builds on the first and offers a new dynamic systems theory describing how the emotions generate and influence behaviour. Specific attention is focussed on differences in emotion-behaviour relationships between primary and secondary emotions, and on the implications following the failure to find a difference between urge and actual behaviour identification. Ideas previously used in this thesis to describe the place of emotions in personality development are reconceptualised, and then integrated with elements from the theories of Ortony, et. al. (1988), Johnson-Laird and Oatley (1992), and Frijda (1986) to create a theory of emotion and behaviour. Finally, directions for future research are given.

Emotions and behaviour: General views and evolutionary functionalism

It was taken as a starting point in this research that the emotions have evolved because they increase the time-selected 'appropriateness' of the organism's interactions with the environment. Following explicit evolutionary reasoning (cf. Tooby & Cosmides, 1990b), it was further argued that the emotions ultimately ought to be represented in overt behaviour if they are to be useful in meeting adaptive challenge (see also Solomon, 1993). The data presented above clearly support this approach, unequivocally indicating that emotions are systematically related to identifiable patterns of overt behaviour.

This is a singularly important result as the relationships between emotion and behaviour have been infrequently discussed in emotion theory. Where mentioned, theorists have preferred to focus on the flexibility of behaviour (e.g. Averill, 1998) and the notion of functional equivalence (e.g. Smith & Pope, 1992), consciously or unconsciously imposing a standard of specificity to potential emotion-behaviour relationships we would never expect in another domain. Of course emotions are not innately linked to fixed action patterns or reflexes (Frijda, 1986), but neither are emotions fixedly linked to the content of specific appraisals or exactly the same facial expression. In this sense, consistency and innateness rest in the eye of the beholder. That which we 'discover' is inescapably dependent on the standard of relationship we expect, ultimately resting on an issue of specificity. Although the data types are not directly comparable, the identification rates presented here in the context of emotion and behaviour approximate those discovered in appraisal (see e.g. Smith & Ellsworth, 1985; Roseman, et. al., 1990, 1996; Scherer, 1997) and action tendency (e.g. Frijda, et. al., 1989) research.

The importance of this finding cannot be overstated, as it reaches to the core of our conceptualisations about emotions, the relationships between emotion and behaviour, and our ideas of emotions and function. While aspects of each emotion and each behaviour are to a degree unique (see below), so too are key aspects of them shared. Emotions are not only phenomenological or social phenomena, but rather biologically based and systemic response patterns that continue to generate recognisable types of overt behaviour in our current adaptive context. Supporting this view, the current

research has demonstrated that the consistencies in emotion-behaviour relationships do not only exist at the level of felt urges or action impulses (Frijda, 1986), but are equally evident to an observer in displays of actual behaviours as well.

More generally, the data presented here suggest that the functional equivalence of behaviour exists and can therefore be investigated at a discrete emotion, normative and cross-cultural level, rather than necessarily or only at the level of the individual's goals. They also suggest that behavioural correlates, outcomes and changes should be explicitly incorporated within discussions of function and the emotions. Emotions were selected as adaptations because they engender particular types of adaptive behaviour change. Exactly what these are and how they are best conceptualised remains unclear, but that emotions exert a systematic influence on behaviour cannot be denied and must not be forgotten.

Emotions and behaviour: A dynamic systems conceptualisation of influence

The view that emotions have evolved and function to generate adaptive behaviour appears substantially supported by the data from this study. These data cast serious doubt on the idea that any emotion can lead to the expression of any behaviour, and suggest that some emotions engender cross-culturally identifiable behaviour types. Below, a preliminary theory of emotions and behaviour is developed. The theory suggests that when goal relevant changes are signaled, the emotions exert a direct influence on adaptive response behaviour. Although the manner in which we actually behave is influenced by a large number of other factors (see below), it is suggested that the emotions automatically create an attractor for a behaviour sequence commensurate with the function of the emotion, the situation, and the goal in question.

While this theory is intended to represent the beginnings of a general theory of emotions and behaviour, if focuses on the four primary emotions. The most obvious reason for this emphasis is because the data are considerably more supportive of emotion-behaviour links for the discrete primary emotions of anger (51%), sadness (37%), fear (23%), and happiness (47%). Primary emotions were correctly identified significantly more often than the secondary emotions of embarrassment (19%), shame

(1%), guilt (6%), and pride (13%)[54]. However, this difference was predicted precisely because the four emotions described as primary are 'different' from the others. Each is thought to be present in all mammals (cf. Plutchik, 1980, 1982), has clear ANS correlates (Ekman, 1994a), and is capable of fulfilling adaptive function and engendering behaviour in the absence of consciousness (see Chapter 4). Being less cognitively complex, these four emotions are more primitive and typically bear a more immediate and readily accessed relationship to overt behaviour. They are the focus of this section.

In chapter six, it was argued that emotions reflexively generate new attractors or goals in the personality state space. It was suggested that these emergent forms represented the interactions between the activating goal or attractor, the situation, and the emotion in question. In chapter seven, this idea was extended somewhat and it was reasoned that the attractors created in these processors must inevitably represent something of the emotion responsible for their appearance in their form. Finally, in the section on function and emotion above (see Chapter 8.5), it was suggested that this process could be conceptualised as developmental, operating across two distinct, though complementary, time frames.

Following this conceptualisation, it is suggested that a critical microdevelopmental function for the primary emotions is to reflexively generate a new attractor for adaptive behaviour. Within the current theory, this adaptive process occurs automatically, inescapably, and invariably. Primary emotions always create attractors for behaviour, whether or not enacting the new attractor would actually assist the organism at the time (see Frijda, 1986), whether they 'desire' it, and notwithstanding whether any behaviour is actually undertaken. At base, these attractors make evolutionarily selected behaviour-types more likely, encapsulating the function of the emotion in their form. Just as core relational themes allow an organism to map the

[54] The comparatively low recognition rate for fear, and the small difference between fear and embarrassment is thought to have arisen due to a differential tendency for people to describe embarrassment in terms of facial 'behaviour'. Additionally, gaining access to genuine episodes of fear proved very difficult in this study. Inspection of the fear stimuli suggests that unambiguous episodes of fear are uncommon in New Zealand society, particularly for male respondents. Many of their descriptions appear to describe what might better be categorised as experiences of anxiety or denote situations where fear was present but controlled, as in the case of extreme sporting events. This interpretation is supported by post-hoc t-tests which show female experiences to have been significantly more unpleasant ($t(361) = -4.31$, $p < 0.01$) and more intense ($t(361) = 2.46$, $p < 0.01$).

infinity of real-world events to a finite set of organism-environment relationships, so too do the emotions constrain the attractors for behaviour, enabling an instant synthesis of previously adaptive behaviour types with the demands of novel and completely unforeseen settings.

Within the current theory, these automatic emotion-behaviour attractors always exert some influence on later behaviour, whether or not the system's functioning ever occupies this particular area of the state space (whether the behaviour is ever enacted). Attractors do not immediately cease to exist or influence in situations where they are suppressed, inhibited or denied. Nor are they nothing more than a felt urge, although they may be experienced in this way. As attractors, they always influence the eventual form of overt behaviour, although this influence may be both indirect and difficult to discern. This, I believe, is one reason we are as able to identify emotions from actual behaviour as we are from descriptions of self-reported urges.

While an emotional response creates recognisible, shared, and normative aspects in behavioural attractors, these attractors nonetheless emerge *afresh* at each microdevelopmental juncture. This is particularly important to the current model in that it provides one way in which to conceptualise both the flexibility and stereotypy of emotional behaviour, a difficult issue in emotion-behaviour theorising. Johnson-Laird and Oatley (1992) have previously argued that some action is probably better than becoming lost in thought, with a consequence that a biologically based response system makes ready a small repertoire of actions appropriate to a particular type of goal relationship. According to them, this mechanism then tends to constrain the individual to choose the next action sequence from the repertoire. In many respects their view is similar to that of Levenson (1994a) who regards emotions as shifting behavioural hierarchies.

