READING NEUROSCIENCE: VENTRILOQUISM AS A METAPHOR FOR MULTIPLE READINGS OF SELF

by

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Abstract

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This thesis argues that the consensus models of self forwarded and upheld in the fields of discourse most concerned with its description, indicate a process of ventriloguism where agency slips between dual poles of body and mind and cannot be tracked to a hiding place. Just as with ventriloquism, in these models of self it is unclear who is doing the 'talking', and the skill of performance would seem to make the distinction almost redundant. The self seems a complicity of often conflicting agents when analysed as its constituent parts, and not there at all when viewed as a whole. This thesis takes as its starting point the confusion of Edgar Bergen when struggling to justify his philosophical conversations with his dummy: who is at work here, and where would agency reside in such a dialogue? That it serves us to assume the 'theory of mind' explanation for the behaviours of others, and by extension place ourselves within a scaffold of causal motives, says more for the use value of such a theory than for the presence of 'mind'. Why this 'theory of mind' rather than any other? Because that is how mind and motive are presented to us during our acquisition of a spoken language. Mediation, transformation and referral: this thesis argues that these are qualities which characterize ventriloquism, and also the human means of perception and self-perception. There are a number of unfulfilled potentialities that reach their heaven in the unified self. The 'drive' to unity culls these lost futures and condemns us to another fulfilment, that of 'oneness'. Most of these resolutions regarding self are predicated on what is 'in' and what is 'out'; how does the discriminatory self establish grounds for inclusivity or exclusivity? This thesis means to provide a lexicon of other possibilities regarding the conceptualization of self.

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Acknowledgements

When I started this thesis I knew it would have to be a 'heavy' topic of study which would sustain my interest and convince me always of its worth. That this study has prevented me from entering the studio during its course is compensated for by the pure joy of having spent all day every day writing for a very long time indeed. Creative bliss. Sometimes it is not so much reasons that impel a work but something more like affliction. I could think of very little else while this research and writing were at hand and consequently those who live with me deserve an apology. Sorry. I would like to thank Dartington College of Arts for providing me with a part-time fee bursary during my time as an MPhil student. I wish to thank Professor Claire Donovan for supervising my PhD work. I also wish to thank Dr. Janet Hand of Goldsmith's College for advice and assistance above and beyond her former duties as second supervisor.

Author's Declaration

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award.

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Explanation of Methodology and Review of Literature

The real motivations for this thesis are the saccades, the automatism and the ghostlike tissues that feature in the medical case histories I quote. For me, these spectral images have such potency that they dominate the mood and tone of the whole thesis. The purpose of this thesis, my interest in it, and its real aim is to set up the occasion for a certain sort of writing, and the writing of a certain few key passages of this thesis. The nature of those passages is more subjective, is more about mood or tone than the researched academic writing surrounding them. The academically inflected writing is intended as a 'scene setting' that excuses those freer passages the need of a justification to exist.

This thesis is not conventionally art work linked to a contextualizing document as practice-based PhDs are more usually presented. In this thesis the written document also enacts the 'practice' component of the PhD submission. This thesis was completed within the context of the Performance Writing field at Dartington College of Arts, and in this thesis the writing performs. The thesis concerns performance, it features a performance, it constitutes a performance and it enacts a performance. In this thesis writing is made to perform.

It perhaps explains my decision to pursue this research through an art college if I explain my truer motives for writing this thesis. This thesis was motivated by a desire to string together a number of literary images. These images are either drawn from medical texts or their inspiration came from my having read so many medically related texts. This thesis should be seen as spreading from image to image: a narrative work which flows in

opposition to the narrative self propounded in neuroscientific literature. I wanted to set up these images on a stage where my writing could perform.

I would like to compare the intentions and methods of this thesis with the kind of critical theory exemplified by Mikhail Bakhtin's *Rabelais and his World* (1971) and Raoul Vaneigem's *The Movement of the Free Spirit* (1986/1994). Although far apart in subject matter each book may be said to constitute a postulate of freedom. Freedom may only exist as this postulate, but the freedom exists as long as one is a reader of the book, perhaps also having an afterlife as measure or standard of all things that continue after the book has finished. Similarly I would like this thesis to indicate a kind of freedom in postulating the self; a self that would be unavailable solely from the narrower remit of neuroscience, and yet is equally discernible in the research literature of that discipline like a ghost in the glass.

In many areas of writing (PhD theses, scientific and philosophical writing included) it is enough to write 'about' whatever is the subject of one's study. This thesis aims to enact its argument without resorting to representation: it will do a thing rather than say a thing. This thesis is meant less to critique certain works or even disciplines than to instigate or indicate another way of thinking entirely that renders those works irrelevant. This thesis is intended to be the point that those works miss.

The method of this thesis is intended to unravel through whatever reading the reader gives this thesis. The reader's feeling on conclusion of the reading is whatever this thesis was meant to suggest. The last thing intended is just to provide another idea for the reader's 'encyclopaedia'. In poetry workshops one is taught that good writing should show and not tell. This thesis does not want just to tell the reader a new idea; the work

has to enable the reader to see things differently or to think differently. To do that the reader must be placed in the discourse where that happens: in the medical evidence and psychological anomalies that contribute to the chapters of this thesis. It is in reviewing the physiological misdemeanours in which we fail to recognize ourselves as ourselves that I suggest our true reflection can be found. We are aghast at our finitude: what is eluded is often the point.

This thesis is less about thought than it is about an action: performativity. I do not mean to persuade the reader of something but rather have the reader persuade him or herself, to put the reader where that happens in the medical and psychological anomalies I relate in this thesis. I want to disorientate the reader of this thesis with evidence from the mainstreams of psychology and neurology that seem to argue against the unitary self and against the authority of ratiocination. What this accumulation of case histories amounts to may seem like a medical black museum of horrors; I mean to overwhelm with detail and with convincing haptic reality the reader resistant to a sceptical reading of psychological and philosophical consensus regarding self. Something of my purpose, also, was in arguing against the confining, consensus-bolstering nature of academic research itself.

In this thesis I often use medical evidence to make a point opposed to that it has been intended to make. Medical evidence has an haptic originality, a convincing viscerality, and a uniqueness or particularity which I wanted to adopt for my work. Spent too much time with it may feel like one has passed through the looking glass. The subjects of these medical case histories are reporting back, in some sense, on a world we cannot always see but which we know all the time is there. In Wilder Penfield's delineation of post-ictal

states (those states which immediately follow an epileptic seizure), there features a young man who,

While in this state moved about in an automatic manner, got down on the floor seeming to search for something, and finally tried to get into a bed that was not his own. When attendants attempted to put him into his own bed, he struggled against them. (Penfield and Jasper, 1954, p. 501)

The young man in an automatic state is a very radical recording angel. He is my chief witness in attesting to the 'automatic' nature of self. This thesis is fiction in that it concerns the creation of character: the way you or I constitute character ordinarily and the way that neuroscientific, psychological and philosophical consensus convenes on a common denominator for this practice. Does it matter who is talking? Only inasmuch as we say it does. Is character appointed to us in any way other than ostension? Does character accrete to us in any way other than this appointing? One does not need to resort to the 'thought experiments' of philosophy to study this: actual human beings in the extremis of medical case histories illustrate these philosophical causes.

I am with Wittgenstein and Freud in thinking that we are "concealed in assertion and action and revealed in temptation and wish" (Cavell, 1969, p. 76). For this reason it is as important to this thesis to discuss the potential models we provide for the self as is it to discuss one's actual behaviour. It has been important for me to discuss these matters analogously; all of these dramas are enacted on a literary stage as metaphor. My chief metaphor in this thesis is the dyadic or conflated personae of ventriloquist and dummy. In ventriloquism there is an overlap like a Venn diagram and a confusion as to where character resides. The performative emphasis on the persona presented by the dummy means the performer is diffused between locations or inhabits uninhabitable sites of speech. Mostly I have fallen in love with the *Grand Guignol* or tragic element of case

studies fundamental to neuroscience and wish to reflect on their end-of-pier characteristics. Describing the expressionist effect of ventriloquism on its misdirected audience, I felt no change in atmosphere from the case histories fundamental to the historically justified tenets of the brain sciences. There seemed to be the same processes at work. This is the theme I explore in this thesis, meaning to tease out its significance and wider ramifications.

Why write a thesis related to science while based at a college with no science departments and with very few science connections? This thesis is dependent on scientific research and written reports for its content: a major concern of this thesis is the language used in medical and psychological descriptions of the human self, but the work in this thesis proceeds along two lines. I confess to a measure of subterfuge: in this thesis what might be called 'philosophy of science' (Feyerabend, 1978, p. 16) is often a vehicle for me to do a certain kind of writing which would not be possible in another field or discipline. The philosophy of science in this thesis is ingenuous and of sincere intent.

The broader points of this thesis are about misconceptions regarding the perception of the self, but I also define a particular logical gap in the assumptions of neuroscientists. When a neuroscientist describes a particular mental process in neurological terms what is described is really a snapshot of a procedure and not an 'event' as such. By means of the retrospective prognostics of science, and its ontological certainty, what is really a cellular correlate of human affect is given as its cause. In medical science there is a doctrine of specific aetiology; that is, "for every disease there is specific cause" (Bakan, 1968, p. 11). Medical language, as I argue in this thesis, has an haptic actuality which trumps philosophy every time. I seek to redress the balance. How to present the logical flaws in

neuroscientific assumption when neuroscience has the matter of brain activity in its realm whilst philosophy and critical theory have only words? It is axiomatic that neuroscience will assume precedence for these neural processes, rather than for the sociological or anthropological correlates. There is, of course, no logical reason why parallel neural activity should be understood as cause of observable human behaviour, psychology and character rather than as just its neurological correlate. Medical language has visceral certainty and empirical 'proof' in opposition to any philosophical dubiety.

It would be much easier and straightforward to make my points with an explicitly psychoanalytic methodology; to subject the beliefs and 'discoveries' of science and medicine regarding the self to psychoanalytic critique. I wanted to make my argument, though, from within the discourses I sought to critique; or rather, to use the evidence and research literature of neuroscience and philosophy of mind (which goes hand in hand with neuroscience) to undermine or contradict the doctrines of those same disciplines.

My research has led me into conflict with the methods and discourses to which research itself is home. My research and writing are subject to the same strictures, handicaps and blinkers as all other academic research. Research is a discourse; the discourse creates a world and describes what is permissible or desirable in that world and what is not. Within a certain discourse only certain ways of saying are permitted and consequently only certain things can be said. In any given discourse,

The constraints function to filter discursive potentials, interrupting possible connections in the communication networks; there are things that should not be said. They also privilege certain classes of statements (sometimes only one), whose predominance characterizes the discourse of the particular institution: there are things that should be said and there are ways of saying them. (Lyotard, 1984, p. 17)

I would ask of PhD theses, are they questioning anything (even if that is the avowed intention), if they repeat the rules and means of discourse of their critical forebears? The rules and means of discourse have written into them the possible outcome: the available ways of saying dictate what can be said. If one wants to challenge consensus or standard practice one has to bend the rules somewhat. In this thesis it may not appear where art practice stops and conceptualizing begins. This thesis aims to show and not tell. That is why this thesis is short of self-explanatory justification. The reader is trusted to find his or her own way through to the end. And whatever they find there is the subject of this thesis.

You may expect a thesis that includes within it an idea (a notion, an instruction) of its own reading. You may expect this thesis to include within it a selected or prescribed notional reader. I do not want you to be this reader. I do not wish to present you with a thesis that conforms to Adorno's criticism of popular music, that in popular music "the composition hears for the listener" (Adorno, 2002, p. 442). This thesis tries to convey a conceit without resort to philosophy; that is, by the literary means of metaphor.

Throughout this thesis I have resorted often to direct quotation from primary sources. The reasons for this are two-fold. Firstly, so much quotation removes the voice of the persons behind my writing in this thesis, and has a ventriloquial aspect which is pertinent in this context. It is formally apt to absent myself or make my point through the voice of another, given my use also of the extended metaphor of ventriloquism. Secondly, I mean to establish the points of view argued for by authorities in the fields of study I wish to critique. I felt that if I let the readers of my thesis read for themselves what the claims were in the various disciplines I go on to critique, it would be less a case of the reader

having to accept my interpretation of unfamiliar material and more a case of assessing it for themselves (although I recognize that the primary sources I quote are mediated by my selection). Principally I quote to let the readers of this thesis see for themselves what the arguments are of the various disciplines I critique, and thus minimize the 'swallowed whole' acceptance required of a reader unfamiliar with the core data of this thesis.

The styles and modes of address I maintain in this thesis should not hobble a reading of its argument by anyone familiar with literary (particularly poetic) methods. A reader familiar with the abrupt changes of tone or mode of address common to modernist poetry should have no trouble following my stylistic method in this thesis. Formal poetry also indicates a precedent for my methods in the writing of this thesis. Repetition, refrain and pastiche are factors in this work and also in poetic forms such as the sestina or the villanelle. I would also like to indicate the investigative or exploratory virtues of artistic form. I would suggest that, for instance, Bach's use of fugue carries artistic intent and achievement beyond the claims or control of the artist. If one submits to the logic of an artistic form one is carried far further than individual aesthetic choice would direct.

My approach to the source material of this thesis (from the fields of neuroscience, psychology, philosophy of mind, and medicine) is grounded in the form of an academic thesis. I have researched and read literature from a variety of academically robust disciplines: neuroscience, psychology, philosophy of mind, and neurology. I have not left the bounds of academic rigour in my treatment of those primary sources. I have read and cited a broad range of theories and research data from within those disciplines, but I've wanted to report and quote principally from their mainstreams. This is a point I want to stress: in order to illustrate the validity of my criticisms it is necessary for the reader to

see that the ideas I critique, and the evidence or theories I use to critique them, are broadly accepted and to a degree incontrovertible within their fields. What I have attempted to assess and critique is the consensus within those fields of study (neuroscience, philosophy of mind, psychology and medicine).

