LIVERPOOL JOHN MOORES UNIVERSITY
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The 'I'-Tag Theory of Perception, Memory and Consciousness

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Contents

R = refereed;   **R*** = refereed by editor;   **R**** = refereed conference paper

Declaration

I am the sole author of all the published works included in this submission.

The material included in this submission represents my own, original work which has been produced during the time of my employment at Liverpool John Moores University.

The 'I'-Tag Theory of Perception, Memory and Consciousness

Abstract

The distinction between explicit and implicit psychological performance is held

to arise as a consequence of differences in self-related processing. In the former,

outputs from sensory and memory activity gain ready access to a model of self,

referred to here as 'I'. Implicit performance comes about when activity is isolated

from 'I' for pathological, or other, reasons. Under normal, explicit circumstances

the model of 'I' constructed at a given time is stored in association with

representations of concurrent thoughts or percepts. This memory model of 'I' is

referred to as an *'I'-tag*, and is hypothesised to function in subsequent recall.

Evidence for the above is drawn from neuropsychological data relating to the

implicit/explicit distinction in terms of differential brain systems, and from

introspective data concerning the characteristics of conscious processes. Studies

of a variety of brain-damaged patients suggest a distinction between decrements

in direct stimulus- or motor-related processing and compromised availability of

material to consciousness. It is argued here that the latter are consequent on

problems in the *interpretations* of direct processing, specifically those normally

involving 'I' as the putative receiver of impressions, controller of memory

recollection, and instigator of actions.

The Buddhist philosophy of mind analyses the nature of self and details the stages operating in processes of thought and perception. In particular, the notion of 'I' implied in the foregoing description is stated to be illusory. The alternative view, that 'I' arises as a conditioned association and is without substantive continuity, is supportive of the 'I'-tag concept. The 'I'-tag theory is further developed through an analysis of the stages of perception as detailed in Buddhist thought. Finally, the theory is employed to advance a possible psychological interpretation of a strand of Jewish mysticism in which an artificial anthropoid—the *golem*—was said to be created through linguistic techniques.

The 'I'-Tag Theory of Perception, Memory and Consciousness

Summary—including critical review and linking commentary

Introduction

The published works constituting this PhD application focus on the relationships between consciousness, memory and the self. The study of consciousness has over recent decades resumed its position as a central concern of academic psychology, having been largely banished for most of the first two thirds of the twentieth century. There are a variety of reasons for this resurgence of academic interest in the nature of consciousness, many of which are not relevant to this submission. What *is* relevant to my submission is the re-appraisal which has taken place over recent years of psychology's relationship with various cognate disciplines and the exploration of first-person methodologies. In the spirit of this developing approach to methodology, Harman goes so far as to suggest that 'The scientist who would explore the topic of consciousness ... must be *willing to risk being transformed* in the process of exploration (Harman, 1993, p. 139, italics original).

It has become increasingly clear that advancing towards an understanding of consciousness depends on our willingness to lower the fences which have grown between disciplines. Flanagan argues, rightly in my opinion, that a *natural*

method is desirable which recognises the complementary contributions different disciplines make to the topic:

> The idea here is to deploy what I call *the natural method....* Start by treating different types of analysis with equal respect. Give *phenomenology* its due. Listen carefully to what individuals have to say about how things seem. Also, let the psychologists and cognitive scientists have their say. Listen carefully to their descriptions about how mental life works, and what jobs if any consciousness has in its overall economy. Third, listen carefully to what the neuroscientists say about how conscious mental events of different sorts are realized, and examine the fit between their stories and the phenomenological and psychological stories. Even the troika of phenomenology, psychology, and neuroscience is not enough. Evolutionary biology and cultural and psychological anthropology will also be crucial players ....(Flanagan, 1997, p. 49, italics original)

My own work, as represented in the published works collected for this PhD submission, very much draws on the 'troika' of phenomenology, psychology, and neuroscience. More specifically, the theory advanced in these works—the *'I'-tag theory of memory and consciousness*—was developed through my attempts to integrate three sources: phenomenological insights from introspective spiritual traditions, psychological data bearing on the distinction between *implicit* and *explicit* processing, and neuroscientific observations concerning the differential contributions of brain systems to consciousness.