The most obvious difficulty with this approach is that it neglects the 'uniqueness' of a behaviour that necessarily varies in relation to the context in which it occurs. This implicitly treats the behavioural repertoire of a given individual as highly pre-existent, leaving little room for development, change, and situational demand. In contrast, Ortony and colleagues (Ortony, et. al., 1988) have suggested that many of the behaviours made likely by emotions are constructed on-line – as they are needed. In a

manner similar to the current theory, they have suggested that behaviours result from the interactions between goal-relevant emotional processes and relatively specific local considerations. Extending this reasoning, the current theory suggests that while behavioural attractors may be present within the organism's existing action hierarchies (see below), that frequently they are not, and in most instances a novel behavioural attractor emerges.

Behavioural attractors emerge in the immediate proximity of the activating motive or attractor, their form typically appearing as an interactive function of the emotional state with the situation or eliciting stimuli[55]. In line with Frijda (1986), these new attractors can usefully be thought of as a form of 'automatic behavioural goal' and are accorded a similarly high profile in the current conceptualisation of the emotional response – they always emerge. Behavioural attactors are not random in their placement within the state space. Rather, specific behavioural attractors emerge in the proximity of the relevant attractor or attractors (Killeen, 1992), what I have (for simplicity) termed the 'activating motive.'

Despite the complexities involved in equating general motivational concepts such as 'goal' with specific behavioural acts or sequences, the current writer considers emotionally generated behavioural attractors as essentially no different to any other attractors or goals in the personality state space[56] (see Chapter 6). Following Killeen (1989, 1991, 1992) it is suggested that attractors exist in complex hierarchies where individual acts merely represent the most specific level of hierarchical description. General goals or attractors can be broken down in a series of ever more specific attractors, culminating in discrete behavioural acts (see Chapters 2 and 6). In this view, any demarcation between goal and behavioural attractors is strictly a matter of preference. Conversely, considering emotionally generated behaviours as 'merely' a

[55] The issue of whether situational affordances and the physical limitations imposed by the environment are central to the generation of this attractor is an interesting issue. On the one hand, people sometimes feel an urge to act in a way that is impossible (e.g. harming a loved one who is dead), suggesting that the initial response may ignore what Frijda (1986) terms 'stimulus control'. On the other hand, verbally recounted experiences of emotion-behaviour attractors are so complex, that they may not represent the attractor accurately.

[56] Although it is a thorny issue (see Carver & Scheier, 1998, p. 100), and somewhat beyond the interests of this dissertation, considering all goals as being a part of the self has the additional advantage of meaning that every act, even one that is statistically very uncommon for that person, is theirs – they are responsible for it because in the moment of its emergence *it is a part of them.*

new attractor within the vast field of attractors comprising the personality state space has some substantial advantages when attempting to determine when and how someone will act (see below).

As has been noted by many previous theorists, other factors, some having little or nothing to do with the emotions, determine whether a particular (or any) behaviour actually occurs when emotions arise (e.g. Ortony, et. al., 1988; Mesquita & Frijda, 1992; Brehm, 1999). Mesquita and Frijda (1992) list a number of mediating factors including expectations about the behaviour's effectiveness, its accessibility, and its availability in the action repertoire. Above, I have argued that a new behavioural attractor always emerges as a central part of the emotional response, yet people frequently behave in ways inconsistent with their emotions and urges (Polivy, 1998). How can this be?

Reconciling this discrepancy is no small task, and one that cannot be adequately completed here. However, three key factors appear likely to influence whether an automatic behavioural attractor is ever enacted. Foremost among these in terms of emotion theory is the intensity of the emotional response. In many cases, the intensity of an emotional response can be taken as indicative of both the degree of 'challenge' to a goal (see Chapter 8.4) and the importance of the activating motive (represented by the attractor's depth). More importantly, when viewed in DS terms, I suggest that emotional intensity directly corresponds to the depth of the new attractor – its power to attract behaviour. The stronger the emotional response, the more powerful the attractor created, the more influence the attractor exerts on eventual behaviour, and hence the more likely it is that a discernibly 'emotional' behaviour will be enacted.

Indirect support for this conceptualisation is found in data from the study above. In these data, behaviours stemming from more intense emotional experiences were correctly identified at a higher rate than low intensity behaviours. The relationship between identifiability and felt intensity was very strong ($r = 0.83$), with identification rates increasing linearly with increasing felt intensity. While it is an argument by implication, it seems reasonable to suppose that the reason that the behaviours associated with higher intensity experiences were more readily identified is that the

intensity of the emotional response created a much greater likelihood that the person would enact the new attractor[57].

In terms of operation, the depth of the emergent behavioural attractor is also likely to determine the extent to which an individual is able to consciously inhibit or prevent the behaviour from occurring. Where emotional intensity is very high, the attractor is likely to be considerably more powerful and may often attract behaviour despite a conscious desire to do otherwise. As Lewis (1998b) notes, "the more intense the emotional state, the greater the number of expressive modalities that would be used to express that state" (p. 39). So even in situations where we know that an emotional behaviour will not help us achieve what we want, high intensity emotional states create a very strong tendency to behave in a manner commensurate with the function of the emotion.

A second general grouping of factors likely to influence the extent to which a new behavioural attractor draws the systems functioning involves the stability and breadth of the attractor in comparison to the remainder of the state space. As noted earlier, attractors exist and emerge in vast and comparatively labile networks of other attractors, the most stable elements of which, I have argued, constitute the personality. In this view, overt behaviour is rarely the consequence or enactment of a single attractor, but is more often a complex form 'determined' by the interactions between an enormous array of attractors.

In Chapter 6 it was noted that new attractors are likely to be very unstable immediately upon their emergence. They may emerge only briefly before other (more powerful) attractors emerge in proximity and thus attract systemic behaviour in this area of the state space. While the stability of emotion-behaviour attractors probably

[57] However, it should be remembered that intensity was not always positively correlated with the identification rate when each emotion was analysed individually. In the case of fear experiences for example, the correlation was moderately negative ($r = -0.60$), indicating that more intense fear episodes were actually more difficult to identify. Exactly why this is so remains unclear, although a number of possibilities occur. For example, some emotions may have a disorganising effect on behaviour at very high levels. Alternately, the relationship between intensity and recognition may be non-linear, having either a quadratic form (cf. Brehm, 1999), a ceiling effect, or interacting differently for different emotions. Finally, it may be that intensity ratings should be made within an emotion category rather than across categories and that multiple episodes of a single emotion should be obtained from each subject.

varies somewhat depending on the relationship between function and duration for each emotion (see Chapter 7), emotion-behaviour attractors are typically less stable than other factors in the personality state space, and are only one influence on the eventual form of overt behaviour.

The macrodevelopmental processes of learning, habit, and practice are likewise key variables in determining the eventual form of overt behaviour. Historically-repeated learning processes, particularly those representing the previously experienced consequences of emotional behaviour, create enduring attractors that may 'compete' with automatic emotion-behaviour attractors. As with all attractors, these may be more or less clearly defined, situation or state specific, powerful, enduring and swift in their emergence.

In some instances, a person may never behave in an overtly angry manner because experience has taught them that angry behaviours do not help. In the terms used here, as the person initially becomes angry, an attractor for 'angry' behaviour will emerge for them as it does for everyone. Concurrently however, existing attractors for what have been more 'helpful' behaviour styles deepen and begin to compete for behaviour. In many individuals and situations, these secondary attractors (which a behaviourist might well call habit, and which I would call regulatory-expressive attractors) may emerge automatically following the initial response and may exert an influence such that the innate emotion-behaviour attractor is never enacted – the person may never behave in an obviously angry manner. Alternately, people may near-reflexively enact emotion-behaviour attractors, displaying little regard for consequences or utility, exhibiting what might be termed poor impulse control or a lack of inhibition. In the case of emotional behaviours, development is likely to see these tendencies become highly rarefied, operating differentially for different emotions and different situations.