In this thesis I attempt to show the way that concepts or conversational tropes from the world of folk psychology form the basis for a priori assumptions in science. I also attempt to show that concepts, or models of understanding, from the scientific field leak back into or inform conceptual models in everyday thinking and speech. This thesis is intended to be more than a gloss on the current vogue for accessibly written books by neuroscientists, or of current attitudes and policies in neurology. This thesis is intended also as more than unquestioning retread of the ideas central to philosophy of mind of the last 15 years. My educational background is not in those fields but in the fields of art and critical theory. My modes of writing fit within the artistic or literary realm; my means of expressing ideas depends on a familiarity with literary styles and modes of address. Wishing to challenge the starting points for thinking in those fields of discourse which are the subjects of the thesis (principally neuroscience and philosophy of mind), I have approached them with a critical and questioning perspective which seems more at home in an art college. Having spent time in philosophy faculties I now miss the occasion for debate but I do not miss the rigid regard for disciplinary boundaries. I suspect the only field in which I could have done this research and writing is in the form of a PhD thesis submitted through an art college. Here I have been able to conduct research in whatever field seems appropriate to my task, understanding that it is the quality of my research, thinking and writing that determines the success of my work, rather than the proscribed

negotiating of disciplinary boundaries. In this way, my written thesis forms both the artistic practice and the contextualizing document elements of my doctoral submission.

Despite this artistic approach to enacting the logic of my thesis rather than spelling it out, the researching and presentation of this document accord with the format and standards required of a written doctoral thesis. I have researched, organized and addressed a wide field of texts within several discrete disciplines, taking a crossdisciplinary approach to study. In the following survey of literature I mean to show that I am cognizant of, and qualified to fairly critique the range of assumptions and conclusions that define these different academic disciplines. In critiquing the stance inherent in, and fundamental to, these different disciplines, I mean not to attack their protagonists as straw men. My approach to the research (theirs and mine) is sincere and ingenuous, but means to point out certain category errors which I think undermine their fundamental approaches and *a priori* assumptions.

Precedents for my writing exist in philosophy and critical theory. From the field of philosophy my main methodological influence comes from the later work of Wittgenstein. As Stanley Cavell has written:

[Wittgenstein's later writing] is deeply practical and negative, the way Freud's is. And like Freud's therapy, which wishes to prevent understanding which is unaccompanied by inner change. Both of them are intent upon our masking the defeat of our real need in the face of self-impositions which we have not assessed or fantasies ('pictures') which we cannot escape. In both, such misfortune is betrayed in the incongruence between what is said and what is meant or expressed; for both, the self is concealed in assertion and action and revealed in temptation and wish. Both thought of their negative soundings as revolutionary extensions of knowledge, and both were obsessed by the idea, or fact, that they would be misunderstood – partly, doubtless, because they knew the taste of self-knowledge, that it is bitter. (Cavell, 1969, p. 76)

Without wishing to claim the depth or profundity creditable to Wittgenstein's or Freud's work, I wish to share some of their aims, as here delineated by Stanley Cavell. The aim of

creating a work whose import is unappreciable if "unaccompanied by inner change" in the reader, is an aim that has motivated my writing of this thesis also. Similarly, my intent or the 'purpose' of this thesis my be unappreciable if one does not share the doubts and confusion of its author, confusion the thesis is intended to counter or engage with. Wittgenstein wrote that the results of philosophy are "the uncovering of one or other piece of plain nonsense and of bumps that the understanding has got by running its head up against the limits of language" (quoted in Monk, 1990, pp. 365-366); to which his

biographer Ray Monk has responded:

Whether such explanations would mean anything to people who have themselves experienced such 'bumps' remains doubtful. But then, the method was not developed for such people, just as Freudian analysis was not developed for the psychologically unconcerned. *Philosophical Investigations* – more, perhaps, than any other philosophical classic – makes demands, not just on the reader's intelligence, but on his *involvement*. Other great philosophical works – Schopenhauer's *World and Representation*, say – can be read with interest and entertainment by someone who 'wants to know what Schopenhauer said'. But if *Philosophical Investigations* is read in this spirit it will very quickly become boring, and a chore to read, not because it is intellectually difficult, but because it will be practically impossible to gather what Wittgenstein is 'saying'. For, in truth, he is not saying anything; he is presenting a technique for the unravelling of confusions. Unless these are *your* confusions, the book will be of very little interest. (Monk, 1990, p. 366)

Again not wishing to lay claim to the brilliance of Wittgenstein I would wish to excuse

my thesis in these same terms.

As well as his influence on the style or approach to writing in my thesis,

Wittgenstein's critical perspective as regards scientific thinking is relevant to my own.

'Discoveries' in science and philosophy are better understood as grammatical innovations

rather than indicative of any located 'presence'. It says nothing of the essential properties

of, for instance, 'consciousness' that scientists or lay-persons can use the term with

something like consensual understanding. Just because we can talk about it does not

mean that it is there.

In [Wittgenstein's] thinking about psychology, mathematics, aesthetics and even religion, his central criticism of those with whom he disagrees is that they have confused a grammatical position with a material one, and have presented as a discovery something that should properly be seen as grammatical innovation... Thus, in his view, Freud did not discover the unconscious; rather, he introduced terms like 'unconscious thoughts' and 'unconscious motives' into our grammar of psychological description. Similarly, Georg Cantor did not discover the existence of an infinite number of infinite sets; he introduced a new meaning of the word 'infinite' such that it now makes sense to talk of a hierarchy of different infinities. The question to ask of such innovations is not whether these 'newly discovered' entities exist or not, but whether the additions they have made to our vocabulary and the changes they have introduced to our grammar are useful or not. (Monk, 1990, p. 468)

There were a number of ideas I was familiar enough to gesture at, but wanted to go further and state explicitly. This thesis was my opportunity to explore and propose explicitly those 'unthought knowns,' to transform them from gesture or trope into text. I would like to say, with Raoul Vaneigem:

The sheer number of texts that had to be uncovered... added to the cursory nature of this project. And if this contributed to its lack of completeness I must reserve myself that right – just as I also claim the right to the biases that can be found in this book. For these are the biases of anyone who undertakes subjective investigations, whether he does so under the pretence of objectivity or not: and I prefer to own up to the influence of those personal desires that move in accordance with the unfolding of one's own tangled destiny. (Vaneigem, 1986/1998, p. 13)

As topics came up during research, which I knew could provide supporting evidence for my thesis, I followed their lead, even into unfamiliar areas of study. I was as unfamiliar with, say, medical arguments regarding the pronounced time of brain death as perhaps my examiners are on approaching this thesis. Before researching and writing this thesis I knew nothing of 'theory of mind', commissurotomy, the 'McGurk effect', or surgical treatment of epilepsy. It was my interest to research how the self is represented physiologically, or neuro-anatomically; or rather the ways in which philosophical meanings are substantiated by resort to medicine. I was increasingly aware that these approaches to self, mind, (and its attributes memory, intelligence, etc.), and consciousness are problematic and perhaps specious subjects for study. I was aware also that the work of the British psychoanalyst D. W. Winnicott (Newman, 1995) and the Russian linguistic theorist Bakhtin (1971) both represented the self as a more plural inhabitation. I wanted to investigate the ways in which philosophy and its ally medicine both commonly miss the point, by committing to a fundamental category error in their approach to the self and its attributes. To do this I use an extended metaphor (ventriloquism) such as extended metaphor is used in poetry.

Philosophers other than Wittgenstein quoted in this thesis include Quine, Strawson and Thomas Nagel. If Daniel Dennett is the most quoted philosopher in this thesis it is because he is the most influential in the field known as philosophy of mind. This field would also include Daniel Wegner, the Churchlands, Kathleen Wilkes, Julian Jaynes and George Ainslie. Jaynes, Wilkes and Ainslie are the most important of these to the conceptualizing and approach present in this thesis. Their work might also be included in a list of psychologists whose work is important to this thesis. From the fields of psychology and psychiatry I would list as influential writers: Richard Bentall, David Healy, Thomas Szasz, R. D. Laing, and the historically important work of Bleuler and Scneider. These last two could also be listed as contributors in the field of medicine, a list which would also include Sperry, Bogen and Gazzaniga, Penfield and Jasper, and D. A. Shewmon. These writers might also be classed as neuroscientists, from which field I choose as influential representatives Mark Solms, LeDoux, Changeux, A. Damasio and V. S. Ramachandran. From the field of linguistics I have delineated the theories of Vygotsky and Bakhtin. Lastly, from the field of critical theory I have quoted Lyotard and Feyerabend. Interestingly, Feyerabend is often credited with introducing the term 'folk psychology'¹ (an important term in the context of this thesis), in his essay *Materialism and the Mind-Body Problem* (1963). I have referred to this essay by Feyerabend often when researching the methodological approach of this thesis and although his essay concerns what could otherwise be termed 'folk psychology', Feyerabend makes no use of that term. Where, then, does the term originate? I quote this anomalous missing link as emblematic of the attitude of this thesis generally: evidence nearly never presents the argument that accretes to it, or can be made to say whatever you will. A consensus position can pertain to a theory which cannot support it. As researcher one has only to lift a single pebble of doubt to find not supporting evidence but a rabbit hole leading God knows where.

¹ See, for instance, Bentall (2003), p. 530

Chapter One: Ventriloquism

Picture a ventriloquist practising his or her hidden dialogue for the dummy, the speech becoming more and more indiscernible to an observing world. Two selves is it, or one self in two places? That mediated self who has learnt his or her lines, and that conferring, complicitous self who schemes to 'get things right'. Ventriloquist Edgar Bergen regularly performed a sketch that began with his discovery of his dummy, Charlie MacCarthy, reading a book entitled 'Ventriloquism: Its Cause and Prevention' (Connor, 2000, p. 408). Who speaks for whom?

The story I like to tell is when my father was writing the 'Edgar Bergen and Charlie McCarthy Show'. One time my father and I came into Edgar's room. He didn't know we were watching him. Edgar was talking to Charlie and we thought he was rehearsing, but he was not rehearsing. He was asking Charlie questions: 'Charlie, what is the nature of life? Charlie, what is the nature of love?' And this wooden dummy was answering quite unlike the being I knew on the radio. A regular wooden Socrates, he was. It was the same voice but it was very different altogether. And Bergen would get fascinated and say, 'Well, Charlie, what is the nature of true virtue?' and the dummy would just pour out this stuff: beauty, elegance, brilliant. And then we got embarrassed and coughed. Bergen looked around and turned beet red and said, 'Oh, hello, you caught us.' And my father said, 'What were you doing?' And he said, 'Oh, I was talking with Charlie. He's the wisest person I know.' And my father said, 'But that's your mind; that's your voice coming through that wooden creature.' And Ed said, 'Well, I guess ultimately it is, but I ask Charlie these questions and he answers, and I haven't the faintest idea of what he's going to say and I'm astounded by his brilliance - so much more than I know.' (philosopher Jean Houston quoted in Klimo, 1987, p. 229)

Having a 'mind', being a 'self', being in possession of 'consciousness', this thesis argues that these are metaphorical procedures. Their procedures are enacted suppositionally or 'as if', but are not understood as doing so by science or philosophy. 'Mind,' 'self' and 'consciousness' have metaphorical status but are taken as 'real' in medical and psychological discourse. This thesis takes the ventriloquist act as central metaphor in



1. Edgar Bergen in Charlie McCarthy's shadow. (Image reproduced from Asbury, 2003, p. 24) indicating the limits for the designations of the terms 'mind', 'self' and 'consciousness' as presented in medical and psychological discourse. This thesis takes the ventriloquist act as analogous to the act of being a self, of 'consciousness', of 'mind' as presented in neuroscience, psychology and folk psychology. This thesis advances the proposition that it is the bewitchment by language that leads to belief in 'mind' as more than an abstract conceit, to believe that its suppositional space and characteristics are inscribed in the laws of physics, or in physiological and anatomical presence. This thesis advances the notion that the appearance of 'mind' and 'consciousness' in our language does not prove anything beyond the grammatical viability of the terms; just because it suits and serves consensually to believe there are physiological presences 'behind' these terms does not make it so. Theory of mind, the utilitarian practicality of folk psychology, medical and philosophical metaphor: these are bewitching portraits of things that this thesis argues are tricks of the light, a dumb show which has the illusory depth of a stage act.

This thesis explores similarities between the act of ventriloquism and what is termed neuronal man (Changeux, 1983), or the synaptic self (LeDoux, 2002). This thesis quotes from manuals on ventriloquism to explore similarities between the ventriloquist act and the medically, psychologically and folk psychologically conceived self; the gestural overlapping of act of ventriloquism and act of self. Descriptions in neuroscientific literature describing the processes of 'being a self', of consciousness, of memory, and of 'mind' come close to describing ventriloquial procedures enacting the same. Mediation, the act of animating a figure, the metaphorical in the theory of mind, the animating spirit of self or character, confusion and referral in the speaking for and speaking from: these are played out in the performance of ventriloquism and in the neurologically and folk psychologically defined self.

This thesis provides a compendium of alternatives to the 'intentional stance' in philosophy. When I began this thesis I was unaware that there was an alternative to the 'intentional stance'. The 'intentional stance' has been characterized as follows:

We must move beyond the text; we must interpret it as a record of *speech acts*; not mere pronunciations or recitations but assertions, questions, answers, promises, comments, requests for clarification, out-loud musings, self-admonitions.

This sort of interpretation calls for us to adopt what I call the *intentional stance*: we must treat the noise-emitter as an agent, indeed a rational agent, who harbours beliefs and desires and other mental states that exhibit *intentionality* or 'aboutness,' and whose actions can be explained (or predicted) on the basis of the content of these states. Thus the uttered noises are to be interpreted as things the subjects *wanted* to say, of *propositions* they meant to *assert*, for instance, for various *reasons*. (Dennett, 1991, p. 76 [Dennet's italics])

The 'intentional stance' is the philosophical substantiation of the position maintained in folk psychology: that of assuming intention for the agent concerned, assuming a psychological inner life characterized by motive and desire. 'Theory of Mind', as characterized in psychology and psychiatry, is also unthinkable without a sense of the intentionality of human behaviour and mental agency; indeed, theory of mind might be said to be the plan adopted when assuming an 'intentional stance' for oneself and others. Intentionality is the 'aboutness' that links human thought to the world it concerns. Despite the immaterial, insubstantial qualities of the 'intentional stance' (whose drives take place in an invisible, conceptual realm), it is the default belief system of neuroscience. That there is something like an alternative to this approach I discovered only by trial and error whilst researching this thesis. Julian Jaynes's book *The Origin of Consciousness in the Breakdown of the Bicameral Mind* (1976) presents an alternative 'archaeology' of self and consciousness, one where intention, as we know it, is less than

central and often absent altogether. Benjamin Libet's (Libet *et al*, 1979 and 1983) experiments in psychology again displace intention from the centre of the picture of the human self, indicating the retrospective imputation of volition or agency. Daniel Wegner's book *The Illusion of Conscious Will* (2002) backs up this evidence as it applies philosophically. The commissurotomy studies of Sperry, Gazzaniga and Bogen (1969) indicate the arbitrary, contingent presence of consciousness by describing the alternative intentionality of confabulation and so-called 'split-brain' consciousness. George Ainslie's books *Picoeconomics* (1992) and *Breakdown of Will* (2001) use an economic model to 'breakdown' the facets and factions often lumped together as a single will or agency, and represent the self rather as an arbitrary confluence of bargaining agents, held together only by the space they share.