Banks (1993) has made the point that insufficient attention has been paid to theorising in relation to consciousness over recent years. We have a richness of *findings* bearing on aspects of conscious processing, but a paucity of insights into the more central aspects of the phenomenon. He writes, ' [M]y argument is that findings keep us at the borderlands of theory so that we never need to step

toward the central, problematic issues' (p. 261). This need to advance towards tenable theoretical perspectives on consciousness has very much informed my work over the past seven years (spanning the years of the publications included in this submission). This work is, accordingly, not the record of a series of empirical studies. It is, rather, the record of the development of a theoretical perspective on consciousness, and the further exploration of this perspective in relation to the kinds of sophisticated analysis of mind states found in Buddhism and Jewish mysticism. This is not to suggest that I do not recognise the critical importance of testability in traditional scientific terms. Indeed, following my review of the submitted publications I shall return to the question of empirical testing of the 'I'-tag theory, referring to preliminary data which lend support to certain predictions based on the theory. However, the submission rests centrally on the quality of my scholarship in generating the theory and exploring its ramifications.

Publication 1. Mind, Brain and Human Potential: The Quest for an Understanding of Self (Element Books, 1991)

The first work to be included in the submission is my book on *Mind, Brain and Human Potential.* In the course of the wide-ranging exploration of contemporary psychology and neuroscience to which the book is directed, I introduce the concept of the 'I'-tag system operating in relation to memory. In brief, the proposal is that the immediate sense of self ('I') is attributable to a neuronal 'model' of self generated in the brain, which accompanies neuronal

models of other events of which the subject is conscious at any given time. These neuronal models become storage elements when the events observed enter the subject's memory. On account of the contiguity between the generation of models of experienced events and that of the model of 'I,' the latter becomes powerfully associated with the former in memory. It is this powerful association between these two kinds of neuronal models as they enter memory which is intended to be conveyed by suggesting that the 'I' model is effectively a tag for the other memories.

The basic components of these proposals are drawn from neo-Hebbian conceptions of neuronal assemblies, and the suggestions of Johnson-Laird (1983), Oatley (1988) and Blackmore (1986) in particular concerning the modelling properties of the brain and the way in which self may be represented in neuronal terms. What is original in my proposals concerns the manner in which 'I' is generated, and the role it is presumed to play in relation to memory and consciousness. It is argued that 'I' is generated by the *Interpreter*, a left-hemisphere module posited by Gazzaniga (1988a; 1988b). According to Gazzaniga, this module continually synthesises a coherent explanation for the outputs of the many other modules of the brain. In my view, 'I' is itself a construct functioning to bring a degree of consistency to such explanations. 'I' is constructed as a hypothetical receiver of impressions, thinker of thoughts and instigator of actions. This view—which may seem somewhat counterintuitive—is supported through extensive consideration of a variety of psychological studies, and by reference to teachings within diverse spiritual traditions.

It is further argued that consciousness of some event comes about when the neuronal model of 'I' has access to the model(s) of the event. The implicit-explicit dichotomy is explained in terms of such accessibility to, or contact with, 'I'. For example, in the case of explicit memory, 'I' is connected to the relevant memory by dint of its contiguity with the memory's 'I'-tag; in implicit memory, however, it is postulated that the 'I'-tagging is compromised with the result that 'I' can gain no access to the memory in question.

Critical review

The years since its publication have shown that a number of ideas developed in the book are ones which seem to have useful explanatory power, and which have been developed independently by many in the relevant fields. In particular, the centrality I assign to accessibility between models of self and those of other mental events for understanding consciousness has been stressed by others. Kihlstrom, a leading authority in the cognitive study of consciousness, makes exactly the point I had earlier made in my book: 'When a link is made between the mental representation of self and the mental representation of some object or event, then the percept, memory or thought enters into consciousness; when this link fails to be made, it does not' (Kihlstrom, 1993, p. 152). He has, furthermore, recently introduced the term *self-token* (Kihlstrom, 1997) to indicate such linkage between the representation of self and that of other material in working memory, a term strongly paralleling *'I'-tag*.

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Block (1995) echoes a key point I make in Chapter One when he suggests that distinguishing between what he calls *phenomenal* consciousness and *access* consciousness is critical to our endeavours to advance the psychological understanding of consciousness. A third area where recent research has supported the book's arguments concerns the role of backward neuronal connections in modulating the brain's representations of sensory input. Thus, for example, Damasio (1996) and Harth (1995) have both stressed the importance of this system in recent works in ways directly analogous to my discussion in Chapter Two on perception. Finally, the conception of 'I' as a construct concerned with maintaining a consistent pattern of interpretation within the mind-brain system, may also be seen as consistent with developments since the book's publication. Freeman, for example, writes of the ego that '[It] is invariably half a second behind [sensory analysis and initiation of motor commands], always justifying, explaining, rationalizing, and claiming credit by virtue of back-dating' (Freeman, 1997, p. 113).