Increasing the complexity of these processes is the fact that both emotions and emotion-behaviour attractors emerge in rapid and highly interactive sequences. Although I have argued that only one emotion (and by implication, one emotion-behaviour attractor) can emerge in any given moment, it is almost certain that each of

us evaluates each single situation or event in respect of its implications for multiple goals. In this process, emotion-behaviour attractors will emerge as a part of each emotional response, each new attractor emerging as quickly as our appraisal system can move between evaluative criteria. Ultimately, overt behaviour in each moment may represent the influences of many general and specific attractors, the attractors interactively creating new 'compromise' attractors for behaviour.

Finally, the ability to consciously represent attractors and the likely consequences of particular behaviour sequences (beliefs) is a critical influence in the eventual form of overt behaviour. Although attractors can determine the form of behaviour irrespective of awareness or intention, human behaviour is frequently a conscious and volitional concern. When the emotion-behaviour attractor emerges, people near-automatically represent and evaluate the attractor in terms of its likely consequences for both the activating motive and other relevant motivations. They may for example believe that the action urged by the attractor will not assist them, or feel that enacting the behaviour would be greatly inconsistent with other motivations they hold, such as the desire to conform to social display rules. In doing so, they consciously regulate behaviour, intentionally creating new attractors for a behaviour they prefer. In planning, people may represent a series of possible behavioural attractors, extending the likely consequences of them through time to examine their utility. Again, the eventual form of overt behaviour may bear little resemblance to that urged by the initial emotion-behaviour attractor, although this attractor necessarily exerts some influence perhaps explaining phenomena like 'affect leakage'.

An important implication stemming from this view is that a given person's ability to regulate or inhibit behaviour (control their action impulses) can be regarded as a personality variable. In Chapter 4.5 it was suggested that one way to think of consciousness was to think of it as a personality variable describing the extent to which each person is aware of their own goals. It was argued that holding goals in consciousness is a useful measure of fitness, in that more comprehensive representations of the state space goals capacitate a more accurate, informed, and deliberative evaluation of what is needed to accomplish them. Emotion-behaviour attractors emerge within the personality state space in the proximity of the relevant

goals, comprising one more attractor. As such, the conscious awareness of how emotion-behaviour attractors fit into the goal hierarchy should enable a person to more precisely consider whether specific actions will actually assist them. Where the purpose of the action is available to consciousness, emergent behaviour can be more precisely tailored to these ends. For some individuals, the purpose of behaviour may often be unclear, and actions may be implemented with little or no awareness of exactly what the behaviour is 'designed' to achieve.

Emotions and behaviour: A model and example

To this point, the discussion of how emotion influences overt behaviour has occurred at a highly abstract level. The reader could thus be forgiven for wondering what the theory I have proposed here actually means. Above, I have suggested that emotions exert a direct influence on behaviour, automatically creating an attractor for behaviour that represents the interactions between the emotion and the environment. In addition however, behaviour is clearly influenced by personality processes, notably the nature of activating motive, previous learning, beliefs, and knowledge of emotions, behaviour, and the situation, inhibitory capacities, and the conscious awareness of these processes. The basic operations of these influences are depicted in Figure 8.10 below.

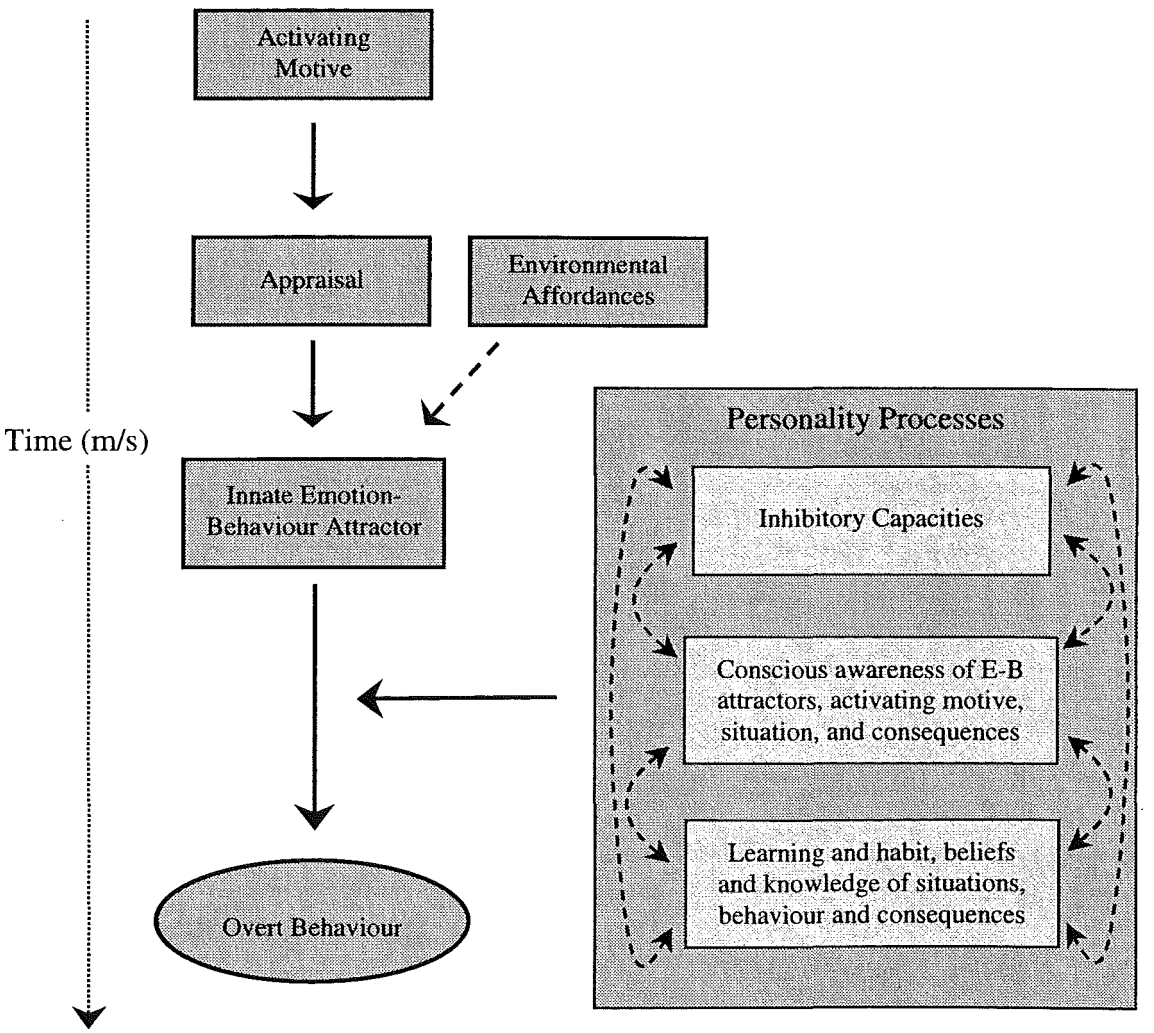

Figure 8.10 – Emotions, personality and the generation of overt behaviour in microdevelopmental time (NB: Solid lines represent inevitable events, influences or relationships, while dashed lines represent likely events, influences or relationships).