I don't think any of these books and studies set out to counter the 'intentional stance', but I cite them in defence of an alternative. The picture of the self that emerges from these studies is multifarious and contradictory, is plural or often absent. The evidence from the commissurotomy studies, for instance, gives a picture of the self that can be conceptualized in any number of ways. I aim to give substance to these paradoxical claims for the self by presenting a hydra of voices as they contest the single self. That I often quote directly from primary sources indicates my ventriloquial assessment of these claims; each claim is heard in its own voice and not subsumed into a seamless text. That these claims for a multiple self are many faceted means this thesis amounts to a prism of contending voices.

This thesis argues that the conversational validity of the terms 'mind,' 'self' and 'consciousness' does not indicate a presence beyond a grammatical role. The viewpoint

of this thesis incorporates Wittgenstein's scepticism regarding the referents necessitated

by grammatical terms.

In [Wittgenstein's] thinking about psychology, mathematics, aesthetics and even religion, his central criticism of those with whom he disagrees is that they have confused a grammatical proposition with a material one, and have presented as a discovery something that should properly be seen as grammatical innovation... Thus, in his view, Freud did not discover the unconscious; rather, he introduced terms like 'unconscious thoughts' and 'unconscious motives' into our grammar of psychological description. Similarly, Georg Cantor did not discover the existence of an infinite number of infinite sets; he introduced a new meaning of the word 'infinite' such that it now makes sense to talk of a hierarchy of different infinities. The question to ask of such innovations is not whether these 'newly discovered' entities exist or not, but whether the additions they have made to our vocabulary and the changes they have introduced to our grammar are useful or not. (Monk, 1990, p. 468)

This thesis applies this Wittgensteinian understanding of language in a reading of medical

and psychological terms referring to the self:

The whole modern conception of the world is founded on the illusion that the so-called laws of nature are the explanations of natural phenomena. (Wittgenstein quoted in Monk, 1990, p. 139).

It is within the power of language to confer presence on referents that have only conceptual status. Medical language is informed by a particularly haptic significance; the referents of its terms are visceral. Because one can talk of a 'synaptic self' or a 'neuronal self' one can conceive of these things; these terms link anatomical matter ('synapses', 'neurons') with a contestably material or immaterial property ('self'). This thesis argues that these are innovations in grammar that do not contribute anything useful to the language; they simply reinforce certain second-order philosophical concepts that both science and folk psychology would do better to be without.

In concerning myself with these terms I am stressing the importance of language in configuring the self. I side with Wittgenstein in his concern regarding bewitchment by

language. A picture of the self is the self. Language is pernicious and we are susceptible. Its terms get under the skin. Only the language of medicine is actually under the skin.

Philosophers constantly see the method of science before their eyes, and are irresistibly tempted to ask and answer questions in the way science does. This tendency is the real source of metaphysics, and leads the philosopher into complete darkness. I want to say here that it can never be our job to reduce anything to anything, or to explain anything. (Wittgenstein, 1978, p. 18)

It is a feature of philosophical debates regarding 'consciousness' or 'mind' that philosophers share journal space with neurosurgeons, and with behavioural or developmental psychologists. Indeed there are a number of incidences where neuroscientists and philosophers work together; for instance, V. S. Ramachandran has written a paper with Patricia S. Churchland (Churchland and Ramachandran, 1998) in which the essay is presented as written in a meld of undifferentiated voices. Medical language has a transparency that literary language can never match. It seems difficult for a scientist to spot a metaphor, and the mechanistic pictures of neural events described above are trusted in scientific terms not as representational but as verisimilitude. Thomas

Szasz writes that:

Although most people assume that educated persons know what a metaphor is, I have learned that this may not be so. Medical students are educated persons. But most of them do not know what a metaphor is. Medical students often ask me what I mean when I say that mental illness is not a real illness, and I sometimes try to explain it by drawing a distinction between the literal and metaphorical uses of the word <u>illness</u>. One day, before beginning my explanation, I asked if anyone in the group – there must have been about 20 students sitting around the table – could define <u>metaphor</u>. Half of them raised their hands. I turned to one and asked him to tell us. He said he knew what a metaphor is but could not define it. I suggested he give us an example. He thought for a moment and then said: 'My mind is a blank.' And not one single student laughed. It was then I realized that they did not know what a metaphor is; and perhaps why so many people do not, or cannot, distinguish literal diseases, such as cancer and heart disease, from metaphorical diseases, such as lovesickness and mental illness. (Szasz, 1987/1997, p. 135)

I quote Szasz here to establish that I am not alone in supposing medical consensus naïve in its use and understanding of metaphor. This thesis questions the absolutism of medical language and asks what it hides regarding the abstract conceits dependent on consensus understanding of the terms 'self' and 'mind'.

This thesis employs written evidence from the disciplines of philosophy, psychology, linguistics, and neuroscience to imply another kind of self than that which is the consensus in any of those disciplines. The work and evidence quoted is not from the furthest reaches of any of those disciplines but from their mainstream. Each of those disciplines supports a consensus of opinion regarding the self. This thesis argues that the work of the writers and researchers here quoted argues for a very different kind of self than that ever pictured or propounded as consensus. This thesis argues that the sciences and methodologies quoted from influence, and are influenced by the folk psychology which represents the 'unthought known' regarding the human self. As this thesis shall explain: folk psychology influences science which in turns feeds back its findings to influence folk psychological perspectives on those same matters. 'Folk psychology' becomes a key concept in this thesis, and is understood as denoting:

The prescientific, commonsense conceptual framework that all normally socialized humans deploy in order to comprehend, predict, explain, and manipulate the behaviour of humans and higher animals. This framework includes concepts such as belief, desire, pain, pleasure, love, hate, joy, fear, suspicion, memory, recognition, anger, sympathy, intention, and so forth. It embodies our baseline understanding of the cognitive, affective, and purposive nature of people. Considered as a whole, it constitutes our conception of what a person is. (Churchland, 1998, p. 3)

This thesis uses the metaphor of ventriloquism to critique the model of self forwarded in the disciplines of neuroscience, psychology, psychiatry, philosophy and linguistics, and uses evidence from within those disciplines to extend this metaphor. This thesis finds

many instances where neuroscientific and other extant scientific models of self support or mirror this ventriloquial model. This thesis argues that the self has less to do with unilateral agency than with the phantoms of such and follows this concern as it appears in neuroscientific literature, and in the literatures of behavioural and developmental psychology, and philosophy of mind. I approach these topics by means of the most frequently aired concepts: self, mind, memory and consciousness. Consciousness is a key concept because it seems to define all that follows. Without clarity as regards the term, or without agreement as to what the term might refer, any discussion of the nicer points of phenomenology (that is, the means and process of perceiving and the means of describing and classifying the 'objects' of perception) is previous, or building on a false premise. Unfortunately most discussions of this phenomenological process depend on acceptance of the consensus viewpoint: that consciousness is a central and essential facet of human experience, and that perception is inconsiderable without being grounded in this concept. Julian Jaynes's work is a dissenting voice amongst psychologists. Amongst neuroscientists, whatever conceptual muddle defines 'consciousness' is the underpinning architecture of perception. In neuroscientific literature consciousness is nearly always presented in 'black and white' terms, as a given and only infinitely defineable and not dismissable. I go on to explore these problems in more depth in the chapters that follow.

Vygotsky's behavioural observations of the formation of 'theory of mind' concepts in children do not assert the truth-value of 'theory of mind' propositions. There is utility value in assuming emotional motives and desires as explanations 'behind' the behaviour of a care-giver; this is not to plasticize those assumptions neurally or to see in them an essential truth of human substance. To seek physiological correlates of these concepts is

indeed to conflate a grammatical proposition with a material one.

In our effort to understand illness in purely medical terms, we have stumbled into a great confusion. We have done so because of a stubborn refusal to see that although the idea of illness is rooted in a medical context, certain nonmedical – for example, moral, economic, and political – factors play a decisive role in imparting meaning to it. (Szasz, 1986/1997, p. 18)

Language is as culturally bound in medicine as it is elsewhere, but only in medicine does

it have the evidence of the body. Psychology (and philosophy of mind) works out its

concepts in the subjective intimacy of 'self', 'mind' and 'consciousness,' but wants the

truth-value that medical language can confer.

In emphasizing the fluidity of the grammatical/material distinction, [Wittgenstein] was drawing attention to the fact that concept-formation – and thus the establishing of rules for what it does and does not make sense to say – is not something fixed by immutable laws of logical form but is something that is always linked with a custom, a practice. Thus, different customs or practices would presuppose different concepts from the one we find useful. And this in turn would involve the acceptance of different rules (to determine what does and does not make sense) to the ones we, in fact, have adopted. (Monk, 1990, p. 469)

The questions asked by this thesis are not meant disingenuously and are intended to be read as sincere inquiry. There is, however, a form of ventriloquism that is taking place in the construction of this thesis. I quote from medical and psychological discourse at length in order to highlight aspects I find problematic in their modes of address. There is a dissembling spirit at work in that I advance my own arguments by means of quotation from others. It is an act of detournement (Plant, 1992, pp. 86-89), which allows me often to find other meanings than those intended by the writers quoted. I mean not to set up straw men as targets, but to highlight the equivocal in scientific research and the way that consensus often over-rules enquiry. Often this detournement is a form of ventriloquism; my thesis seeks to allow disparate voices of authority their own contending claims, much in the manner that Charlie McCarthy and Edgar Bergen would argue during their radio broadcasts (Bergen, 1964). I quote also for veracity: when I indicate what I consider the consensus in any discipline I substantiate the claim by recourse to words from the disciplines themselves.

This thesis aims to explain why 'consciousness' is a redundant concept, to neuroscience and folk psychology alike. Whereas folk psychology regularly uses terms where definition is vague or has never been attempted, in science this would seem to be a problem. Presumably psychology would seek to differ itself from folk psychology by the clarity and robustness of its terms.

In the 1963 feature film *Devil Doll* (1963) ventriloquist The Great Vorelli does not draw applause by just 'voice-throwing'. The crowd is not amazed by his act of ventriloquism: it is the dummy walking that draws the applause. The dummy Hugo can walk and talk even when separated from his ventriloquist. This 'Devil Doll' confusion surrounding a dummy activated by remote agency is founded in Cartesian dualism and is an extension of that theory and is consistent with it. The explanation of the self in contemporary neuroscience is as equally riven by Cartesian dualism. The self/mind is a projection, or is an 'emergent property' of the body/brain; that is, the self is consistent with, and a direct result of the neuronal action of human cellular matter. Body equals brain equals self. Even allowing for 'feedback', for 'response', for 'organic mutability' at a genetic level, and as regards brain development, neuronal activity equals self. The one is explicable always by the other. In current neuroscience the self is the mechanical expression or act of neurons, and is explicable by that action always.

What is most interesting to me in approaching this thesis is that these issues depend crucially on linguistic and etymological interpretation, and devolve on the spoken and written word. All of these concerns seem to devolve upon a metaphor: that of the 'space' of consciousness, the place upon which we introspect, and to which we defer epistemological debate. All of the concerns of 'self' might be said to metaphorical; all the ills that concern this thesis might be said to be semantic ailments. To clarify these terms then might provide a cure, or at least a better understanding of the symptoms.

The term 'conscious(ness)' and its cognates are relatively recent to the English language (Wilkes, 1988a, p. 18). The term 'consciousness' did not appear in English until 1678. The term 'self-conscious' does not appear in English until 1690. French and German equivalent terms appear around the same time. By another estimate (Whyte, 1962, p. 43) 'conscious' as meaning 'inwardly sensible or aware' first appears in English in 1620. The term 'consciousness' meaning 'the state of being conscious' appears in 1678. 'Self-conscious' meaning 'consciousness of one's own thoughts' appears in 1690. Whyte also points out that the Latin root of 'con-scious' means 'to know with' or 'to share knowledge with another' and this was the meaning of the term in its original English usage.

It is interesting to track the appearance of these terms as they define a particular view of the self in English philosophy. In *Leviathan* (1651) Thomas Hobbes spells out the apparent development of what is meant by the current use of the English term 'conscious(ness)':

When two, or more men, know of one and the same fact, they are said to be CONSCIOUS of it one to another; which is as much as to know it together. And because such are fittest witnesses of the facts of one another, or of a third: it was, and ever will be reputed a very Evill act, for any man to speak against his *Conscience*: or to corrupt, or force another to do so: Insomuch that the plea of Conscience has been always hearkened unto very diligently in all times. Afterwards, men made use of the same word metaphorically, for the knowledge of their own secret facts, and secret thoughts; and therefore it is Rhetorically said, that the Conscience is a thousand witnesses. (Hobbes, 1651/1996, p. 48)

In this usage Hobbes is aware of the etymological root of the word 'conscious' in 'cum-

scire', meaning 'to share knowledge with another' (Wilkes, 1988b, p. 203), and uses the

word in this sense. Here is Locke writing in 1689:

[A person] is a thinking, intelligent being, that has reason and reflection, and can consider itself as itself, the same thinking thing, in different times and places; which it does only by that consciousness which is inseparable from thinking, and, as it seems to me, essential to it; it being impossible for any one to perceive without perceiving that he does perceive...For, since consciousness always accompanies thinking, and it is that which makes every one to be what he calls himself. (Locke, 1689/1997, p. 302)

And in 1748 David Hume wrote that "the perceptions of the mind are perfectly known"

and "consciousness never deceives" (Hume quoted in Wilkes, 1988a, p. 23).