The book attempted to synthesise across a broad array of material and convey conclusions at a level appropriate to the interested non-specialist. Inevitably, therefore, the substantiation of my arguments tends to be based on a restricted analysis of relevant research data. Most of my subsequent publications have been devoted to in-depth treatment of more focused aspects of the arguments in the book. Nevertheless, the sheer breadth of coverage is a strength of the book, and I would claim that the exploration of identity and memory in areas beyond the concerns of my subsequent papers (e.g., REM sleep, autism, hypnosis), lend credence to the central arguments of the book.

Linking commentary

The book sets the foundation for all the works presented in this submission. Broadly speaking, there are two major themes within the book. The first concerns the *processes* whereby 'I' is generated and through which it functions in relation to memory, and the second investigates the possibilities for psychological or spiritual growth when the automaticity in these processes is challenged. The remaining papers in this submission may be classified according to their relation to these two themes. In brief, publications 2 and 3 focus on the first theme; publication 4 covers both themes; and publication 5 deals more fully with the second theme.

Publication 2 summarises the psychological material concerning the distinction between implicit and explicit processing, and considers how the 'I'-tag theory relates to other psychological theories advanced to explain the distinction between these two types of processing. The Buddhist teaching of *no-self* is introduced and examined for the light it may throw on the psychological material.

Publication 2. Self or no-self? Converging perspectives from neuropsychology and mysticism. Zygon, 28, 509-528, 1993.

Studies of *blindsight*, *prosopagnosia*, and *amnesia* are reviewed, indicating the evidence on which the concept of implicit processing is based. Explanations of these phenomena in terms of the brain's modularity are examined. Schacter's

(1989; 1990) model, which proposes that in these kinds of neuropsychological cases the output of discrete functional modules is dissociated from those regions of the brain constituting the *Conscious Awareness System* (CAS), is criticised on the grounds that the CAS is an ill-defined entity. I make the point that simply isolating consciousness in a separate box in an information-processing model does not address the central issue. We need to consider in more detail the processes involved when consciousness becomes engaged in perception or memory readout.

I summarise the Buddhist teachings as stating that there is no coherent self and therefore no continuity of self. 'The sense of "I" arises as a momentary mental concept having a conditioned attachment to other current mental processes' (p. 517). The central argument of the paper holds that such a view of 'I' opens a fresh way of conceptualising the implicit-explicit dichotomy, in which the key consideration becomes the degree of compatibility between different instantiations of 'I', rather than that of diverse memory systems or the connection between modular outputs and consciousness. This leads into a succinct discussion of the 'I'-tag theory (see above). In addition to the notion of 'I' as a model generated by the Interpreter, the central postulates of the theory are distilled as follows:

1. Currently active cognitive/neuronal models are presumed to automatically activate related memory traces.

2. Currently active models are presumed to automatically generate memory traces of themselves.

3. All models active at the same time are presumed to generate memory traces having some associative relation to one another.

The role of 'I'-tags in memory follows from these three postulates and the hypothesis that 'I' is a cognitive/neuronal model. The key point is made that the predictions of this approach regarding the activation of 'I'-tags is 'reminiscent of the multiplicity of "I" and the absence of any continuity in "I" [in Buddhist and other mystical thought]' (p. 518). Such thought, based as it is on meticulous introspective observation, is claimed to lend support to the 'I'-tag theory.

The paper returns to the neuropsychological syndromes reviewed earlier to assess the value of the 'I'-tag theory in explaining them. In brief, it is suggested that where the root of the syndrome is perceptual in nature (e.g., blindsight) we may propose that a breakdown in the Interpreter's access to the sensory data has occurred; where the syndrome involves memory dysfunction the problem lies in a breakdown of associative bonding between memory traces and appropriate 'I'-tags.

Critical review and linking commentary
My major critical comment on this paper serves as a link to my next publication, for it concerns the level at which I dealt with the Buddhist material. My arguments in the paper draw on the Buddhist concept of 'no-self,' which I describe by reference to overviews of Buddhist thought. The paper does not attempt to address the questions as to why and how the Buddhist doctrine was derived in the first place. Since a major objective is to examine the relationship

between cognitive neuroscientific data and the introspective data from the
Buddhist corpus, it becomes necessary to examine primary Buddhist sources (at
least in translation). I therefore turned to the more intricate Buddhist analysis of
mind in publication 3.

Publication 3: On the stages of perception: towards a synthesis of cognitive neuroscience and the Buddhist Abhidhamma tradition. Journal of Consciousness Studies, 4, 122-42, 1997.