To illustrate, take a general goal that most individuals hold such as maintaining physical integrity. Now imagine that you have been cajoled into participating in an introductory sky diving course, and are in the back of a single engine Cessna at about 3500 feet. There is some nervous banter going on, but you feel quietly confident. Suddenly, the door opens, and two of your more experienced colleagues drop screaming into the atmosphere. The looks of the instructor let you know that you are next, and you labour to the doorway. It is both colder and windier than you had thought it might be, and you struggle to hold the doorframe and strut, your hands moving uncertainly across the surface. The instructor counts down your jump. Three. Two. One. GO! Nothing. You try to release, but your hands feel as if they are welded to the fuselage. You glance around the inside of the cabin, your mind racing as you desperately seek a socially acceptable manner in which to clamber back to your seat. It seems as though dozens of possibilities have been considered and discarded, when the instructor says, "Not going today, huh?" Surprisingly galvanised by this remark, you look over to receive the grins of your remaining colleagues. They give you a big 'thumbs up,' your hands somehow release their death grip, and you fall.

In this example, your initial inability to release is (quite reasonably) the result of intense fear generated by an appraisal of the situation as threatening your desire to retain physical integrity. The innate emotion-behaviour attractor that emerges (desperate gripping of the fuselage) emerges as a part of the fear response in conjunction with the affordances of the situation (the options that are *literally* available). Emotion-behaviour attractors are infrequently environmentally independent, although it is not strictly necessary that the initial emotion-behaviour attractor pay heed to environmental affordances. For example, you may initially have felt a strong urge to run, even though there is nowhere to flee to. More typically however, the innate attractor is a combination of the emotion along with the situational affordances. In any case, the important point in this example is that in the initial moments of the emotional response you literally cannot release the strut. The emotion-behaviour attractor is simply too powerful and dominates behaviour for the first few seconds.

Following the initial response however you begin to consciously evaluate your response options. Fear still dominates both the cognitive and the action systems, so your initial evaluations still involve moving away from the threat (getting out of the doorway). You swiftly consider and discard a series of potential behaviours (and explanations), thus implementing your knowledge of your own motive structure, situational rules, social mores, and your beliefs regarding the likely consequences of potential behaviour sequences in terms of other goals (see e.g. Schultheiss & Brunstein, 1999). Your analysis ultimately reveals that there are no behaviours that will enable you to return to your seat without damaging your esteem goals and that you will have to drop. Yet despite your eventual decision to release, the initial emotion-behaviour attractor never ceases to influence behaviour, but must be deliberately overwhelmed. You consciously create an attractor for the necessary behavioural sequence (releasing), simultaneously inhibit the desire to climb back into the cabin, and fall from the plane.

In this example, the inhibition of the initial emotion-behaviour attractor required a great deal of conscious consideration and effort. However, there is no reason that inhibitory processes must be conscious. For some individuals, the inhibition of particular behavioural attractors occurs so repeatedly across development, that no conscious effort is required. Alternate behavioural attractors are generated in near-instantaneous conjunction with the innate response, drawing behaviour to a type that has been (or is believed to be) more useful in accomplishing goals. In other instances, deliberate training can mediate the effects of innate attractors. If, for example, you had had a number of jumps prior to this experience your behaviour would emerge somewhat differently. Your movements in the doorway would be more precise as practice would have produced more clearly defined attractors for the necessary positioning behaviours. Similarly, releasing would not be so difficult. Experientially, you expect the inevitable presence of the innate response, and you have developed the ability to inhibit this attractor. Likewise, your ability to consciously create the release attractor in this situation has been developed. The release attractor will emerge more quickly and be more precise.

Concluding remarks and future directions in emotion-behaviour research

As the reader is probably aware, the thesis presented above represents a very strong statement regarding how emotions relate to and influence behaviour. Although future examinations and opinion will no doubt discover omissions and errors in the theory developed here, it has gone some way towards an understanding of an area we know little about. The basic position adopted is somewhat similar to that taken by Frijda (1986) when he suggests that the emotions should first and foremost be viewed as changes in action readiness. Although I am less convinced as to the *definition* of emotions as the perception or experience of these changes, primary emotions do lead to recognisable behaviours a surprisingly large proportion of the time. It has been argued that an initial emotion-behaviour attractor always emerges as a critical part of the emotional response, and thus invariably exerts an influence over the eventual form of overt behaviour (Tooby & Cosmides, 1990b; Solomon, 1993). An important part of demonstrating this likelihood has been to show that actual behaviours are no less identifiable than a felt urge. Emotions are identifiably present in behaviour, despite the complexities imparted by situational and regulatory processes.

Although I have argued that emotion-behaviour attractors always emerge, it must be acknowledged that the extent and timeframes over which they influence overt behaviour remains unclear. The discussion above has however offered several factors that appear likely to influence the degree to which a given behaviour is identifiably 'emotional'. Foremost among these is the intensity of the emotional response and the resultant strength or depth of the emotion-behaviour attractor. More intense emotional responses increase the likelihood that these attractors will be enacted, although the exact process by which this tendency operates is similarly unclear. It may be that more intense responses generate more powerful attractors and/or that they reduce the capacity of the individual to regulate or inhibit them.

Clearly, the concepts used here need be operationalised in a way that enables the more direct examination of the emotion-related variables hypothesised to influence overt behaviour. For example, different emotions are thought to have different characteristic time-courses (Frijda, et. al., 1991; Malatesta-Magai & Culver, 1991), the nature of which I have suggested is strongly influenced by the function of the

emotional state (see Chapter 7). Following this assumption is the possibility that emotion-behaviour attractors may exert an influence on observable behaviour in line with the temporal nature of the emotion's function.

Although the theory being developed here has stressed the normative aspects of emotions and behaviour, both are strongly idiographic and cultural phenomena. Some attention has been given to these influences, notably in the discussions of development, beliefs, and consciousness. However, future research could go considerably further in the examination of how personality and cultural variables mediate the relationships between emotions and behaviour. An obvious candidate for such research would be the consideration of how relatively stable personality variables (such as beliefs) impact on behaviour when we are emotional. Similarly, other personality variables such as trait consciousness level (see Chapter 4) and inhibitory capacities can be measured and related to the basic model.

Additionally, the model presented here would expect that emotion-behaviour attractors would exert a proportionally greater influence on overt behaviour in organisms that have developed fewer conscious or implicit regulatory-expressive behavioural attractors. For example, it would be expected that emotions should be more identifiable from the behaviour of young infants, despite the data from Camras et. al., (1993). Although they have previously reported that infant facial expressions were not associated with patterns of bodily action differentiable to adults, it may be that the same behavioural attractors are emerging, but that the necessary requisite motor and muscular control parameters have not yet developed. The infant may be attempting to enact attractors, but simply cannot do so in a way we can discern yet. Nonetheless, developmental and cross-species comparisons would provide an additional test of the model offered here.

To an extent, the view taken here may appear to advocate an unnecessary degree of normative rigidity in emotion-behaviour relationships that rails against the conspicuous flexibility and social nature of most human behaviour. However, as Lazarus (1991a) has noted, the response components of an emotion, once provoked, must be coordinated while still operating with some degree of independence, depending on the immediate demands, constraints of the transaction. In

conceptualising emotion-behaviour attractors as a means of implementing evolutionarily useful behaviour types within the demands and affordances of a particular environment, I have provided a framework suited to describing and explaining how and when emotional behaviour is implemented in context. While the normative thrust of this theory may disagree with some readers, I believe that the construction of normative theories of emotion and behaviour is implicit in the evolutionary-functionalist framework, and has the potential to greatly improve our understanding of emotions.

Chapter 8.7 – Full circle: Concluding remarks on emotions

Earlier, emotions were characterised as a heritable set of adaptive mechanisms that function systemically to inform, motivate and organise an organism's responses to the perception of a change in the status of a goal. The chapter focussed on a conceptualisation of emotional states rather than emotional experience, the latter having been comprehensively considered in Chapter 7. Although the conceptualisation offered was both multifaceted and necessarily complex, the ideas within it are linked through a consistent emphasis on the importance of an explicit scientific realist and evolutionary-functionalist approach to emotions.