These are all descriptions of a very particular type of man, one whose ideas of a self

precede his will to be a certain sort of person. 'I am my thoughts' he seems to say, 'and

the rest is a smelly bag of bones'. 'I am my thoughts and my thoughts are known to me.'

In this picture of a person we are being spoken by our language, with no visceral

infiltration. And our words belong to our thoughts. What about those words we have said

but wish we hadn't? Or wanted to say but couldn't? Or are ashamed of? Or condemned

by? What of those words which lose us friends?

In 1640 Rene Descartes wrote in a letter to Mersenne:

That nothing can be in me, that is to say, in my mind, of which I am not conscious, this is something which I have proved in my Meditations, and it follows from the fact that the soul is distinct from the body and that its essence is to think. (Descartes, 1970, p. 90)

As can be seen from the preceding group of quotations from philosophical works, the Cartesian view of human minds quickly became the accepted and authoritative model in Western Europe. Although previous to Descartes and these English Empiricist voices it had been easier to accept the mind as sometimes unfathomable or at least occasionally unclear, by the eighteenth century mental activity was characterized by this infallible 'conscious' introspection. Richard Rorty (1980) has pointed out that it seems new to Descartes, and those European thinkers who followed, to conceive of human mental activity as all taking place in the one arena; the 'Cartesian theatre' that has caused

consternation in European thought ever since.

The novelty was the notion of a single inner space in which bodily and perceptual sensations ('confused ideas of sense and imagination' in Descartes' phrase), mathematical truths, moral rules, the idea of God, moods of depression, and all the rest of what we now call 'mental' were objects of quasi-observation. (Rorty, 1980, p. 50)

This is not particularly different in essence to medical consensus today:

Every medical student in introductory neuroscience learns a basic set of facts about the brain, among which the following two are key to the issue of 'brain death': (1) The brain is central integrator of the human body.

- (2) With respect to consciousness:
 - a) the cerebral hemispheres (particularly the neocortex) mediate the content of consciousness, and
 - b) the brain stem (specifically the ascending reticulator activating system) mediates arousal.

These principles are so fundamentally and so universally accepted as established beyond doubt that their truth is simply taken for granted in professional circles. (Shewmon, 1997, p. 35)

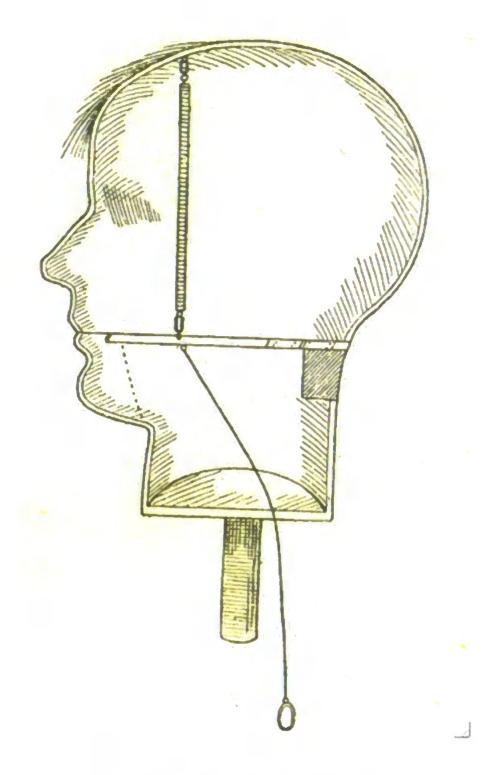
Where might 'consciousness' be located? Folk psychology would seem to locate

consciousness in the head. What are the reasons for locating one's consciousness in one's

head? Julian Jaynes, a psychologist, wrote in his book The Origin of Consciousness in the

Breakdown of the Bicameral Mind:

Where does consciousness take place? Everyone, or almost everyone, immediately



2. Sectional drawing of a ventriloquial head, showing the action by which the mouth is worked. (Image reproduced from Hercat, 1916, p. 45) replies, in my head. This is because when we introspect, we seem to look inward on an inner space somewhere behind our eyes. But what on earth do we mean by 'look'? We even close our eyes sometimes to introspect even more clearly. Upon what? (Jaynes, 1976, p. 44)

By 'looking' in this way we grant consciousness a spatial character. We 'search our mind' for the right answer to a question. The answer is 'in there somewhere'. Can we characterize this space and, if so, what would it look like? Locating this space in our heads, we assume it is similarly located in the heads of others. When we talk we maintain an eye contact. This is to assume a space behind those eyes into which we consider ourselves to be talking. The space we imagine ourselves talking into is located and constructed similarly to the space we imagine ourselves talking from. To quote Julian Jaynes:

This is the very heartbeat of the matter. For we know perfectly well that there is no such space in anyone's head at all! There is nothing inside my head or yours except physiological tissue of one sort or another. And the fact that it is predominantly neurological tissue is irrelevant. (Jaynes, 1976, p. 45)

This is a form of ventriloquism that is taking place, both in our instigation of a space of consciousness 'somewhere behind our eyes' and in our supposition of a similar space behind the eyes of our interlocutor. It is an imaginary space that we speak from and to. It is not an anatomical space. Look and we cannot find it. And the placing of that space is an arbitrary matter. There might be practical reasons for locating that space within our bodies: nearness to sources of visceral data, immediacy of neuromuscular activity, etc. More likely it revolves around the misappellation in synecdoche. It may make practical sense to refer to a person's 'mind' when implicating an invisible calculating device, or emotional motives in trying to understand a person's behaviour, but to come to see the whole as only ever representative of the part is to misunderstand the role of metaphor. If a chess player is <u>mulling over</u> his next move, it follows that he isn't sure what he is going to do (hence, wouldn't tell you if you asked him), that he is trying to discover a good move (hence, would welcome an expert's advice, if that is allowed), that he is not arguing fiercely about the cup final, and also that he is not in fact making his next move. Since we are not talking about a part of someone when we say he is talking, welcoming, arguing and making moves, we are not talking merely about a part of him when we say he is mulling over, pondering, thinking about what to do. This is not an attempt to show that nothing is going on inside us, or even that traditional candidates for mental activities do not involve something inside us. It is a reminder that such things as dreaming, silent reading and thinking, are not merely things going on inside us. The part of us which thinks and feels does not exist. (Squires, 1971, p. 335)

Common sensations of one's consciousness being located elsewhere than in one's head ought to point out the arbitrariness of routinely or ever placing it there. Commonly in dreams we find ourselves looking down on our protagonist-self acting out some scenario for us below. Self or selves? In dreams or in daydreams there is often a mobile personal pronoun at play: I am this person or that in the drama, just as it interests or informs me to be. Not wishing to let this thesis be hijacked by anecdotal evidence from the more outré reaches of medical literature, here is a report from a nurse in a coronary care unit (as related by Pin Van Lommel, a Dutch cardiologist):

During night shift an ambulance brings in a 44-year old cyanotic, comatose man into the coronary care unit. He was found in coma about 30 minutes before in a meadow. When we go to intubate the patient, he turns out to have dentures in his mouth. I remove these upper dentures and put them onto the 'crash cart'. After about an hour and a half the patient has sufficient heart rhythm and blood pressure, but he is still ventilated and intubated, and he is still comatose. He is transferred to the intensive care unit to continue the necessary artificial respiration. Only after more than a week do I meet again with the patient, who is by now back on the cardiac ward. The moment he sees me he says: 'O, that nurse knows where my dentures are.' I am very surprised. Then he elucidates: 'You were there when I was brought into hospital and you took my dentures out of my mouth and put them onto that cart, it had all these bottles on it and there was this sliding drawer underneath, and there you put my teeth.' I was especially amazed because I remembered this happening while the man was in deep coma and in the process of CPR. It appeared that the man had seen himself lying in bed, that he had perceived from above how nurses and doctors had been busy with the CPR. He was also able to describe correctly and in detail the small room in which he had been resuscitated as well as the appearance of those present like myself. He is deeply impressed by this experience and says he is no longer afraid of death.

(Van Lommel, 2004, p. 120)

This may be an irregular and extraordinary instance, but I quote it to illustrate how arbitrary the placing of consciousness ever is. Of course such evidence indicates the flexibility of our definitions of 'personality' or 'self'. An experience such as the one described above might be considered as so foreign to what we might normally consider could ever happen to us that the lacuna it leaves in our view of ourselves when it happens is far more disturbing than amnesia.

Are not such lacunae common? Not just in terms of memory (though that is common enough), but also in terms of those experiences that leave a blank in the continuity of our selves that is far more blank than an unremembered period would be. Consider any form of hallucination (in the widest definition of the term): there are many occasions where it is something other than somatosensory information that returns us to our normal sense of ourselves. If one were trusting purely epistemological data on these occasions, one would end up believing something very different to that one habitually takes as true. Or consider occasions when some extraordinary circumstance alters our normal consciousness of ourselves: can't we on those occasions sometimes feel more 'ourselves' than we do ordinarily?

Historically, and in some contemporary cultures, it is not always in the role of 'consciousness' to be found behind our eyes. Aristotelian writings posit what we might call consciousness somewhere in the upper chest (Jaynes, 1976, p.45). In *Generation of Animals* Aristotle writes of the corporeality of 'soul', but " it remains that thought alone comes in from outside, and that it alone is divine; for corporeal actuality has no connection at all with the actuality of thought" (Aristotle quoted in Barnes, 1982/2000,

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p. 108). One can think of a number of personal instances when consciousness seems to centre elsewhere in the body, or to float free of the body altogether. Medical history is full of anomalous accounts of (what I might call) free-floating consciousness, when consciousness seems centred up above the body like a watching angel or not 'centred' anywhere at all. We don't need such anomalies to prove the point (although neuroscience relies on such anomalies to make clear the 'norm'). The good reasons for locating one's 'mind-space' inside oneself are to do with volition and internal sensations, but it is not a phenomenal necessity. To quote Julian Jaynes:

When I am conscious, I am always and definitely using certain parts of my brain inside my head. But so am I when riding a bicycle, and the bicycle riding does not go on inside my head. The cases are different of course, since bicycle riding has a definite geographical location, while consciousness does not. In reality, consciousness has no location whatever except as we say it has. (Jaynes, 1976, p. 46)

The core brain nuclei of the 'ascending activation system' are involved in the modulation and regulation of our visceral states: for instance, temperature, heartbeat, respiration and digestion. Their sources of information are the neurotransmitter systems of the nervous system and also the hormones commuted through the bloodstream and cerebrospinal fluid circulation. Antonio Damasio is a Portuguese neurologist who made 'core consciousness' the study of his book *The Feeling of What Happens* (2000). He considers that the 'state' of consciousness is a product of the brainstem as it monitors the internal milieu of the body. He thinks that this deep brainstem network contains a representational 'map' of our visceral functions. Damasio considers that the conscious state is generated by this virtual body, and responds to changes that occur in this neural network that represents the visceral functions of the body. This network cannot only monitor these changes, but acts to modify the sources of the information.

The most basic function of consciousness, then, is to monitor the state of these homeostatic systems to report whether they (i.e. you) are 'contented' or not. (Damasio, 2000, p. 91)

Mediation, transformation, and referral: these are qualities which characterize ventriloquism and also the human means of perception and self-perception, even at the neural level.

For Wilkes (Wilkes, 1988a, p. 25) it is no coincidence that the term 'unconscious(ness)' enters the English language with the first flood of post-Cartesian thought. For Wilkes it was a term founded in the need to make distinct a view of the human mind that was not this Cartesian 'conscious' mind. The thinker who wished to "combat the Cartesian revolution by stressing the role of non-conscious factors had to devise his own vocabulary" (Wilkes, 1988a, p. 25). Cartesian Dualism forced a schism between 'conscious' and 'non-conscious' in discussions of human mental processes and any discussion of these human mental processes had to be defined in terms dictated by this dichotomy. It is Wilkes's opinion that this dichotomy is still the foundation for thinking in philosophy and psychology. Wilkes quotes E. L. Thorndike from 1898:

[Descartes's] physiological theories have all been sloughed off by science long ago. No one ever quotes him as an authority in morphology or physiology...Yet his theory of the nature of the mind is still upheld by not a few, and the differences between his doctrines of imagination, memory, and the emotions, and those of many present-day psychological books, are comparatively unimportant. (Thorndike quoted in Wilkes, 1988a, p. 25)

Although present as a concern in European philosophy since the 17th century, neuroscience approached a study of 'consciousness' only in the 20th century. One might wonder both why it took so long and why neuroscientists bothered researching 'consciousness' at all. Consciousness has long been an important topic in philosophy but until recently only a few neuroscientists had worked on it. For a brief period during the middle of the twentieth century, especially in the forties and fifties, neuroscience devoted considerable attention to the study of consciousness. The experimental work of G. Malgoun, H. W. Moruzzi, and H. Jasper and the clinical and experimental observations of W. Penfield stand out among several contributions from an epoch that ended all too soon. Benjamin Libet is another pioneering exception. What is currently known as the field of consciousness studies was created over the past decade by a handful of philosophers and scientists, independently, unwittingly, and unexpectedly. Thanks are due especially to the philosophers Daniel Dennett, Paul and Patricia Churchland, Thomas Nagel, Colin McGinn, and John Searle, and to the neuroscientists Gerald Edelman and Francis Crick. (Damasio, 2000, p. 336)

Neuroscience is still defined by its devotion to Cartesian physics (though not Cartesian

physiology). Quantum physicist Henry P. Stapp has pointed out the problematic discourse

classical physics has with contemporary conceptions of 'mind':

The main theme of classical physics is that we live in a clocklike universe, and that even our bodies and our minds are mechanical systems. The theory asserts that nature has a 'material' part that consists of tiny localized bits of matter, and that every motion of each of these minute material elements is completely determined by contact interactions between adjacent material elements. This material part of nature includes our bodies and our brains. (Stapp, 1993/2004, p. 265)

The mechanistic classical-physics picture of the self is illustrated in numerous fictional

depictions of the ventriloquist act; one is left with the strangeness of a body acted upon

by distant agents. In these fictional depictions of ventriloquism one is left guessing at the

motility of the 'dummy', just as when imputing a 'neuronal' or 'synaptic' self to humans

(and finding it in the mechanistic actions of neurons upon 'will', 'agency' and 'self', or in

the expression of a 'gay' or 'alcoholic' gene).