The Abhidhamma ('higher teaching') is a section of the Pali canon (Theravada
Buddhism) which is attributable to scholars of the third and second centuries
BCE. In this paper I draw largely on translations of the 11th century 'Summary
of Abhidhamma' which condenses and systematises the 5th century
commentarial tradition. The Abhidhamma presents a complex analysis of the
nature of mind and metaphysical processes. Of primary importance here is its
analysis of the stages in a process of perception.

There is a clear parallel between the interest of the Abhidhamma in specifying
these stages and the project of cognitive neuroscience to detail perception in
terms of the stages of information processing and the kinds of neuronal
interactions involved. Here then are two analogous endeavours differing in
methodology.[1] My claim in this paper is that the complementary nature of the

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[1] The two endeavours also differ significantly in terms of their objectives, with
cognitive neuroscience displaying no equivalent to Buddhism's *soteriological*
emphasis. This is a difference without consequence for the comparisons explored

methodologies can lead to significant advances in our understanding of the mind, including the nature of self. This is not a trivial claim of the possible 'goodness of fit' between two sets of data. The claim is more fundamental on account of the role played in cognitive neuroscience by our intuitive grasp of the nature of mind in the framing of research questions and subsequent generation of models once data have been gathered. It is clearly fallacious to think that cognitive theory is driven by objective data alone. Buddhism, together with the majority of the world's spiritual traditions, claims that an individual untrained by meditative or other spiritual work, will tend to be deluded in their introspections on the nature of mind, especially when it comes to the analysis of self. The approach of this paper holds, therefore, that a consideration of the Buddhist analysis of mind can suggest alternative strategies of explanation to those presently adopted in cognitive neuroscience. I also make the point that there may be value in Buddhism itself digesting information available through the scientific study of the brain, for certain Buddhist notions might thereby be challenged. In other words, mutual benefit might be expected from the kind of enterprise undertaken here. However, it is the impact in the direction from Buddhist thought to psychology which is the specific concern of this paper.

My analysis of perception and of the way in which the sense of 'I' can arise in relation to perceived images, may be seen as an extension of the concepts first introduced in Chapter Two of publication 1. The stages specified in the Abhidhamma (of which I was unaware at the time of writing that book) are seen

in this paper. However, it does bear consequences for the wider question about the cultural impact of models of self, a point discussed in detail in publication 4.

to relate to the *analysis-search-match* scheme introduced there. In more detail, the Abhidhamma suggests that, following an initial *adverting* to the sense organ stimulated, the following stages arise: *sensing, receiving, examining, establishing, javana,* and *registering.* The Pali term *javana* is left untranslated following the advice of a number of translators (*apperception* is perhaps the closest to the original intent). The ideas conveyed by the Pali term are discussed at considerable length in the paper, since they are central to the understanding of 'I'. In a mundane sense, *javana* is the stage at which the *conceit of 'I am'*, as the Buddhists have it, arises.

The parallels I propose between these Abhidhamma stages and concepts derived from cognitive neuroscientific data are best summarised with reference to figure 2 in the paper (reproduced here, p. 13).