In elaborating the basic conceptualisation four major aspects of nine emotions were more fully discussed. The first of these stressed the importance of a *discrete* approach to emotions, arguing that the five primary and four secondary emotions discussed in the theory are universal phenomena in which the basic state-level components are innate. Emotions were characterised as specific modular adaptations that have evolved to deal with evolutionarily recurrent types of adaptive challenge. Following from this was the suggestion that for emotions to remain functional, they must necessarily emerge sequentially rather than simultaneously, in that genuinely simultaneous operation of different emotions would critically undermine the functioning of the systems. Overall, it was suggested that a normative and discrete approach is more consistent with the available evidence, as well as being more viable from an evolutionary-functionalist perspective.

Secondly, it was argued the *cognitive appraisal* of events in terms of their relevance to the individual's *goals* is a necessary and sufficient condition for the generation of emotional states. It was suggested that while each component of emotions exerts an influence on temporally later aspects of emotions, including appraisals (see below), that the appraisals themselves are nonetheless causal in, and precede, each emotion. However, it was acknowledged that appraisal-based research, even that of a cross-cultural nature, may not constitute the optimal framework within which to examine the proximate causes of emotions. An alternative framework using a longitudinal goal-diary design was presented, and the data from the two studies found to be consistent with the basic cognitive model.

Thirdly, substantial attention was given to the concept of *function* in emotion theory. It was suggested that while an understanding of function is critical to an understanding of the emotions, the utility of existing functionalist frameworks is substantially impeded by conflict and misunderstanding regarding the concept of function itself. A four-level framework for examining function was presented in which it was suggested that an understanding of emotions could be powerfully advanced by developing a series of mutually informing functional analyses *simultaneously* across four levels. Overall, it was argued that an understanding of emotions necessitates an understanding of function, which in turn requires we explicitly adopt evolutionary reasoning, and consider the emotions as serving multiple and evolving functions across multiple timeframes.

The final section concerned some of the issues involved in considering how the components of emotions relate. Following differential emotions theory, it was suggested that basic state-level components of emotions are substantially constrained in the manner in which they relate. However, it was also suggested that the relationships between the components of emotions may be restricted to a greater or lesser degree depending on the component, function, and emotion in question. Specific attention was then given to the place of behaviour in theories of emotions. It was argued (and then shown) that emotions and behaviour must be systematically related, especially if a particular theory is to endorse an evolutionary view. A preliminary theory of emotions and behaviour was developed in which it was

suggested that primary emotions *automatically* interact with the affordances of the specific environment to produce what was described as an emotion-behaviour attractor in the personality state space which exerts an inevitable influence on later behaviours. The intensity of emotion, personality variables, beliefs, situational knowledge, as well as inhibitory and representational capacities were then considered as potential mediators of this fundamental relationship.

Afterword

It is a strange feeling to begin writing the conclusion to a major theoretical work, the contents of which I have been considering for more than four years. When I began writing, I felt profoundly discontented with the state of psychological theorising, and notwithstanding my own subsequent research, my restlessness has endured. Although I believe that this volume represents a significant contribution to the science of personality and emotion, I am also aware that it has its weaknesses and limitations. Some of these are described below.

Having struggled for some time, I eventually titled the work *"A dynamic theory of personality and emotions,"* unconsciously, although perhaps not unintentionally, reflecting the titles and themes of major works from Lewin (1935), Arnold (1960), Tomkins (1962, 1963) and Izard (1971, 1991). In some ways, such a title does little to enliven a content matter that continues to stimulate and inspire me. It denotes nothing of that which makes my theory different from those of other writers, and does not precisely describe the approach I have taken. In other ways however, such a title is apt, informative and fittingly parsimonious. If one thing has become clear over the time of my writing, it is that psychological theories are always in development, and never complete – they themselves are inevitably and necessarily dynamic.

More so than ever, I believe personality and emotion to be inevitable bedfellows in an adequate theory of either. In the theory I have presented here, personality could not develop without emotions, and without personality, emotions would have nothing to arise in respect of. Perhaps moreover, I have argued that these two phenomena are linked through a necessary, if not sufficient, concern with *goals*. Herein lie the beginnings of parsimony.

Even so, it took me nearly three years to reach the point where I could readily describe the common threads in this work to another person. In retrospect of course, they have been there all along. Below, I describe three of these unifying themes, drawing from diverse parts of the dissertation in illustration.

The overarching theme in the theory presented here encapsulates my convictions regarding the importance and utility of a theoretical approach I have described as evolutionary-functionalism. In my view, emotions and personality are most usefully and validly thought of as adaptations that have evolved, are evolving, and continue to be selected *because they are functional.* Of course, such a statement appears almost impossibly simple when framed in this manner, but *wholeheartedly* implementing the philosophy of evolutionary-functionalism has lead me to conclusions that, in many cases, differ from those of other authors.

In unpacking my views somewhat further, let me make two further comments. Initially, the 'evolutionary' component of this approach has been taken to mean that not only are we evolving both as a species and as individuals, but that we are evolving *from*, rather than to, somewhere. What this means is that the challenges our species have faced, and the solutions that have been selected (like personality, self, and emotion), are shared to a degree by other living forms. In addition to being consistent with evolutionary biology, accepting this likelihood has the advantage of acting as a form of theoretical safeguard against anthropocentrism and experiential essentialism. Most notable in the discussions regarding the self and the emotions, I have argued throughout this dissertation that the basic functions served by these adaptations do not fundamentally change merely because we become aware of their operation.

Furthermore, the current dissertation has been more rigorous than is usual in its use of the term 'function.' To be a 'functionalist' is fashionable in contemporary psychological writings, although more so in emotion theory than in personality. Yet even within emotion theory where a functionalist approach has been utilised for some time, the term is used in ways that are unclear, misleading, incomplete, or simply incorrect. To my mind, functionalism is a necessarily a biologically-informed view of causes, as well as of effects and the means of explaining them. To benefit most however from the power of the framework, a theory must employ the concepts, rigorously, and wholeheartedly. Neither home appliances nor theories work properly when they are part-functioning.

Rhetoric notwithstanding, a strict and thorough application of evolutionary functionalism in the context of emotion and personality research has led to some

substantial theoretical developments in this dissertation. The demonstration of emotion's relationship to overt behaviour for example, stemmed directly from the evolutionary-functionalist assertion that adaptations must ultimately be reflected in overt behaviour in order to be selected.

The second major theme in this work has been the extensive use made of dynamic systems (DS) concepts and terminologies in the discussions of personality, development and emotion. Ironically enough, I am still unsure whether I view DS as a genuine explanatory framework or as a set of useful descriptive terms, although in other senses, it may not matter that much either way. If DS concepts *are* only descriptive terms, they are so laden with nuance and theoretical meaning that they engender genuine theoretical development nonetheless. The model of motive development described in Chapters five and six for example, in which the motivational arrangements in the personality are progressively or 'cascadingly' refined, could not have been conceived without an understanding of dynamic systems.

My suspicion with regard to DS concepts is that they will generally prove most useful when coupled (sic) with well-developed functionalist explanations for personality and emotions. In the view presented here, personality and emotion systems are neither completely unbound, nor utterly fixed. Rather, degrees of fixedness (or flexibility) characterise different elements of each system, depending on the functions of that system. This synthesis between emergence and constraint is best evidenced in the model of conscious emotional experience presented in Chapter seven. In this model, it was argued that *some* elements of *some* conscious emotional experiences are more constrained than others because they are directly relevant to the function of the emotion in question. Within these broad constraints however, there is always room for emergent experiences which, while related to the functions of the emotion systems, the personality and the situation are nonetheless *emergent* as they may be completely novel and could not have been predicted.