Neurologists are, after all, brain chauvinists, who tend (at least subliminally) to regard the person as the mind, the mind as the brain, and the body as nothing more than a carrying case for the brain and a means for its interaction with the external world (especially with other brains). (Shewmon, 1997, p. 34)

The neuronal self is as equally mechanistic and 'classical physics' as is Descartes. In his book *Synaptic Self* (2002) Joseph LeDoux, a neuroscientist "at the height of his professional standing...the man in the middle...at a gathering of...guardians and cultivators of the new reigning orthodoxy about the self" (Ross, 2003, p. 67), describes his neurological understanding of the self:

The bottom-line point of this book is 'You are your synapses'. Synapses are the spaces between brain cells, but are much more. They are the channels of communication between brain cells, and the means by which most of what the brain does is accomplished. (LeDoux, 2002, p. ix)

LeDoux is not alone in presenting a picture of a mechanistically conceived self; he represents the orthodoxy in neuroscientific explanations of self and its attributes. A list of contributors to this orthodoxy would include Eric Kandel who won the Nobel Prize for work on the molecular mechanisms of memory (Kandel, 2006), and Roger Sperry who won the Nobel Prize for work with commissurotomized patients and his studies of the hemispheric division of brain faculties (Sperry, Gazzaniga and Bogen, 1969). Neuroscientific orthodoxy has extended its consensus by means of books and television programmes popularizing its concepts. V. S. Ramachandran (Ramachandran and Blakeslee, 1998), Antonio Damasio (2000), and Rodolfo R. LLinas (2001) are all scientists who have written neuroscientific books of popular appeal. These books represent a scientific orthodoxy and help form a popular understanding of the scientific viewpoint on matters pertaining to 'self'.

Jakk Panksepp is a neuroscientist whose work concerns 'affective neuroscience'; that is, the neural correlate of emotion. It is his view that the evolutionary heritage of language precludes scientific discussion of emotions:

With the evolution of connections between different sensory areas, vocal

communication gradually emerged as an especially effective way for encoding the relationships among external events. In this role, it is ideal for discussing visually evident world events that constitute most of scientific enquiry; but as the ability to interrelate external events improved, it remained a deficient medium for discussing internal events that arise from deep evolutionary rather than environmental sources. These difficulties still haunt the application of language in scientific inquiries where we must speak of processes that cannot be seen. Emotions, of course, are such processes – for the only things we can 'see' are the outward expressions, gestures, sounds, and other behavioural acts. (Panksepp, 1998, p. 331)

It is interesting to learn that the verb 'to be' derives from the Sanskrit 'bhu' meaning 'to grow, or make grow'. The English forms 'am' and 'is' have evolved from the Sanskrit 'asmi' meaning 'to breathe'. There is a difference between 'to grow' or 'to breathe' and our verb 'to be' in that the first two observe an activity whereas the third implies a presence. Any language is a finite set of terms; it is through metaphor that we stretch the range of our referents and our perception. When we use a metaphor we are stretching language to introduce something new and strange to its range of referents. In using metaphors we describe something new and strange, but describe it in terms that are familiar. The feeling of familiarity these terms include brings with it a sense of understanding. Our errors regarding a definition of consciousness could be said to be errors in our range of metaphors. Any metaphor for consciousness would be misleading; consciousness does not 'do' anything as such and could only ever 'do' it in a virtual space. So what worldly thing could be used as a metaphor for consciousness, that wouldn't mislead by means of its range of associations? To think this way would in any case conceive of consciousness as a 'thing', thereby granting it a location and a substance that physically it can't have.

Julian Jaynes describes the way in which a mind or consciousness may be considered as having the properties of an 'analogue': An analogue is a model, but a model of a special kind. It is not like a scientific model, whose source may be anything at all and whose purpose it is to act as an hypothesis of explanation or understanding. Instead, an analogue is at every point generated by the thing it is an analogue of. A map is a good example. It is not a model in the scientific sense, not an hypothetical model like the Bohr atom to explain something unknown. Instead, it is constructed from something well known, if not completely known. Each region of a district of land is allotted a corresponding region on the map, though the materials of land and map are absolutely different and a large proportion of the features of the land have to be left out. And the relation between an analogue map and its land is a metaphor. (Jaynes, 1976, p. 54)

So subjective conscious mind might be said to be an analogue of what is called the real

world, and:

It is built up with a vocabulary or lexical field whose terms are all metaphors or analogues of behaviour in the physical world. Its reality is of the same order as mathematics. It allows us to shortcut behavioural processes and arrive at more adequate decisions. Like mathematics, it is an operator rather than a thing or repository. And it is intimately bound up with volition and decision. (Jaynes, 1976, p.55)

The way an analogue is generated, though, is not the way it is used. Consider maps: the cartographer knows and has surveyed the land, and negotiates a blank piece of paper to represent it. The map user looks to the map to make understandable and navigable the land that is foreign and distant to his knowledge and expectations. Put simply, the map is not the territory but it may be all we have. Assuming I see the world from 'this' perspective places me 'here'; but this is no more than assumption. We may or may not be where we imagine ourselves to be: all we have is that it seems that way, just as binocular vision seems to provide a singular cyclopean vantage point from the centre of our forehead. That binocular vision cannot and does not provide this vantage point (only after elision and mediation do we 'see' things this way), never bothers us; in this case and in the cases of 'mind', or 'memory' or 'self', that it seems so is enough.

It may be impossible for us to abandon certain ways of conceiving and representing

ourselves, no matter how little support they get from scientific evidence. (Nagel, 1971, p. 148)

The foeval area of the eye in which one has high resolution and high acuity vision is smaller that the area eluded by the 'blind spot' (Churchland and Ramachandran, 1998, p. 177); that area of our vision 'filled in' or supposed is larger than the area of our vision 'seen clearly'. What of this? "I am placed in this world like my eye in its visual field" wrote Wittgenstein (Wittgenstein quoted in Monk, 1990, p. 140). *Precisely* as my eye is placed in its visual field: whole areas eluded and filled in, and a perspective which is suppositional but which necessitates placing the 'self' in this vantage point. The eye that 'sees' is no different from the cortically placed 'self' or 'mind' or 'consciousness': in principle as in practice an eluded, suppositional space, substantiated by a metaphor. That it serves us to assume the 'theory of mind' explanation for the behaviours of others, and by extension place ourselves within a scaffold of causal motives, says more for the use value of such a theory than for the presence of 'mind'. Theory of Mind is just that, only a theory, and by definition any theory may be proved wrong. Theory of mind would seem to be indivisible from 'mind'.

Where Julian Jaynes's theory is most interesting as regards this thesis is in its accounts of 'the analogue 'I'' and 'the metaphor 'me'':

The analogue 'I' which can 'move about' vicarially in our 'imagination', 'doing' things that we are not actually doing. There are of course many uses for such an analogue 'I'. We imagine 'ourselves' 'doing' this or that, and 'make' decisions on the basis of imagined 'outcomes' that would be impossible if we did not have an imagined 'self' behaving in an imagined 'world'...If we are out walking, and two roads diverge in a wood, and we know that one of them comes back to our destination after a much more circuitous route, we can 'traverse' that longer route with our analogue 'I' to see if its vistas and ponds are worth the longer time it will take. Without consciousness with its vicarial analogue 'I', we could not do this. (Jaynes, 1976, pp. 62-63)

Jaynes elaborates to say:

The analogue 'I' is, however, not simply that. It is also a <u>metaphor 'me'</u>. As we imagine ourselves strolling down the longer path we indeed catch 'glimpses' of 'ourselves'...We can both look out from within the imagined self at the imagined vistas, or we can step back a bit and see ourselves perhaps kneeling down for a drink of water at a particular brook. (Jaynes, 1976, p. 63)

Is this not like ventriloquism? Is this not the Pinocchio we construct to do our imaginative dirty work and who claims a life of his own? Who is this magical dummy that sits in our metaphorical lap and says the words for us as we might say them? Try as I might I'm still confused as to whose voice is heard. Is it the big person who holds the puppet, or is it the little puppet that talks back? The puppet seems to have all the best lines and the agency.

Chapter Two: Hallucinations

The work and theories of Lev Vygotsky have gained rather than lost in currency in the years since his death. Vygotsky was a Russian psychologist who died in 1934 and left his major work *Thought And Language* (1934/1986) to posterity. The illustration appended to this page is from a current teacher training text book (Pollard, 2002, p. 112) and indicates the cultural value and theoretical influence his work has still. Vygotsky's theories are not just influential on those working with children, but underpin much that is known in current developmental psychology (Bentall, 2003, p. 192). Vygotsky's observations of the process of speech acquisition led to the 'theory of mind' principle current in psychology and neuroscience. It is as the founder of this theory that Vygotsky's work becomes central evidence in this thesis.

'Theory of mind' is described as a facet of folk psychology (Fonagy et al, 2002, p.

26). Paul M. Churchland defines the term 'folk psychology' as denoting,

the prescientific, commonsense conceptual framework that all normally socialized humans deploy in order to comprehend, predict, explain, and manipulate the behaviour of humans and higher animals. This framework includes such concepts as belief, desire, pain, pleasure, love, hate, joy, fear, suspicion, memory, recognition, anger, sympathy, intention, and so forth. It embodies our baseline understanding of the cognitive, affective, and purposive nature of people. Considered as a whole, it constitutes our conception of what a person is. (Churchland, 1998, p. 3)

Folk psychology constitutes the prescientific, commonsense models of self which are apparent in the everyday language we use to characterize our behaviour and the motives for our behaviour. The models of self in folk psychology are constituted by prescientific terms but the influence of folk psychology carries into scientific models. As Quine puts it:

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READING 7.3

Mind in society and the ZPD

Lev Vygotsky

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Vygotsky's social constructivist psychology, though stemming from the 1930s, underpins much modern thinking about teaching and learning. In particular, the importance of instruction is emphasized. However, this is combined with recognition of the influence of social interaction and the cultural context within which understanding is developed. Vygotsky's most influential concept is that of the 'zone of proximal development' (ZPD) which highlights the potential for furure learning which can be realized with appropriate support.

The influence of Vygotsky's work will be particularly apparent in Readings 7.8, 7.9, 7.11, 13.2 but it is also present in many other readings, particularly in Chapters 11 and 12.

Thinking of a particular area of learning and a child you know, can you identify an 'actual developmental level' and a 'zone of proximal development' through which you could provide guidance and support?

Edited from: Vygotsky, L. S. (1978) Mind in Society: The Development of Higher Psychological Processes. Cambridge, MA: Harvard University Press, 84–90

That children's learning begins long before they attend school is the starting point of this discussion. Any learning a child encounters in school always has a previous history. For example, children begin to study arithmetic in school, but long beforehand they have had some experience with quantity – they have had to deal with operations of division, addition, subtraction and determination of size. Consequently, children have their own pre-school arithmetic which only myopic scientists could ignore.

It goes without saying that learning as it occurs in the pre-school years differs markedly from school learning, which is concerned with the assimilation of the fundamentals of scientific knowledge. But even when, in the period of her first questions, a child assimilates the names of objects in her environment, she is learning. Indeed, can it be doubted that children learn speech from adults; or that, through asking questions and giving answers, children acquire a variety of information; or that through imitating adults and through being instructed about how to act, children develop an entire repository of skills? Learning and development are interrelated from the child's very first day of life.

In order to elaborate the dimensions of school learning, we will describe a new and exceptionally important concept without which the issue cannot be resolved: the zone of proximal development.

A well-known and empirically established fact is that learning should be matched in some manner with the child's developmental level. For example, it has been established that the teaching of reading, writing and arithmetic should be initiated at a specific age level. Only recently, however, has attention been directed to the fact that we cannot limit ourselves merely to determining developmental levels if we wish to discover the actual relations of the developmental process to learning capabilities. We must determine at least two developmental levels.

The first level can be called the actual developmental level, that is, the level of development of a child's mental functions that has been established as a result of certain already *completed* developmental cycles. When we determine a child's mental age by using tests, we are almost always dealing with the actual developmental level. In studies of children's mental development it is generally assumed that only those things that children can do on their own are

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3. Page from contemporary teaching handbook indicating the continued relevance of Vygotsky's theories of child development and language acquisition.

(Page reproduced from Pollard, 2002, p. 112)

Science, after all, differs from common sense only in degree of methodological sophistication. Our experiences from earliest infancy are bound to have overlaid our innate spacing of qualities by modifying and supplementing our grouping habits little by little, inclining us more and more to an appreciation of theoretical kinds and similarities, long before we reach the point of studying science systematically as such. Moreover, the later phases do not wholly supersede the earlier; we retain different similarity standards, different systems of kinds, for use in different contexts. We all still say that a marsupial mouse is more like an ordinary mouse than a kangaroo, except when we are concerned with genetic matters. (Quine, 1969, p. 129)

The principles found in folk psychology may be contested by current scientific psychology, or by neuroscience, but there is little disagreement in these disciplines that such a 'shared conceptual framework' (Churchland, 1998, p. 3) exists.

'Theory of Mind' is "an interconnected set of beliefs and desires, attributed to explain a person's behaviour" (Fonagy *et al*, 2002, p. 26). Each of us is said to have a theory of mind: it is how we understand our own and others' behaviour by recourse to a set of explanatory principles. These principles would include motives and desires, and constitute an epistemology of thought and feeling. 'Theory of Mind' does indeed constitute a model of the human self, but also describes a process of understanding our own and others' actions in the world.

Each of us has a theory of mind. We use it everyday to deceive, joke, teach, gossip and so on. Experiments on the development of this theory in children may involve, for example, the famous Smarties task where a tube ostensibly containing chocolate candies but in fact containing something else, such as pencils, traded between knowing and unknowing kids to see how well they cope with the deceptions involved. The conventional view is that we have privileged access to our own mental states, so we don't need it for ourselves. (Ross, 2003, p. 77)

Children are tested in the way described above because autistic people are said to seem 'unaware that others have mental states' (Bentall, 2003, p. 525). Autism is seen to be a 'developmental disorder of social insight' (Ross, 2003, p. 78) because autistic people seem to lack this ability to attribute mental states to others, and thus seem unconcerned with the beliefs and desires of others. Acquisition of a theory of mind, then, is understood to be a feature of normal development. How do we acquire a theory of mind?