The stages from *sensing* to *establishing* are viewed as more interactive in my model than is suggested by the Abhidhamma material. (It should be noted that the dynamic, interactive nature of these stages cannot be adequately conveyed in the figure.) I propose that these stages entail the generation and modulation of a 'neuronal input model' in which characteristic features of the sensory input are coded and checked against features stored from previous experience. In effect, the process is one of effecting the most parsimonious 'match' between input and stored representations. I further propose that neuronal oscillation is likely to be the medium through which these modulating and matching processes are achieved. The current input model will activate similar stored representations
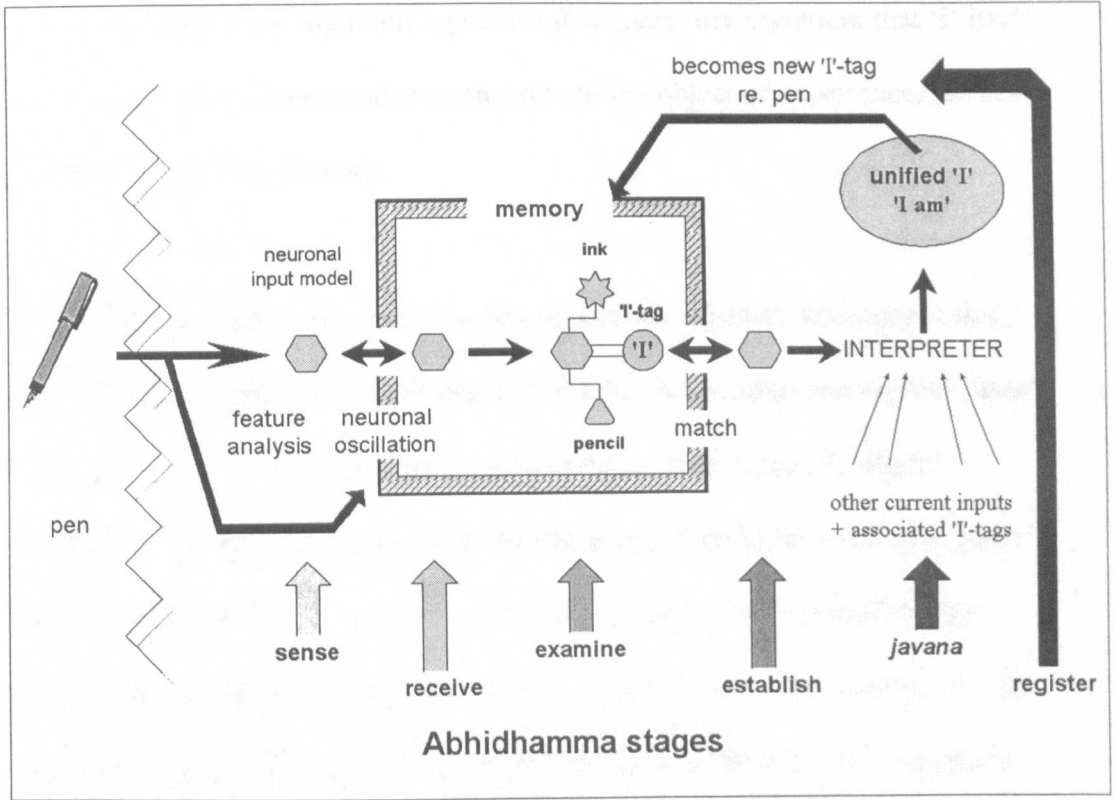
Figure 2. 'I'-tag model of perception and memory illustrating correspondences with perceptual stages described in Abhidhamma

together with their associations. This is depicted as relating to the Abhidhamma stage of *examine*, since examination of these associations is a critical determinant of the final percept. It is here that 'I'-tags become engaged in the process, for, as discussed previously, 'I'-tags are effectively the associative links between stored representations of events experienced and the representation of self generated at the time of such experience.

The stage of *javana* is related to the generation of 'I' (labelled in the figure as the *unified 'I'* since this equates with our experience of self) by the Interpreter module, as discussed above. I follow the Abhidhamma texts in asserting that not only the object representation but the *whole javana reaction* becomes *registered*

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in memory. This is an important aspect for it supports my argument that 'I' itself becomes stored as an associative connection to the object of experience, the key postulate of the 'I'-tag theory.

In a striking parallel to the contemporary interest of cognitive neuropsychology in implicit processing, the Abhidhamma texts discuss various 'incomplete cases' in which the process does not run its full course to registration. A 'slight' stimulus may trigger the stages up to and including *establishing*, whilst a 'great' stimulus brings activation of stages as far as *javana*. In my formulation, the former case equates to phenomena such as subliminal perception and blindsight, whilst the latter seems an exact description of amnesic cases in which implicit memory is evident. These correspondences are particularly valuable in further supporting the validity of the stages of perception as depicted in the paper.

Critical review

This paper has been published in the *Journal of Consciousness Studies* which has become one of the central forums for dissemination of research into consciousness. I would claim that a particular strength of the paper is the level of analysis to which it subjects the Buddhist material. In the light of the contemporary interest in the relationship between psychology and religion, it is not surprising that many publications touch on some aspects of the Buddhist philosophy of mind. However, without deeper analysis—of the kind presented here in relation to Abhidhamma commentaries—little genuinely creative

reformulation of psychological material can be achieved. I believe that the theory presented in this paper does represent a creative and distinctive approach.

Beyond the theoretical analysis, I briefly address the validity of the methods whereby the Buddhist analysis of mind processes was derived. It would have been inappropriate to the aims of the paper to embark on an extensive analysis of methodology. Nevertheless, a more detailed and critical consideration of Buddhist first-person methodologies would be valuable, particularly in view of the growing use of first-person methodologies in contemporary psychology.

Linking commentary

I regard this as very much the central paper in my submission since it most fully addresses the integration of scientific and introspective data in support of the 'I'-tag theory. However, a broader, and in many ways more critical question is left hanging. This concerns the implications to society more generally which follow from cross-cultural formulations of the nature of self. The view of self which a society embraces is not a purely academic concern, for it impacts on issues such as individual responsibility and the personal aspirations which the society might countenance and encourage. These issues, which arise in an acute fashion when the traditions of the East are simplistically juxtaposed to those of the West, are the ones I explore in publication 4.