Finally, I feel that this dissertation has evidenced something of the theoretical development that can be accomplished when constructing large scale theories that attempt to synthesise and explain diverse pychological domains. In introducing this work, I bemoaned the absence of large-scale theories in psychology, suggesting that

much could be gained from such undertakings. In the years that have passed, my irritation and zealotry have waned somewhat, yet my conviction in this regard has only grown stronger. More so now than ever, I believe in both the importance and advantages of large-scale theorising.

Theorising across domains and attempting to hold diverse ideas within a single, coherent framework frequently illuminates theoretical issues for each that might never have arisen were they not paired. Likewise however, the seeking of solutions for these 'problems' at once necessitates and engenders the creation of new ideas within each domain. Over time, a process of mutually recursive adjustments can occur across the two (or more fields), the end result being, I believe, better theories in each case. Within the current dissertation, this is nicely illustrated by the parallel development in aspects of the theory describing the transition from innate to representational goals and the functions of consciousness. In this case, it transpired that I was considering the place of consciousness in personality at a time when I was also pondering how innate motives changed. Somewhere among these two disparate areas, something clicked, I began considering the possibility that consciousness arises through the representational processes.

As with any major piece of theoretical work, this dissertation has its weaknesses. Although I would prefer to leave the reader to ascertain these for themselves, two in particular are worth mentioning. To my mind, the primary weakness of the theory I have presented lies in a tendency to discuss extremely complex issues at a high level of abstraction. In part this has been a deliberate act, in that comprehensively unpacking the ideas here would necessitate a great deal more writing with a consequent (and undesirable) increase in the overall length of the work. In part however, it may simply reflect my own familiarity with the content, and a lack of appreciation for how involved some of the theory actually is. Treading the line between succinctness and conceptual clarity is a difficult matter, and only time will tell whether I have paced the appropriate path. Secondly, while several large studies have been presented, the dissertation nonetheless feels 'empirically light.' Although it is consistent with large bodies of existing research, many of its unique assertions remain unproven and have not been directly tested. Again, there is probably a sense in which the lack of directly supportive data represents little more than the relative

immaturity of the theory, yet systematic research conducted within the framework developed here is clearly needed.

As I retrospectively consider the totality of my work, I feel a strange mixture of contentment and apprehension (although I may well be rapidly alternating between two discrete states). In most ways, I have accomplished what I set out to achieve here, although the journey was more demanding than I could possibly have foreseen. So despite my moments of disillusionment, I continue to feel very passionate about my work, and about psychology. I hope this has been clear. To my mind, there are few things more satisfying than the moments in which previously inchoate ideas suddenly crystalise. Exactly how long such moments last varies somewhat, as new challenges arise and my thinking takes me in new and exciting directions. This has been my first attempt.

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Appendix 1

Goals about Emotion Scale.

The following questionnaire asks you to make some ratings about different emotions in your life. In each section, you will need to make some ratings about a particular (target) emotion. Overall, the questionnaire asks you about six different emotions (anger, sadness, happiness, shame, fear, and pride). The questions pertaining to one emotion (e.g. anger) are all presented together. Then the next set of questions about the next emotion are presented, and so on.

You may feel that your answers might depend on the situation, but try to think about what you *usually* feel or do. Overall, try not to take too long to deliberate your answers. There are no right or wrong answers, and first impressions are what matter. Lastly, please briefly examine all the questions in a section before beginning your answers.

Appendix 1

Note: The questions presented here are only presented for the emotion of anger. In the full scale, the questions were repeated for the emotions of sadness, fear, happiness, shame, and pride.

Anger

1. Please use the scale to indicate how much you **like or dislike** feeling angry.

Very strongly **dislike** feeling angry 1 2 3 4 5 6 7 8 9 Very much **like** feeling angry

2. Would you rate your typical experience of anger as **more or less intense** than your experience of other emotions?

Less intense than most 1 2 3 4 5 6 7 8 9 **More** intense than most

3. When did you **most recently feel** angry? *Please provide a numerical estimate, rather than simply tick your answer.*

____ hours ago ____ days ago ____weeks ago ____ months ago ____ years ago

4. How **frequently** do you feel angry? *Please provide a numerical estimate in **one** of the spaces, rather than simply tick your answer.*

_____ times per hour _____ times per day _____ per week _____ per month _____ per year

5. Which of the following emotions do you typically feel **immediately following** your experience of anger? ***Please circle only one.***

Anger Sadness Fear Shame Pride Embarrassment Happiness Guilt

6. How do you feel about yourself when you have **just been** angry?

Very Negative 1 2 3 4 5 6 7 8 9 Very Positive

7. How **easily** do you become angry?

With Difficulty 1 2 3 4 5 6 7 8 9 Very Easily

8. How do you feel about yourself **as a person who gets angry?**

Very Negative 1 2 3 4 5 6 7 8 9 Very Positive

9. How **long** does an experience of anger usually last for you?

A short time 1 2 3 4 5 6 7 8 9 A long time

10. How **quickly** do you become angry?

Very quickly 1 2 3 4 5 6 7 8 9 Very slowly

11. Are the **consequences that follow** feeling angry usually good or bad for you?

Usually bad 1 2 3 4 5 6 7 8 9 Usually good

12. Does feeling angry **help you attain your goals**?

Rarely 1 2 3 4 5 6 7 8 9 Usually

Appendix 2

Note: The CES II Scale (adapted from Magai, unpublished) involves making essentially the same series of ratings regarding four emotions (sadness, anger, fear, and shame/shyness) rather than just the one here.

Emotions as a Child Scale (CES II).

Please indicate how you dealt with your feelings as a child, and how your mother (or other primary caregiver) responded to you, using the scale below.

When you were **sad** as a child, what would **you** do?

	Not at all like me			Somewhat like me			Very much like me
1. I have little memory of being sad as a child	1	2	3	4	5	6	7
2. Go off by myself	1	2	3	4	5	6	7
3. Go to my mother	1	2	3	4	5	6	7
4. Act like everything was fine	1	2	3	4	5	6	7
5. Cry	1	2	3	4	5	6	7
6. Show my sadness, mope around	1	2	3	4	5	6	7
7. Eat to make myself feel better	1	2	3	4	5	6	7
8. Clam up and keep to myself	1	2	3	4	5	6	7
9. Read, watch TV	1	2	3	4	5	6	7
10. Withdraw	1	2	3	4	5	6	7
11. Tell my mother about the problem	1	2	3	4	5	6	7

When you were **sad** as a child, what would your **mother (caregiver)** do?

	Not at all typical			Somewhat typical			Very typical
1. Usually didn't notice	1	2	3	4	5	6	7
2. Told me to cheer up	1	2	3	4	5	6	7
3. Bought me something I liked	1	2	3	4	5	6	7
4. Asked me about it	1	2	3	4	5	6	7
5. Told me not to worry	1	2	3	4	5	6	7
6. Consoled me	1	2	3	4	5	6	7
7. Usually wasn't around	1	2	3	4	5	6	7
8. Got sad herself	1	2	3	4	5	6	7
9. Gave me a disgusted look	1	2	3	4	5	6	7
10. Ignored me	1	2	3	4	5	6	7
11. Help me deal with the issue	1	2	3	4	5	6	7
12. Got all upset	1	2	3	4	5	6	7
13. Expressed disapproval	1	2	3	4	5	6	7
14. Comforted me	1	2	3	4	5	6	7
15. Called me a crybaby or such	1	2	3	4	5	6	7

Appendix 3

Adult Attachment Scale

(adapted from Collins & Read, 1990)

The next part of the questionnaire lists a number of statements concerning different qualities that you have. Please indicate the extent to which you agree or disagree with each statement by circling the appropriate number. Try not to take too long to deliberate your answers. There are no right or wrong answers, and first impressions are what matter.