In *Thought And Language* (1934/1986) Lev Vygotsky wrote about child development and the child's acquisition of language. Vygotsky characterized the development of thought and language, thus:

1) In their...development, thought and speech have different roots. 2) In the speech development of the child, we can certainly establish a preintellectual stage, and in his thought development, a prelinguistic stage. 3) Up to a certain point in time, the two different lines grow independently of each other. 4) At a certain point these lines meet, whereupon thought becomes verbal and speech rational. (Vygotsky, 1934/1986, p. 83)

Vygotsky's method of research was observation. His teacher was Ivan Pavlov. In

Conditioned Reflexes And Psychiatry, Pavlov concluded that:

Numerous speech stimulations have removed us from reality, and we must always remember this in order not to distort our attitude towards reality. (Pavlov quoted in Bentall, 2003, p. 195)

Vygotsky's concerns were communicative speech and verbal thought. Which comes first in a child's development? Do the abilities arrive as one? What does one's thinking gain from speech? Are thought and language synonymous or dependent on one another? It was Vygotsky's observation that we learn to speak as children in the context of our caregivers, with child and adult asking questions and issuing instructions to one another. In this way speaking is first the process of child and adult attempting to determine or control each other's actions. This process might be said to be the founding of a theory of mind and also explains the utility value of such a 'theory'. The observation of its practical development indicates that it is not an empirical theory as such, but initially a means to an end. Thus to call it a 'theory' of mind is misleading; it is a working principle. After a period in which they ask caregivers questions, only to answer those questions themselves, at the end of their second year children discover that they can instruct themselves in their own activities by speaking aloud to themselves about what they are doing. At this stage of their life children spend much time talking out loud to themselves (or to no-one in particular) without much concern as to who else is hearing. This phenomenon is referred to as 'private speech' (or in Piaget's term, 'egocentric speech'). It was Vygotsky's belief that this is an act of self-regulation on the part of the child. Mark Solms and Oliver Turnbull comment that:

This aspect of language...enables one to subordinate one's behaviour to verbal programs, such as 'first I must do this, before I can have that.' We rely on this aspect of language all the time. It is easiest to recognize it in young children, who still often externalize their inner speech, thus making it clear how they are using words (often adapted wholesale from their parents) to regulate their behaviour and impulses. Consider the common example of the small child who points at the thing that it desires, while simultaneously saying 'No' or 'Dangerous' to itself. With time, these self-instructions become increasingly internalized and invisible – that is, they become automatic and unconscious. (Solms and Turnbull, 2002, p. 260)

In this way 'prohibitions become inhibitions' (Solms and Turnbull, 2002, p. 283) and the regulatory import of social speech becomes the child's (and adult's) means of regulating him or herself.

Vygotsky observed that, at about four years old, social and private speech become

differentiated in the child. At this age children have become able to talk silently to

themselves. This silent talk, inaudible and undetectable to those around them, is known as

'inner speech'. Lev Vygotsky put it that,

The word is a thing in our consciousness...that is absolutely impossible for one person, but that becomes a reality for two. The word is direct expression of the historical nature of human consciousness...Language is a practical consciousness-for-others and, consequently, consciousness-for-myself. (Vygotsky, 1934/1986, p. 255)

We absorb a 'theory of mind' as language and as a dialogue with our guardians and early caregivers. In this sense it is always another's language that we speak. The great Russian literary theorist Bakhtin was convinced of the dialogic character of inner speech. Bakhtin considered all speech to be 'speech for a listener' and that this was true even when the speaker was alone and the speech was silent. In inner speech we have an interlocutor in mind.

As soon as we begin meditating about some question, as soon as we start to think it over carefully, our inner speech (which sometimes, if we are alone, is pronounced aloud) immediately assumes the form of questions and answers, assertions and subsequent denials, or to put it more simply, our speech is broken down into separate reliques [rejoinders] of varying size: it takes the form of dialogue. (Bakhtin, 1920s/1983, p. 119)

Bakhtin was also convinced of the inherited nature of inner speech. Why this 'theory of

mind' rather than any other: because that is how mind and motive are presented to us in

the language of our forebears. Even birds are born needing to learn their song

(Nottebohm, 1984). In learning language we learn 'theory of mind'. Fonagy et al

summarized recent research on theory of mind (they term it 'mentalization'), in

psychology, psychoanalysis and philosophy, with the following paragraph (written in

2002):

P. K. Smith (1996) has forcefully advanced the central role of language in the acquisition of mentalizing [theory of mind] capacity. Using primate evidence, he suggested that the availability of symbolic codes (words) for mental states was crucial for the developing individual to acquire mind-reading abilities, and the explicit use of such codes by caregivers was therefore likely to be important. Even more pertinent in this context is Harris's (1996) proposal that the experience of engaging in conversations per se alerts children to the fact that people are receivers and providers of information, irrespective of whether that conversation involves reference to mental states (knowing, thinking, desiring, etc.). The structure of information-bearing conversations (e.g., being told about a past event that one has not witnessed, challenging of information in dissent and denial, or filling in information gaps in questions or when information exchange misfires and repair is needed) strongly implies that partners in a shared conversation differ in what they know and believe

about a shared topic. Effective conversation requires that gaps in shared knowledge are acknowledged and addressed. (Fonagy *et al*, 2002, p. 49)

There is a further facet of private speech which has import and echoes in life after childhood. If one accepts the Vygotskian notion of private speech, and his observation of the context in which we learn to speak, then inner speech can have an explanatory role in the narrative device of self. As adults, when we speak silently to ourselves, our inner speech still has a neuromuscular 'echo' of our early life when we could only talk out loud. When we, as adults, think in words our lips and speech muscles are active in an activity known as 'subvocalization'. The invention of a device called an electromyogram made possible the measurement of electrical currents in the muscles beneath the skin. Electrodes attached to lips and larynx show activity equating to that of inner speech. Electrodes attached to the pectorals, etc. show that the muscular activity is limited to the speech muscles only. Deaf people who have acquired sign language use inner speech in the form of signs; as they think the correspondent signing activity is measurable in their finger muscles. It is not that verbal thought is impossible without the speech muscles of the lips and larynx; subvocalization is an echo of the out-loud verbal thought of childhood and an intellectual 'audit trail' of the manner in which we learnt to talk to ourselves.

How like ventriloquism this is: imagine a ventriloquist practising his or her hidden dialogue for the puppet, the speech becoming more and more indiscernible to an observing world. Two selves is it, or one self in two places? That mediated self who has learnt his/her lines, and that conferring, complicitous self who schemes to 'get things right'. Ventriloquist Edgar Bergen regularly performed a sketch that began with his

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discovery of his dummy, Charlie MacCarthy, reading a book entitled 'Ventriloquism: Its

Cause and Prevention' (Connor, 2000, p. 408). Who speaks for whom?

One day, a visitor came into Bergen's room and found him talking – not rehearsing – with Charlie. Bergen was asking Charlie a number of philosophical questions about the nature of life, virtue, and love. Charlie was responding with brilliant Socratic answers. When Bergen noticed he had a visitor, he turned red and said he was talking with Charlie, the wisest person he knew. The visitor pointed out that it was Bergen's own mind and voice coming through the wooden dummy. Bergen replied, 'Well, I guess ultimately it is, but I ask Charlie these questions and he answers, and I haven't the faintest idea of what he is going to say and I am astounded by his brilliance. (Siegel, 1992, p. 163)

Of course, the things we say to ourselves in adulthood are different to the things we

say to ourselves as children. By adulthood inner speech has lost many of the

characteristics of 'social speech' and has become,

A highly condensed form of silent verbal activity. When using inner speech we rarely have to state the subject of our thoughts, because it is already known to us. Elements of speech that allow propositions to be linked meaningfully together so that they appear coherent to the listener (known to linguists as cohesive ties) become redundant. At the same time inner words expand their symbolic function and develop multiple and complex associations. Although the measurement of this kind of thinking is fraught with difficulty, studies in which the immediate recollections of inner speech have been compared with the full expression of the same thoughts have suggested that one minute of inner speech can equal up to 4000 words of overt speech. (Bentall, 2003, p. 197)

What we spend most of our time talking to ourselves about is ourselves. For this reason inner speech has been described as an important vehicle of self-awareness. When we talk most to ourselves is during challenging, or arousing situations that cause us stress. Or simply when we think we are alone. We talk to ourselves about what we have done, or plan what we are going to do next, or we debate problems that we find emotionally, or psychologically challenging. We rehearse transient memories, such as telephone numbers that we need to keep in mind until we can write them down.

Statistically, the most common form of auditory hallucination is said to be a voice, or voices, issuing instructions (Leudar and Thomas, 2000, p. 192). This is also, in Vygotskian terms, most commonly the form that inner speech takes; that is, a stream of instructions issued to the self. For this reason it is often concluded by psychologists that auditory hallucinations are inner speech (Dennett, 1991, p. 250). Using electromyographic studies, this thesis has been tested since the 1940s. Louis Gould recorded a raised muscular lip and chin activity in those of his psychiatric patients experiencing auditory hallucinations (McGuigan, 1978, p. 188). He subsequently showed that this neuromuscular activity coincided with the onset of his patients' reports of auditory hallucinations. This experiment has been repeated, by many different researchers and different patients, in different times, and in different countries, and always with the same results. The electromyographic data even corresponds with the duration and apparent loudness of the patients' auditory hallucinations of voices.

Using a very sensitive microphone, the British psychologists Paul Green and Martin Preston managed to record the rapid subvocal speech of a male patient who reported hallucinatory hearing of the voice of a woman.

When they amplified and played back their recordings to their patient this had the surprising (and as yet unexplained) effect of making his speech less and less silent, until both sides of the conversation between the patient and the voices could be clearly heard without the aid of special equipment. (Bentall, 2003, p. 361)

What does this remind you of? This searching for voices in the brain seems a bit like a séance, or those scenes in the film *Alien* where they are trying to detect another life in the space station. It is just like watching a ventriloquism act so carefully one can see the ventriloquist's lips move for the puppet.

Is it easy for us to know the source of our sensory information? How easy is it for us to know whether our sensory information comes via the sensory periphery of eyes, ears or skin, or whether it is imagined? Can we confuse the two sources and not know about it? Does sense data arrive labelled with markings that refer to its origin? Our ability to distinguish the provenance of sense data is known to psychologists as 'source monitoring'. Is this ability inherent in the brain's physiology or is it an acquired skill? Harry J. Jerison has demoted the importance of such questioning with his comment that,

The simplest intuitive description of the brain's work (for me) is that it creates a 'real' world. Within that real world all the events of a lifetime take place. (The realities differ, of course, depending on the nervous systems that do the work of building a real world and on the experiences – the information – to which the nervous systems are exposed during the lifetimes of the individuals.)...The perception of self may be a peculiarly human development of the capacity for creating 'objects' in a 'real' world. The reality of the self as an object (a person) is one of the most compelling intuitions. Our capacity for imagery and imagination, though still poorly understood, may be related to our models of our 'selves' and is clearly a kind of information processing that goes beyond simple model building based on the accommodation to stimulation through a variety of sense modalities. (Jerison, 1973, p. 429)

Which of one's sense data does one 'receive' from outside stimuli, from the world outside of one's body? Which beliefs concerning that world are specious? What might only be imagination, or dream, and what might be an experience that is genuinely bound to an interaction with the 'outside' world (that is, to anything outside of one's body)? Surely it is easy to be sure whether one is 'conscious' or only 'unconscious'? Surely it is even easier to source activity, to say 'this comes from outside of me' or 'this comes from inside'? Must there be some distinguishing feature by which one recognizes the internally generated sense data from the external? If source monitoring is a skill which one acquires, are some people perfect at it? Can some people not do it at all? Consider dream states. In dreaming one is aware of internally generated images; one is conscious, as it were, of one's internally generated images. Sleepers can be aroused from REM sleep, or synchronized sleep (deep sleep) by specific auditory stimuli such as a baby's cry even whilst remaining deaf to louder sounds which the brain knows it can safely ignore. Dreams can be very bizarre and yet convincing. The brain never rejects dreams as 'invalid,' as 'ignorable,' on the grounds that they are too outré to be admitted or accepted. What in a dream tells us not to trust it?

It is only because there is an active inhibition of motor neurons by neurons in the pons of the brain that one does not physically enact with dream figures, or dream scenarios, just as one would with the people and events in waking life.

Sensory input is gated during NREM [non-REM] sleep at the thalamo-cortical level via hyperpolarization, but in REM sleep it is gated at the periphery. Motor output is blocked during NREM sleep by disfacilitation of brain-stem neurons, but, by contrast, during REM sleep there is active inhibition of motor neurons by neurons in the pons. This produces a kind of paralysis, which can be abolished by making a small lesion near the locus coerulus, whereupon the animal will move about during REM sleep, apparently in accordance with dream events. There are ten recorded patients (all male) who have REM without atonia. They behave in accordance with the motor demands of their dream narrative, and consequently crash into walls and furniture. This behaviour contrasts quite markedly with somnambulists who typically manoeuvre quite well, open doors, and so on. (Churchland, 1988, pp. 293-294)

In effect, the sensory cortex of the brain does not know whether the 'inputs' it gets are generated internally or not. There is nothing intrinsically 'invented' or 'imaginary' about a dream, nor is there anything intrinsically 'real' about external stimuli. The sensory cortex just processes the data it gets and tries to make sense of whatever that may be.

Somnambulism (sleep-walking and sleep-talking) occurs during synchronized sleep; that is, during the 'deepest' and least 'conscious' periods of sleeping. In synchronized sleep we are not aware even of dreams. Yet sleepwalkers navigate and co-ordinate well; they dress themselves, open doors, find their way to where they are going, etc. As Patricia Smith Churchland has put it:

Somnambulism challenges the assumption that consciousness and control must go hand in hand. It is part of the conventional wisdom that the conscious self is in control, and what we are in control of we are also conscious of. (Churchland, 1988, p. 289)

Why should introspection help to differentiate the things we see and hear; those we have generated ourselves, from those of a source or process external to ourselves? The sights and sounds don't have a label on them to indicate provenance. There is no clear instance; we have always just to infer how to best describe or classify a particular experience using whatever information is available to us. It is a taxonomy by percentages or by likelihood. But what are the criteria we might use to discern the differences in sensory report?