Publication 4: The mythology of anatta: bridging the East-West divide. In J. Pickering (ed.) The Authority of Experience: Readings on Buddhism and Psychology. Richmond, Surrey: Curzon Press. 1997.

I open this publication by quoting from a recent work by Barglow. It is worth reproducing it in full here since it very much conveys the 'crisis of the self' which comprises a central theme of the paper:

> Freud reports three wounds to the narcissistic pride of human beings: Copernicus' discovery that our planet is not at the center of the universe; Darwin's that we are merely the latest step in an evolutionary chain, one rung above our primate ancestors; and Freud's discovery that we are subject to unconscious processes and therefore not even masters in our own house. There remains perhaps a final, radical step to be taken in this historical process of deconstruction: the human subject—the one to whom actions and experiences, whether conscious or unconscious, are attributed—does not exist! (Barglow, 1994, p. 82)

The Buddhist concept of *anatta* ('no-self') has been employed by a number of post-modern authors to substantiate their view of the *absence* of self. The central question I address in this paper is whether the Buddhist notion of no-self is indeed so directly equivalent to this post-modern conception as it might appear. In this context I make the point that it is essential to understand the origins of the Buddhist teaching—why it was developed and the role it was intended to play in the overall economy of Buddhist thought and Buddhist societies.

The Abhidhamma material discussed extensively in publication 3 was itself directed not to an intellectual concern with models of mind—as might seem to

be the case from my treatment of the material in that publication, but to the moral imperative to purify one's mind. The pupil was taught to gain control over the early stages of perceptual or thought processes in order that the *javana* stage should have a moral quality, meaning that there should be no conceit attached to self. I cite a number of sources suggesting that the *absence* of self, in the sense that post-modern authors—or indeed cognitive psychologists—might understand it, was not implied. Pérez-Remón, for example, concludes an in-depth analysis of the concept of *anatta* in early Buddhism by asserting that, 'nowhere is the reality of the self absolutely and explicitly denied' (Pérez-Remón, 1980, p. 304).

I argue that we may expect forces of *re-mythologisation* to operate when one culture assimilates ideas which had developed within a different culture. Indeed, history very much testifies to such forces. The question of interest is, then, how is the concept of no-self being re-mythologised in our culture? In brief, two alternatives seem to present themselves. One alternative is the post-modern route with its attendant nihilism; the other is an ecological route in which the personal self is ideally negated in favour of broader environmental concerns. Both of these routes have their counterparts in psychology. The former equates to cognitivism with its denial of self ('The cognitivist challenge does not consist simply in asserting that we cannot find the self; it consists, rather, in the further implication that the self is not even needed for cognition' [Varela *et al.*, 1991, p. 51]). The latter manifests as *ecopsychology* or *transpersonal ecology*, in which the boundaries of selfhood are seen to include extra-personal, environmental content. I close the paper by examining this latter view of selfhood and responsibility in terms of western gnostic and Jewish mystical traditions in

which the human was seen as a microcosm. Given the western roots of these traditions, I suggest that they are likely to exert a significant influence on the re-mythologisation of *anatta* in our culture.

Critical review

I believe that the kinds of reflective analysis undertaken in this paper should have a higher profile in contemporary psychology. Psychology's academic tower is not an ivory one—it's borders are much too leaky! Our theories impact on society and we, consequently, have responsibilities to the wider society. Psychological areas specifically designated as applied areas are not the only ones which influence the wider culture. An important case in point is that of supposed computer consciousness. The suggestion that a sufficiently complex machine would be conscious, as argued by many cognitive scientists, is implicitly a statement about the limitations of *human* consciousness. It was Marx who commented that 'as machines become more human, men will become more like machines,' but I am not sure that it is for us to bring about the fulfilment of his prophecy![2]

Linking commentary

The fact that this publication concludes with a discussion of a 'myth' of humanity's responsibilities culled from the traditions of Jewish mysticism provides only a superficial link to the final publication in this submission. The

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[2] This is a point I have recently made in a book review, which I include with this submission as supporting material. In parenthesis I would add that the fact that I was asked to review the book, which deals with 'Cognition, Computation, and Consciousness', testifies to my standing in this field.