	Disagree Completely		Neutral		Agree Completely
I find it difficult to allow myself to depend on others.	1	2	3	4	5
I do not often worry about being abandoned by my friends.	1	2	3	4	5
I find it relatively easy to get close to others.	1	2	3	4	5
People are never there when you need them.	1	2	3	4	5
I often worry that my friends do not really like me.	1	2	3	4	5
I do not often worry about someone getting too close to me.	1	2	3	4	5
I am comfortable depending on others.	1	2	3	4	5
I find others are reluctant to get as close as I would like.	1	2	3	4	5
I am somewhat uncomfortable being close to others.	1	2	3	4	5
I know that others will be there when I need them.	1	2	3	4	5
I often worry my friends will not want to remain friends with me.	1	2	3	4	5
I am nervous when anyone gets too close.	1	2	3	4	5
I find it difficult to trust others completely.	1	2	3	4	5
I am comfortable having others depend on me.	1	2	3	4	5
I am not sure that I can depend on others to be there when I need them.	1	2	3	4	5
My desire to get close to others sometimes scares people away.	1	2	3	4	5
People often want me to be more intimate than I feel comfortable being.	1	2	3	4	5

Appendix 4

Structured Goal Diary

Goals, Feelings, and Behaviour: A diary-based exploratory investigation

You are invited to participate in the research project "Goals, Feelings, and Behaviour" by completing the following questionnaire. The aim of the project is to investigate the relationships between an individual's goals, their feelings, and behaviour. The questionnaire is anonymous and you will, at no stage, be identified as an informant. You may withdraw your participation at any time, including withdrawal of any information you have provided. The data generated in the study will be available only to the researcher and his supervisor. Diaries and all other data will be stored under code, and we ask that you do not use your own or anyone else's name on the forms.

Participation in the study requires that you complete a structured daily diary on each of five consecutive days. At the beginning of day one you must write down one *weekly* and two *daily* goals. On each of the following mornings you should write down two fresh *daily* goals, while retaining and rating your original weekly goal. You must make ratings about your goals each morning and evening for the full five days. *Please try to consider each question separately and answer as honestly as possible without concern for experimental expectation.* There are no right or wrong answers.

Selecting Goals

Articulating and writing down goals is probably more difficult than you think. For the purposes of this study, try to select goals, the attainment of which is *neither a certainty, nor an impossibility* within the stipulated time frame. On the first day you must create a single weekly goal which is *reasonably attainable* within the five days of the study. From now on, this goal is referred to as 'Goal A.' Write Goal A in the space provided. It may also be a good idea to write Goal A in the available space on each day. Next you should produce two daily goals for Day 1, again, goals that are *reasonably* attainable within this timeframe. These become Goals B and C, *but only for that day.* On the following days (e.g. Days 2, 3, 4, & 5) you must create new daily goals for each day, while retaining Goal A (the weekly goal).

Goals may be from *absolutely any area of your life.* They may be academic, interpersonal, leisure-oriented and so on. Try not to worry about the wording or syntax of your goal expressions, as these are of no interest here. Try to state your goals in a reasonably brief form and do not feel as if you must accurately communicate your intent to the experimenter – you know what you mean! Finally, if your goals relate to another person, please **do not** use their real name.

This project is being carried out by Nathan Consedine (under the supervision of Prof. K. T. Strongman). Nathan can be contacted at 366 – 7001 extn. 7190 with any questions or concerns you have regarding the study.

DAY #1

Morning

Please complete as soon as possible after you wake. Read your weekly goal and generate your two daily goals, then answer the first three questions about each. Please circle the number which most accurately reflects you position and answer all questions.

Please record your three goals for the day. Remember, Goal A should be the same on all days, while Goals B and C should be new each day. If you are having difficulty here, please re-read the instructions.

A. _____

_____

_____

B. _____

_____

_____

C. _____

_____

_____

1. How important is the achievement of each of these to you?

Goal A	Not at all	1	2	3	4	5	6	7	Extremely so
Goal B	Not at all	1	2	3	4	5	6	7	Extremely so
Goal C	Not at all	1	2	3	4	5	6	7	Extremely so

2. How likely would you say the full achievement of each is?

Goal A	Not at all	1	2	3	4	5	6	7	Extremely so
Goal B	Not at all	1	2	3	4	5	6	7	Extremely so
Goal C	Not at all	1	2	3	4	5	6	7	Extremely so

3. How would you rate your mood at the moment?

1	2	3	4	5	6	7
Strongly negative or unhappy	Moderately negative	Mildly negative	Indifferent or neutral	Mildly positive	Moderately positive	Strongly positive or happy

Please wait until this evening before filling out the next part of the diary

Evening

To be completed at the end of your day. Try to ensure that you are alone, in a reasonably quiet place. Refer to you weekly and each of the two daily goals you recorded this morning, then rate each of the following items.

4. Think about you goals. Recall how important each is and what they mean to you. Think about what you have done towards achieving them today and how far you've come towards achievement. Thinking about each of you goals in turn, how does each make you feel?

Goal A	Very Negative	1	2	3	4	5	6	7	Very Positive
Goal B	Very Negative	1	2	3	4	5	6	7	Very Positive
Goal C	Very Negative	1	2	3	4	5	6	7	Very Positive

5. How close have you come to achieving your goals?

Goal A	No closer	1	2	3	4	5	6	7	Completely achieved
Goal B	No closer	1	2	3	4	5	6	7	Completely achieved
Goal C	No closer	1	2	3	4	5	6	7	Completely achieved

6. How would you rate your general mood for the day?

1	2	3	4	5	6	7
Strongly negative or unhappy	Moderately negative	Mildly negative	Indifferent or neutral	Mildly positive	Moderately positive	Strongly positive or happy

7. How much effort did you direct towards the achievement of your goals?

Goal A	Very little	1	2	3	4	5	6	7	A great deal
Goal B	Very little	1	2	3	4	5	6	7	A great deal
Goal C	Very little	1	2	3	4	5	6	7	A great deal

8. How much opportunity did you have to act upon each of your goals?

Goal A	Very little	1	2	3	4	5	6	7	A great deal
Goal B	Very little	1	2	3	4	5	6	7	A great deal
Goal C	Very little	1	2	3	4	5	6	7	A great deal

9. Think about where your goals stood at the beginning of the day and where they are now. Have you made any **progress** in the advancement of your goals?

Goal A	Very little	1	2	3	4	5	6	7	A great deal
Goal B	Very little	1	2	3	4	5	6	7	A great deal
Goal C	Very little	1	2	3	4	5	6	7	A great deal