The American psychologist Marcia Johnson has conducted research into what is referred to as 'source monitoring' (Johnson, Hashtroudi and Lindsay, 1993). Johnson has shown that in source monitoring we depend on a number of cues. Contextual information, such as time and place, can help us to deduce whether an event happened externally or internally. We use our knowledge of 'the laws of nature' (gravity, durational parameters for events, etc.), to assess the probability of an occurrence or the likelihood of our having invented it (should we be in doubt). The more vivid our memory of an event the more we are likely to trust that it happened. There is also, Johnson claims, a feeling of cognitive effort or 'cognitive operation' (Johnson, Hashtroudi and Lindsay, 1993, p. 4) that characterizes the mental activity of, say, coming up with an answer to a question that requires thought or inventing a solution. We can use this sense of a 'cognitive operation' to indicate that we came by a thought of our own effort, or by thinking hard, rather than by appropriating its contents from some external source.

Richard P. Bentall has summarized Marcia Johnson's research findings by writing that:

Source monitoring is a skill, much like the skill of discriminating between rhinoceroses and elephants. Imagine that you are a game warden and, in order to conduct some kind of zoological research, you are required to shoot with an anaesthetic dart the former beast but not the latter. You are standing in a jungle clearing, when a large grey animal charges into view. Pulling the trigger, you discover to your dismay that you have knocked out an elephant. On asking yourself how you could have made such a bad mistake, you will discover that your judgment was undermined by the same factors that undermine the source-monitoring judgments of hallucinating patients. (Bentall, 2003, p. 366)

Beliefs or expectations can override one's senses. What one expects to see or hear can govern what one sees and hears. Using the above analogy: if one has been told that it is rhinoceroses that are to be found in the jungle clearing, any large grey animal charging from the bush will appear as a rhinoceros. Sense data can be corrupted by context; consider hunting by night, or in a forest, or in fear. In such a context people can vary the level of evidence they require to make a decision. In crowds, in urgency, or in low light, a rhinoceros is nearly enough an elephant to be mistaken for one, to convince us that it is one. Ernesto 'Che' Guervara describes such an episode in his *Motorcycle Diaries*:

In his broken Spanish he told us that a puma was in the region. 'And pumas are vicious, they're not afraid to attack people! They have huge blond manes...'

Attempting to close the door we found that it was like a stable door – only the lower half shut. I placed our revolver near my head in case the puma, whose shadow filled our thoughts, decided to pay an unannounced midnight visit. The day was just dawning when I awoke to the sound of claws scratching at my door. At my side, Alberto lay silent, full of dread. I had my hand tense on the cocked revolver. Two luminous eyes stared at me from the silhouetted trees. Like a cat, the eyes sprang forward and the black mass of the body materialized over the door.

It was pure instinct; the brakes of my intelligence failed. My drive for selfpreservation pulled the trigger. For a long moment, the thunder beat against and around the walls, stopping only when a lighted torch in the doorway began desperately shouting at us. But by that time in our timid silence we knew, or at least could guess, the reason for the caretaker's stentorian shouts and his wife's hysterical sobs as she threw herself over the dead body of Bobby – her nasty, ill-tempered dog. (Guevara, 1952/2004, pp. 52-53)

Do not dreams impel us to trust them? Sometimes external data can 'constrain' information by its context. Dreams would mean less if we weren't blind to the outside world when dreaming. Sometimes data perceived from external sources corrupts or degrades by context. We eliminate and predict to fill in gaps in the 'incomplete' data. People who hallucinate are more likely to do so when alone (at night) or when external stimulation is chaotic and unpatterned, such as in the midst of noisy crowds.

Stress, or the perceived need to make a quick or especially correct decision, influences our discernment. Concern, fear, or urgency can influence us to rash judgments. These influences are factors, too, in our source monitoring. Source monitoring is a skill and requires decision-making.

We rarely consciously think about the source of our perceptions, and source monitoring judgments are nearly always automatic (but, then, so are many of our judgments about rhinoceroses and elephants). The analogy shows how hallucinations arise from an error of judgment rather than error of perception. (Bentall, 2003, p. 367)

If we extend this explanation to our thinking about the self, to our generating a structure of self, is it not illuminating? The consistency and quality of data in that context are variable and are often corrupted by ellipses in perception. How can we 'know' in such circumstances as those in which we generate a sense of self? Regarding the factors and information that are the composition of the self, we act as we do with any incomplete picture of events – we make things up to complete the picture. There is no face in a mirror for our self-referral. But we sometimes need, in acts of private self-confirmation,



Saying 'I'

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Smirking



Shouting, singing or laughing



Talking



Sniggering

4. We sometimes need, in acts of private self-confirmation, an image or object to represent ourselves - Six different expressions. (Image reproduced from Houlden, 1958/1967, p. 30)

Six different expressions

an image or object to represent ourselves. What suffices for an inner 'face' in such circumstances?

In the film *The Cradle Will Rock* (1999), the ventriloquist dummy ("1 prefer 'puppet"" says the ventriloquist Tommy Crickshaw, played by Bill Murray) takes on a life of its own even without the freakish 'vitalization' that can be seen in other cinema representations of ventriloquism, such as *Devil Doll* (1963) and *Dead of Night* (1945). What the dummy represents to the ventriloquist in *The Cradle Will Rock* it is hard to say. The dummy is not a figure of fear and sinister threat to his ventriloquist as the dummies are in other films representing ventriloquism such as *Magic* (1977) and *Dead of Night*. In *The Cradle Will Rock* the dummy is most of all a confidant for the lonely, reactionary 'Archie Rice'-like character of ventriloquist Tommy Crickshaw. Crickshaw confides in the puppet (who is never referred to by a name) as if only the puppet could provide the communal support missing from Crickshaw's other relationships. In his courtship of the agitating anti-communist played by Joan Cusack ('Hazel Huffman'), Crickshaw lets the puppet do the talking.

In contrast to other fictional representations of ventriloquism (e.g, Stine, 1995), Crickshaw's dummy has no self-animating agency. In the scene showing an anticommunist show-and-tell organized by Hazel Huffman, Crickshaw's dummy comically does not react when Crickshaw looks to him for support. Whenever Crickshaw removes his hand from the dummy's animating mechanics, the dummy falls in a crumpled heap. Ventriloquism is an act and not an illusion. In one extraordinary scene the relationship between Tommy Crickshaw and his dummy takes centre stage. Crickshaw is first usurped by his protégés, who play out a sort of human equivalent of the ventriloquist and dummy

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act whilst stealing all of Crickshaw's jokes. Crickshaw approaches the stage as if enacting an endgame in defiance or fatalism. "Where have you come, Tommy Crickshaw?" asks the dummy, "Where's the old comrade I once knew? Let's do the old act, one more time, for old time's sake. Come on Tommy!" Ventriloquism is essentially a double act with one performer voicing both roles; Crickshaw sets up his dummy to be his mouthpiece. Crickshaw is merely the stooge or straight man to a dummy who has all the articulacy Crickshaw lacks, and who has all the best lines. Whereas Crickshaw is dry and bitter and straight, his dummy is passionate and risk-taking and confident; the puppet is the showman and Crickshaw the hapless stooge.

In Crickshaw's last act the puppet runs away with the show in a manic recitation of socialist dogma, thinking and acting far too quickly for Crickshaw to keep up. "I've known this dummy like the back of my hand! And I swear! In my own hands a revolutionary!" protests Crickshaw to the audience. "Ladies and Gentlemen," responds the dummy, "this man exploits my labour for his own profits. This capitalist pays me zero, works me whenever he likes! I sleep in a coffin-like apartment!" It is not clear whether the dummy is mocking his audience, his ventriloquist, the socialist community theatre, or everyone equally, but the dummy is shown to be a defiant and fearless showman. The scene resembles less the demonic possession or psychoses shown in *Dead of Night*, and more the 'madman speaks the truth' scenes familiar from the last acts of *King Lear* or Tarkovsky's *Nostalgia* (1983). When the dummy has had his say, ventriloquist Crickshaw leaves the stage to boos from the crowd. For a moment the dummy sits alone, on a pedestal, impervious to the audience derision. Then, lacking Crickshaw's supporting hand, the dummy falls headlong onto the stage floor.

Earlier in the film we have seen Crickshaw's protégés, Sid and Larry, rehearsing their human ventriloquist act, saying to each other over and over again, "Now who's the dummy?", "Now who's the dummy?" Are there two individuals performing in this last show by Crickshaw and his dummy? We see the usual dyad present in the ventriloquist act, but this representation highlights the intransigence and unruliness of the ventriloquial mouthpiece. The dummy says the very opposite of what we would expect Crickshaw to say and represents a very public performance of split agenda. The film represents the riven agency of the pair in such a way that we witness a double act rather than just a particularly good ventriloquist at work. It is of course always the aim of ventriloquism to represent one person as two people; to call it a 'dummy' is to indicate its formal rather than its performative qualities. Fictional representations of ventriloquism tend to exploit this possible division of agencies to show the dummy acting out the hidden or displaced desires of a ventriloquist upon the public stage. Ventriloquism in these cases is less a trick to deceive audiences as to the whereabouts of the performer and more an instance of remote agency: protagonists are found guilty of acts at which they were not even present. Agency in these matters shows a slippery lack of integrity and answers as much to the will of the monster as to Doctor Frankenstein. Crickshaw witnesses the unruliness of the mouthpiece in a double-act that sees the dummy gain the upper hand and all the best lines.

Mikhail Bakhtin has argued for the dialogic character of inner speech:

The dialogic form is most apparent when we have to take some decision. We hesitate. We do not know what is the best course of action. We argue with ourselves, we try to convince ourselves of the rightness of one decision. Our consciousness seems to be divided into two independent and contradictory voices. (Bakhtin, 1920s/1983, p. 119) Whose voices are we hearing in this exchange? Is it that both voices can be said to belong

in the same individual?

'My action will be wrong', but wrong from what point of view? My own personal one? But where did I get this 'personal' point of view from, if not from the points of view of the people I was brought up by and educated with, whom I have read in books and newspapers and heard at meetings and lectures? And if I reject the views of the social group to which I have belonged up to now, then this will only be because the ideology of another social group has gained control of my consciousness, taken it over completely and compelled me to recognize the rightness of the social being generated by it. (Bakhtin, 1920s/1983, p. 119)

Somewhere in the cinematic model of ventriloquism is an understanding of the 'theory of

mind' espoused by developmental (and other) psychologists. Speech acts originate

somewhere in the midst of competing agencies. Bakhtin pictures inner speech as always

characterized by dialogue, especially so in times of responsibility and determination. One

person can represent a conflict of interests; this might be the logic that defines inner

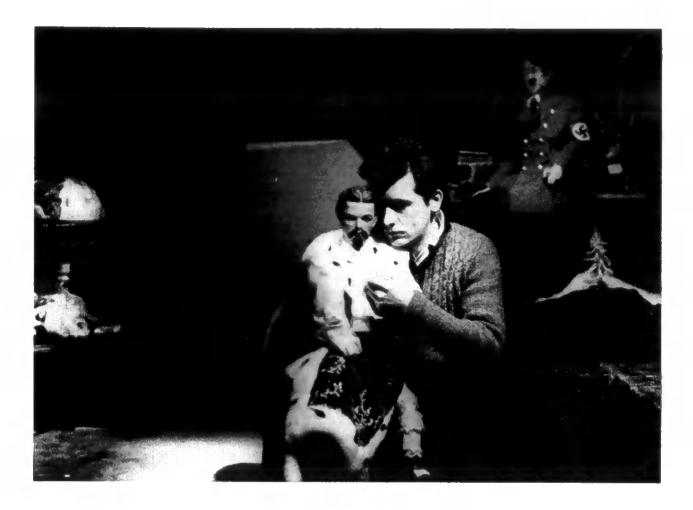
speech.

In his essay Freedom and Resentment P. F. Strawson points to the linguistic reflection

of 'theory of mind' as evidence of its influence on quotidian thought:

What I have to say consists largely of commonplaces. So my language, like that of commonplaces generally, will be quite unscientific and imprecise. The central commonplace that I want to insist on is the very great importance that we attach to the attitudes and intentions towards us of other human beings, and the great extent to which our personal feelings and reactions depend upon, or involve, our beliefs about these attitudes and intentions. I can give no simple description of the field of phenomena at the centre of which stands this commonplace truth; for the field is too complex. Much imaginative literature is devoted to exploring its complexities; and we have a large vocabulary for the purpose. (Strawson, 1968, p. 75)

This thesis considers two-party notions of self. If the self one acknowledges seems ventriloquial then who is the ventriloquist? 'Self' could be described as semantic ailment; the concept is provided for by an aleatory grammar of references that resolve in the body.



5. One person can represent a conflict of interests: this might be the logic that defines inner speech.
(Harry Baer ventriloquizes for King Ludwig II in the shadow of Hitler -Image reproduced from Stewart, 1992, p. 36) Whatever happens, when or where, we're prone to wonder who or what's responsible. This leads us to discover explanations that we might not otherwise imagine, and that help us to predict and control not only what happens in the world, but also what happens in our minds. But what if those same tendencies should lead us to imagine things and causes that do not exist? Then we'll invent false gods and superstitions and see their hand in every chance coincidence. Indeed, perhaps that strange word 'I' - as used in 'I just had a good idea' – reflects the selfsame tendency. If you're compelled to find some cause that causes everything you do – why, then, that something needs a name. You call it 'me'. I call it 'you'. (Minsky, 1985, p. 232)

This thesis is intended as an erosion of the established facts surrounding the 'self'. This thesis aims to provide evidence to prove that the locations established for the 'self', in neuroscience, psychology, philosophy, and in our folk psychology, are untenable in either cultural or physical form. What one habitually thinks is there is simply not there. There might indeed be nothing there.

Chapter Three: Double Talk

Since Eugen Bleuler's classificatory reference to 'schizophrenia' in 1911 (1911/1950, p. 8), and the confusing speech he thought was symptomatic of it, much has been written about how 'schizophrenia' and confused speech coincide. More importantly, Bleuler's symptomatology for schizophrenia described confused speech (or confusing speech) as indicative of incoherent reasoning. Of course, one can only recognise 'thought disorder' by its outward signs: that is, the apparently confused speech of the person so diagnosed. As linguists have pointed out (Rochester and Martin, 1979, p. 3), it is mistaken to conflate a speech that is difficult to follow with a disorder of thinking in the speaker. There may be many reasons why we might find it difficult to follow what someone is saying. R. D. Laing's view (Laing, 1959, p. 163) was that whether so-called 'crazy talk' seems confused or disordered is dependent on the attitude of the listener; when one listens properly to context in the words of the speaker, the content is clear and often enlightening. For those of us who are less gifted as listeners it is elucidating to consider the linguistic links between 'inner speech' (Vygotsky, 1934/1986, p. 248) and so-called 'thought disordered' (Rochester and Martin, 1979, p. 3) speech.