topic of publication 5, that of the *golem* (see below), is similarly drawn from Jewish mystical sources. However, the more substantive link concerns my exploration of the self, and, more specifically, the whole question of psychological or spiritual growth. This returns to the second of the two themes introduced in the context of my linking commentary for Publication 1. It seems to me that, from the psychological point of view, the path to spiritual growth takes one of two fundamental forms, both of which can usefully be discussed from the perspective of the 'I'-tag theory. The first, epitomised by the Buddhist tradition, encourages the individual to become increasingly aware of earlier stages in a process of thought or perception than would normally be the case. As Claxton (1996) puts it, the intention is to shift one's awareness to 'the leading edge of consciousness.' Such a 'mindfulness' strategy dethrones 'I' from its role in tying the individual to habitual and egotistical strategies of thinking. The second fundamental aspect of spirituality, which is by comparison more 'western', focuses on the self-image. This spiritual path culminates in a re-creation of self in the divine image. In psychological terms, the techniques mystics used in this quest may be understood as detaching 'I'-tags from their mundane, egotistical base, and unifying them at a higher, or more inclusive, level. In other words, the personal sense of self is dethroned in this case, not through a process of whittling away its power base, but by introjecting the monotheistic ideal as the unified root of the mind.

In practice, of course, these two fundamental forms of the path to spiritual growth are two sides of the same coin—the difference between Eastern and Western approaches is one of emphasis only.

The theme of the *golem*—a human 'creature' brought into being by ritual means—is a peculiar manifestation of the more general Jewish mystical interest in the practice of *unification*. Whereas in the *Sefardi* (Southern European and North African) tradition such unification is focused on the relation between the mystic and the divine 'body' itself, in the *Ashkenazi* (Northern European) tradition the focus was on unifying the limbs of this artificial creature as a means for establishing one's connection to the divine.

Background to this paper will be found in Part One which is included in the submission as supporting material. Part One explores the historical development of the golem theme (which includes, for example, the Frankenstein story), illustrating how its various transmutations over the centuries seems to serve as a psychological marker of the changing worldview. It is in Part Two, however, that I consider the golem ritual itself and analyse it psychologically in terms which relate to the 'I'-tag theory.

Central to the golem ritual is the mystical understanding of the Hebrew language. The Rabbis viewed the Hebrew letters as archetypes of creation, being in their eyes the means through which God creates all that exists. The mystics developed practices whereby the letters were visualised, or sounded, and

permuted in a meditative state. The oldest text of Jewish mysticism suggests that each letter corresponds to a structure, or 'member', of the human body. These notions coalesce in the golem tradition where the mystic employs Hebrew meditatively to ritually construct a whole body—that of the golem. The enlivening of the golem was said to be achieved by a further linguistic technique in which all the individual letters were combined with the letters of God's name, thereby drawing a 'higher' power into the creature.

I argue that in psychological terms this meditative use of Hebrew amounts to a deconstruction of thought—verbal structures are deconstructed to letter elements. The ritual of the golem brings the mystic to a kind of primordial formlessness of mind. Indeed, these mystics would have been well aware that in biblical Hebrew the word *golem* means the unformed state of the foetus in the womb. The golem 'coming to life' may be viewed as a projection from the mystic's psyche, whereby the formlessness is replaced by what is essentially a *re-membered* image of the divine. A considerable amount of rebirth symbolism which surrounds the myth of the golem supports this interpretation. The body is an important root of the self-image and, therefore, plays a critical role in the 'I'-tag system. Many features of the golem tradition are explicable psychologically when we recognise that the personal bodily basis of the memory tagging system is being replaced through this ritual by a higher construction of self on account of the letters' connections to the divine. The higher construction corresponds to the self in Jungian terms, which he viewed as the God-image in man. This analysis of the golem ritual is indeed comparable to Jung's (1967) analysis of

alchemy as bringing a shift in the adept's psychological centre of gravity from the ego to the self.