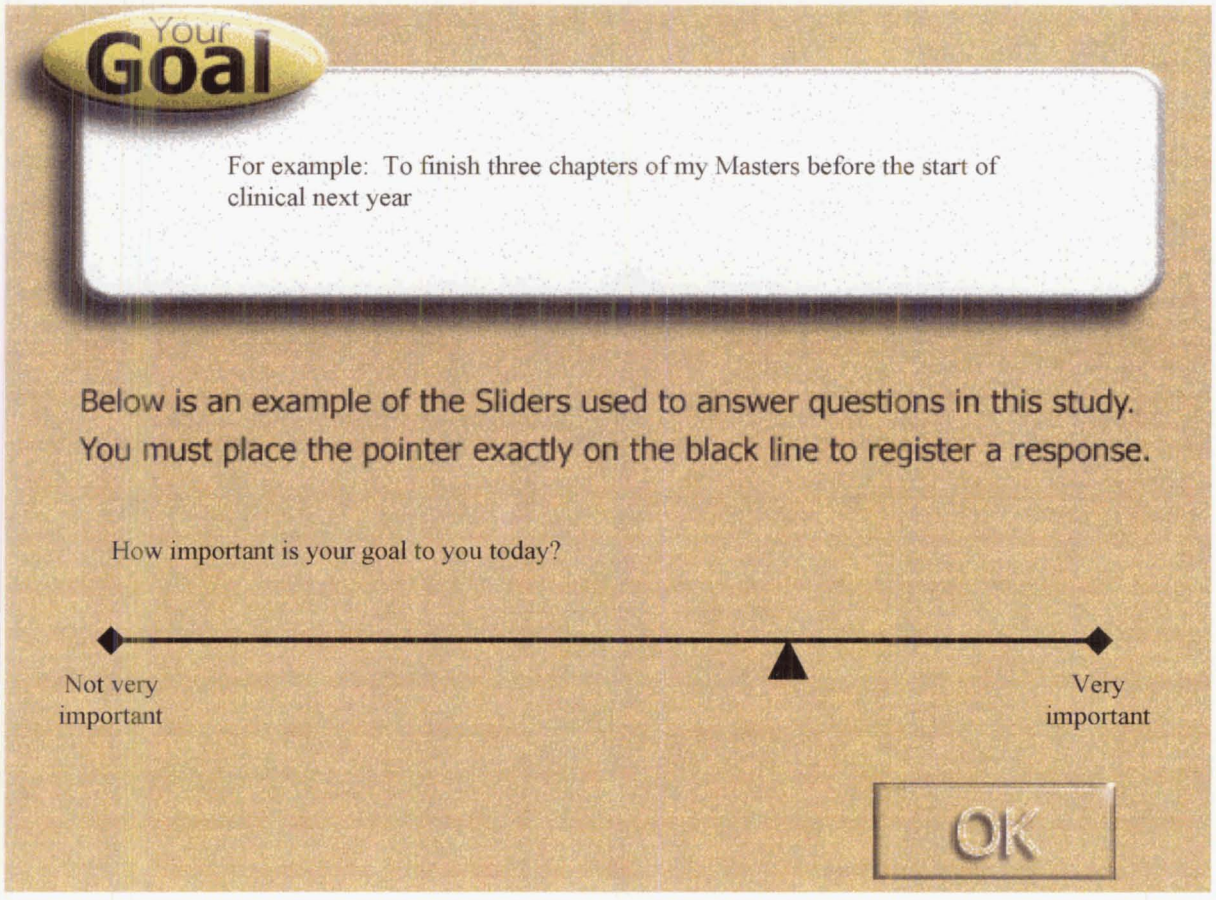
10. How would you rate you mood **at the moment?**

1	2	3	4	5	6	7
Strongly negative or unhappy	Moderately negative	Mildly negative	Indifferent or neutral	Mildly positive	Moderately positive	Strongly positive or happy

11. Can you think of any other significant factors, events of interactions during the day, other than your stated goals, that are likely to be impacting on your mood?

Definitely not	1	2	3	4	5	6	7	Absolutely

Appendix 5


Your Goal
For example: To finish three chapters of my Masters before the start of clinical next year
Below is an example of the Sliders used to answer questions in this study.
You must place the pointer exactly on the black line to register a response.
How important is your goal to you today?
Not very important
Very important
OK

Appendix 6

Emotions and Behaviour (Part 1): Clip Generation Form

Note: Each participant received a request for descriptions of two emotions, chosen from the list of anger, fear, happiness, sadness, guilt, shame, embarrassment, and pride.

(1). Recall a recent occasion or situation when you felt **happy**. Think about the event, then in the space(s) provided, answer the following questions. NB: Remember to protect your own and other people's anonymity – do not use real names or identifying information on this form (refer to the instruction sheet if you are unsure). **Please read all questions before beginning your answers.**

(a) In two or three sentences briefly describe *what happened.*

(b) Briefly describe your *thoughts* at the time of the event.

(c) Was the experience you've described above *pleasant or unpleasant* for you? (Please circle the number that most closely approximates your feeling).

Very unpleasant 1 2 3 4 5 6 7 *Very pleasant*

(d) How *intense* was the emotion you experienced at this time? Please circle.

Very mild 1 2 3 4 5 6 7 *Very intense*

(e) When you experienced this emotion, what did you *first feel like doing*? Remember, it is what you first felt like DOING that is important here.

(f) In the situation, what did you *actually* do? Remember, it is what you actually DID that is important here.

Thank you for your participation so far. When you have completed the second of these two pages, place the entire form in the box at the front of the lab.

Appendix 7

Emotion and Behaviour (Part 2): 'Recognition' Form

Note: Each subject in the pilot study received three copies of the following form, while those in the cross-cultural study received eight different behaviour clips in a similar format.

Below is a description of a person's behaviour. For each description, please answer the four questions relating to each. If you are not sure about your answer, simply use your best guess. **Please make sure you answer all questions.**

(1). I turned around and walked away.

(a). Based on the description above, which emotion do you think the person was most likely feeling at this time? (Please circle **only one** emotion).

(1) shame	(2) sadness	(3) happiness	(4) fear	(5) guilt
(6) embarrassment	(7) contempt	(8) disgust	(9) pride	(10) anger

(b). Briefly note some of the reasons for your answer to the question above. Why did you decide on that particular emotion? Is there another emotion (not listed above) that you would have liked to have chosen? Why?

_____

_____

_____

_____

_____

(c). How *pleasant or unpleasant* do you think the event that provoked or preceded the behaviour above was for **that** person? Please circle the appropriate number.

Very unpleasant 1 2 3 4 5 6 7 *Very pleasant*

(d). How *intense* do you think the emotional experience was at the time, for **that** person?

Very mild 1 2 3 4 5 6 7 *Very intense*

Thank you for your time in completing this study

Appendix 8

Coding Criteria for Emotional Clip Coding.

(Please record the *two* main reasons that a clip was excluded)

The basic task in the coding is to make a descision (yes or no) as to whether (having satisfied all of the criteria below) enough information will be left in the clip to constitute a *description of an observable behaviour.* Remember you must satisfy all the criteria for a clip to be useable.

a. No *inferences* are to be made and *no text can be added* to create meaning or clarity. The fact that context makes the meaning of the behaviour clear is not good enough. Only text that is present can be used.

b. Only *positively oriented* behaviours are to be included (i.e. I *didn't* do 'X' is omitted)

c. Any text describing thoughts (i), feelings (ii), motivations (iii), (ie. not describing observable behaviour) is omitted.

d. Only the *first* behaviour is recorded. If a second act was preceded by "after that I did Y" it is to be omitted, unless the two appear to constitute *part of the same act for that person.*

e. No paraphrasing or corrections except insofar as grammatically necessary. Colloquialisms are to be substituted (e.g. cigarette will be substituted for durry or fag), and spelling mistakes corrected.

f. Where the subject records the literal content of verbal behaviour (e.g. I told him to go away), the content of the speech is removed, but the speaking and manner of speaking remain. For example, 'I told him to go away' becomes, I told him "X".

g. If the clip being coded is a transformation of an urge rating (modified urge) and the thus transformed rating is literally impossible (eg. turning back time, or dying) it is to be omitted.

Appendix 9

Example Stimuli from Behaviour Recognition Study

Happiness	Sadness
I gave him a big hug I skipped around I talked, drank, ate, and laughed I kissed her I sat by the river	I clutched my stomach, screaming and crying I cried I wrote a letter I went for a drive I cried in the shower
Fear	**Angry**
I froze I screamed and ran away I wanted to hit something I tried to pull my friend away I cycled off really fast, without looking at the driver	I sat down, put the TV on and ate dinner I screamed at all the people in my room I said "X" and walked away I hit her I wanted to throw my drink on her
Embarrassment	**Shame**
I felt like shrinking away in my seat I put chocolate sauce on his face I left the room I got up and slapped his face – hard I hid under the table and covered my face	I walked outside into the rain I cried I threw my skateboard to the ground I wrung his neck I tried to hide my plastered fingers
Guilt	**Pride**
I walked out of the supermarket I handed the book to the tutor I talked to both flatmates I looked for the sheep I ate my pizza	I walked the dog to the video store I hugged TJ I laughed and yelled I went for a coffee I did some study