Critical review and linking commentary

With this publication my submission comes full circle to publication 1 which was described by Blackmore as 'a refreshing synthesis of modern psychology and Jewish mysticism which provides new insights into the nature of self and consciousness.' Buddhism presents a more immediately accessible philosophy of mind, but, when one learns to penetrate its obscure symbolism, Jewish mysticism conveys a system of thought and practice which is also relevant to contemporary psychology. With regard to the 'I'-tag theory, the Buddhist material has informed my understanding of the stages involved in a process such as perception, whereas the insights from the Jewish mystical tradition have underlined the differing levels of integration of 'I'-tags within the psyche.
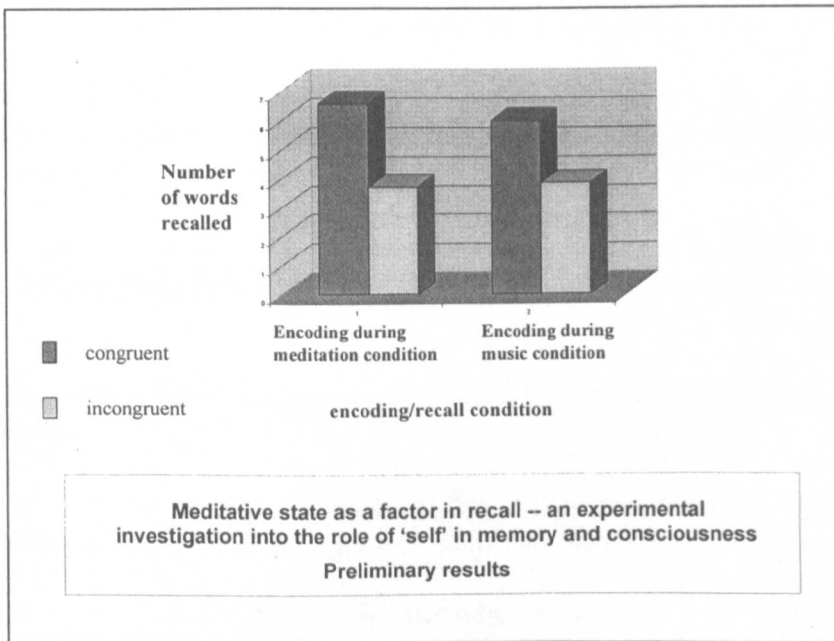
A paper I read to the British Association of Jewish Studies in 1993 presents a further interesting example of a case where the 'I'-tag theory can be of use in analysing Jewish thought. The paper, *The Talmud as metaphor of mind*, argues that the style of the Talmud mirrors the logic of thought processes as portrayed by the 'I'-tag theory. The paper requires a prior knowledge of talmudic studies on the part of readers. Nevertheless, in view of its relevance to the central theme of this submission, I include it amongst the supporting material.

Concluding Comments

I believe that my submission testifies to a distinctive scholarly knowledge in three fields, *viz.* Psychology, Buddhism, and Judaism. The publications firstly propose an 'I'-tag theory as a tenable explanation of psychological findings; secondly, they seek to support the theory in relation to Buddhist analyses of mind; and thirdly, they assess the value of employing the theory to explore the psychological meaning in expressions of Jewish thought. The inclusion of my work in major journals and in works edited by leading authorities is, I submit, evidence of its quality. These publications constitute a coherent body of work which addresses the need for theoretical formulations in the study of consciousness. My claim for the award of PhD rests on the value of the contribution I have already made to this field.

I will conclude this submission by mentioning a further phase of my work on which I have recently embarked, namely the empirical testing of predictions the 'I'-tag theory makes. The theory predicts that memory recall will be impaired when there is any incongruity in 'I' between encoding and recall phases. Support for this prediction comes from studies of memory recall across alter personalities in cases of dissociative identity disorder (Nissen et al. 1994), from formulations of infantile amnesia suggesting that the onset of a cognitive sense of self marks the offset of such amnesia (Howe & Courage 1993), from the superiority of recall when learnt material is self-referenced (Symons & Johnson, 1997); and from research in mood-dependent memory which suggests that the dependence effect is strengthened when to-be-recalled material is autobiographical in nature

(Eich & Metcalfe 1989). Preliminary data from a research project, which I

recently presented in a paper to the Brain and Self conference in Denmark,

suggest that manipulating a subject's sense of self between learning and recall

phases of a memory study does indeed have an effect on recall ability in the

predicted direction. I include below a figure presented in the paper which

illustrates the preliminary results (seven subjects per condition).

Number of words recalled

congruent

incongruent

Encoding during meditation condition

Encoding during music condition

encoding/recall condition

Meditative state as a factor in recall -- an experimental investigation into the role of 'self' in memory and consciousness

Preliminary results

In brief, the sense of 'I' was manipulated by employing a meditation condition

by comparison with a more passive listening-to-music condition. Since

meditation is traditionally presented as a method to alter perception of self, the

two conditions were expected to differ in terms of the 'I' model generated. The

data indicate that test words were more effectively recalled when encoding and

recall phases (several days apart) involved congruent conditions (e.g., subject

meditating during both phases). An explanation of this effect, consistent with the

empirical studies mentioned above, is indeed that the sense of 'I' plays a critical

role in the memory task. Further empirical work is currently in progress.

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(Only those references not cited in the published works are included here)

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