The diagnostic criteria for 'thought disordered' speech are inevitably compromised because they depend on the premise that speech that is difficult for the listening psychiatrist to understand is indicative of the 'disordered' thought of the speaker. That is a premise which is very difficult to substantiate and very easy to doubt. Nevertheless it has survived in the hegemony of psychiatric definitions of schizophrenia since at least the 1930s. Even supposing a synonymity between confusing speech and disordered thought were provable, the diagnosis rests on the confusion of the listener rather than that of the

speaker. How would one map the linguistics of speech that confuses? What, if any,

consistent factors characterize speech that is labelled as 'thought disordered' by

psychiatrists?

'Formal thought disorder' is one of the criteria first listed in DSM III in 1980 (American Psychiatric Association, 1980) as warranting a diagnosis of schizophrenia. Note the subtle conflating of 'thought' with 'speech' in the following passage, and the failure to discriminate between those two. Note also that the defining characteristic of this 'formal thought disorder' is the listener's incomprehension:

A disturbance in the form of thought is often present. This has been referred to as 'formal thought disorder,' and is distinguished from a disorder in the content of thought. The most common example of this is loosening of associations, in which ideas shift from one subject to another completely unrelated or only obliquely related subject, without the speaker showing any awareness that the topics are unconnected. Statements that lack a meaningful relationship may be juxtaposed, or the individual may shift idiosyncratically from one frame of reference to another. When loosening of associations is severe, incoherence may occur, that is, speech may become incomprehensible. There may also be poverty of content of speech, in which speech is adequate in amount but conveys little information because it is vague, overly abstract or overly concrete, repetitive, or stereotyped. The listener can recognize this disturbance by noting that little if any information has been conveyed although the individual has spoken at some length. Less common disturbances include neologisms, perseveration, clanging, and blocking. (American Psychiatric Association, 1980, p. 182)

One might think it possible to enlist the assistance of a patient who is diagnosed schizophrenic by that criterion, and assess what about the patient's language marks it out as exhibiting 'marked loosening of associations' (A. P. A., 1980, p. 188). But nobody, neither linguist nor psychiatrist, can point to these 'discourse failures' (Rochester and Martin, 1979, p. 1-2) in any but the loosest terms. In 1911, Eugen Bleuler (1911/1950, p. 21) wrote of the confusion he felt when listening to the speech of certain of his patients. He attributed his confusion to their incoherent discourse, in which:

Often ideas are only partially worked out, and fragments of ideas are connected in an illogical way to constitute a new idea. Concepts lose their completeness, seem to dispense with one or more of their essential components; indeed, in many cases they are only represented by a few truncated notions. Thus, the process of association often works with mere fragments of ideas and concepts. This results in associations which normal individuals will regard as incorrect, bizarre, and utterly unpredictable. Often thinking stops in the middle of a thought; or in the attempt to pass to another idea, it may suddenly cease altogether, at least as far as it is a conscious process (blocking). Instead of continuing the thought, new ideas crop up which neither the patient nor the observer can bring into any connection with the previous stream of thought. (Bleuler, 1911/1950, p. 9)

In the chapter of this thesis titled *Hallucinations* I described Vygotsky's concept of 'inner speech' and its role in thought and language. The syntax of inner speech, in Vygotsky's concept, differs radically from social speech. The language of inner speech is less complete and coherent than social speech due to three principle characteristics, which Vygotsky lists as: predication, agglutination, and varied signification. Of predication, Vygotsky writes:

We know what we are thinking about; i.e., we always know the subject and the situation. And since the subject of our inner dialogue is already known, we may just imply it. (Vygotsky, 1934/1986, p. 243)

Predication also occurs in social speech, especially between people familiar to one another. This omission of the subject of a sentence and all the words connected with it, whilst preserving the predicate, is what most particularly marks the syntax of inner speech. Agglutination is a way of forming compound words where several words are merged into one. The resultant neologisms can express very complex ideas whilst still designating all the separate elements of these ideas; for example, 'thoughthazard' (my example). Thirdly, 'varied signification' exploits the preponderance of sense over meaning in the syntax of inner speech:

In inner speech, one word stands for a number of thoughts and feelings, and sometimes substitutes for a long and profound discourse. And naturally this unique inner sense of the chosen word cannot be translated into ordinary external speech. Inner speech turns out to be incommensurable with the external meaning of the same word. (Vygotsky, 1934/1986, p. 248)

Inner speech is marked by a condensation such that, "A single word is so saturated with sense that... it becomes a concentrate of sense. To unfold it into overt speech, one would need a multitude of words" (Vygotsky, 1934/1986, p. 247). This process can mean that, in inner speech, there can be a use of words that have acquired special meanings known only to the initiate. This is what is meant by 'the preponderance of sense over meaning in the syntax of inner speech'.

Vygotsky is keen to emphasize that inner speech forms "an entirely separate speech function" (1934/1986, p. 235) distinct from social speech. Its characteristic trait is the peculiarity of its syntax: "Compared with external speech, inner speech appears disconnected and incomplete" (1934/1986, p. 235). Vygotsky is sure that, even if inner speech were made audible to another, it would remain, "abbreviated and incoherent" (1934/1986, p. 235).

In 1911 Eugen Bleuler defined 'schizophrenia' by means of a descriptive account of the fallibility of understanding he associated with listening to schizophrenic discourse. Throughout Bleuler's induction into grammar of schizophrenia as a psychiatric category, a very particularly confusing discourse is represented as confused and as the first rank symptom of schizophrenia. This problematic discourse is emblematic of 'the group of schizophrenias' and is its most recognizable symptom. Bleuler's defining qualification of

'schizophrenia' conflates speech with thought.

In the normal thinking process, the numerous actual and latent images combine to determine each association. In schizophrenia, however, single images or whole combinations may be rendered ineffective, in an apparently haphazard fashion. Instead, thinking operates with ideas and concepts which have no, or a completely insufficient, connection with the main idea and should therefore be excluded from the thought-process. The result is that thinking becomes confused, bizarre, incorrect, abrupt. Sometimes, all the associative threads fail and the thought chain is totally interrupted; after such 'blocking', ideas may emerge which have no recognizable connection with preceding ones. (Bleuler, 1911/1950, p. 22)

This sounds like Vygotsky's description of inner speech, and fulfils his belief that inner speech would signally fail to be understood should it somehow be heard aloud. So much is withdrawn from the discourse of inner speech, omitting the subject of the sentence and all words connected with it, that a listener could not follow the references and implications. Bleuler described the discourse of his confusing 'schizophrenic' patients as 'vague and woolly,' exhibiting 'loose associations' and 'long silences' and 'rhyming words,' and as 'haphazard' and 'bizarre' and 'lacking in goals' (Rochester and Martin, 1979, p. 4). All of which describes the listener feeling 'left out of the picture' and failing to perceive the context that would make clear the predicates in the discourse.

Is 'inner speech' synonymous with thought? Vygotsky seems to describe inner speech also as 'verbal thought,' and points out that:

Thought is not begotten by thought; it is engendered by motivation, i.e., by our desires and needs, our interests and emotions. Behind every thought there is an effective-volitional tendency, which holds the answer to the last 'why' in the analysis of thinking. A true and full understanding of another's thought is possible only when we understand its affective-volitional basis....To understand another's speech, it is not sufficient to understand his words – we must understand his thought. But even that is not enough – we must also know its motivation. No psychological analysis of an utterance is complete until that plane is reached. (Vygotsky, 1934/1986, pp. 252-253)

Bleuler seemed not to view speech as synonymous with thought. Rochester and Martin

have interpreted his view as follows:

He notes, for example, that a speaker may appear confused when only the 'manner of expression' is obscure. In such a case, 'logical transitions may be assumed to exist'. And elsewhere he observes that a 'gap in associations' in the speaker's thoughts may be bridged in speech by grammatical forms. In this case, speech which appears to be reflecting coherent thoughts is, in fact, only simulating them. Thus, the patient's speech may be confusing while the thoughts are logical; or the thoughts may be unconnected while the speech is linked through grammatical forms. Speech is one thing, Bleuler seems to be saying, and thought another; and though the two often meet, they are not inseparable. (Rochester and Martin, 1979, p. 2)

So, speech is more liable to be meaningful if we understand something of the speaker's thoughts, and thoughts only make sense if we can understand the thinker's motives, or desires, or intentions. Thoughts, furthermore, are not necessarily discernable from speech. What if we add to that G. E. M. Anscombe's (1957) argument to the effect that, it is wrong to claim that we know what our intentions are, rather we just can say what our intentions are? This last is an adumbration of Wittgenstein's philosophy, and his observation that humans can only describe their own mental states inferentially (Wittgenstein, 1953).

Wittgenstein made a comparison between speech acquisition and mathematics:

Wittgenstein used to speak of teaching a child to multiply by going through examples of multiplication with him, then getting him to go through these and other exercises while you corrected his mistakes, and then saying 'Go on by yourself now'. But if you said something similar about teaching a child to speak you would have left out the most important thing. If he can speak he has got something to tell you. (Rhees, 1970, p. 80)

Wittgenstein puts it that: one can teach a child the principles of multiplication and then say 'now go on in this way,' but with language the process is different - when a child learns to speak he or she has then got something to say. Or does it just sound like that? Language, or linguistic facility, or speech sounds like it should make sense. Maybe this is what happens in the reception of so-called 'psychotic speech' or 'crazy talk' (Rochester and Martin, 1979). The fault is seen to reside with the speaker rather than with the speech. That is: it is seen to be a mental ailment rather than a semantic ailment, and that it indicates the perceptual problems of the speaker – and specifically the speaker's inability to learn the codes of language and what language is for and what it is intended to say. The diagnosis in 'crazy talk' is a criticism of the speaker's use of language, and an extrapolation towards faults (probably organic), which determine this problematic use of language. Even so, what comes out in this speech is not simply chaotic, and follows distinct semantic rules (though not all of the usual rules). Is the fault in not understanding the purpose and measure of language, or not knowing how to say what one wants to say? Maybe the message (if one applies the psychoanalytic concept of 'transference') is conveyed perfectly to the interlocutor: that meaning is dogged by lack of precision, is fickle, is communicated as it is felt.

Harry Jerison has argued that the first duty of language is to narrative rather than directions toward an activity:

The quality of language that makes it special is less its role in social communication than its role in evoking cognitive imagery, and I suggest that it was this kind of capacity that was evolving in the early hominids. (We need language to tell a story much more than to give directions for an action.) (Jerison, 1973, p. 427)

How then are we to understand Vygotsky's formula for 'theory of mind'? "I have done 'this' because of 'this'" is a narrative. Most semantic rules tend toward narrative by way of tense and other grammatical means. In the sentence above the second 'this' places temporally before the first 'this', (at least, this is how we are to understand its description of events). The above sentence is first and foremost an indication of motive, and secondly a temporally ordered narrative of events. One tends to impute intent posthumously (Wegner, 2002, Libet *et al*, 1983). Cause and effect descriptions are meant only figuratively but may not be understood as such. An explanation of events orders it temporally by means of cause and effect, temporal order, and narrative: the world and self are given to children, thus, and this is understanding.

Verbal hallucination has become almost synonymous with schizophrenia in diagnostic terms. Among the diagnostic criteria for schizophrenia, DSM III listed:

- 3. Delusions with persecutory or jealous content, if accompanied by hallucinations of any type.
- 4. Auditory hallucinations in which either a voice keeps a running commentary on the individual's behaviour or thoughts, or two or more voices converse with each other.
- 5. Auditory hallucinations on several occasions with content of more than one or two words, having no apparent relation to depression or elation. (A. P. A., 1980, p. 188)

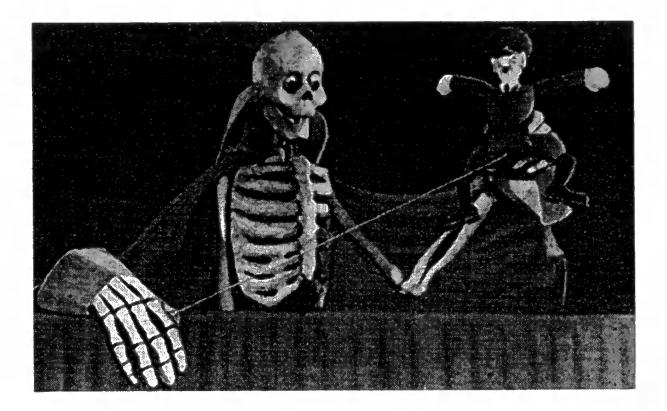
The links between verbal hallucination and schizophrenia are historical rather than experimental. It is an obvious point, but mental illness doesn't have the aetiological clarity that a somatic illness might have. Even supposing a transparent and obvious symptomatology, diagnosis and prognosis are even more subjective and contestable than in physical illness. They also depend on a power relationship that is a *folie`a deux* of role-playing. If three of the six classificatory symptoms of 'schizophrenia' list the experience of verbal hallucinations by the patient concerned, then it is axiomatic that most people diagnosed as 'schizophrenic' experience verbal hallucinations. More than that: by the same terms, those who experience verbal hallucinations would be most likely to receive a diagnosis of 'schizophrenia'.

'Schizophrenia' is a term first used by Eugen Bleuler in his adaptation and extension of the classificatory system developed by Emil Kraepelin (Bentall, 2003, p. 22, and Bleuler, 1911/1950, pp. 1-8). Schizophrenia, or 'dementia praecox' in Emil Kraepelin's terminology, was developed as a classification or diagnosis to, in part, account for those patients in a nineteenth century German mental institution who experienced verbal hallucinations (Bentall 2003, p. 15). The terms of the diagnosis were arrived at in order to assist the psychiatrist governor of a mental institution, whose practice was made more efficient if he grouped patients according to particular classification. In 1891 Emil Kraepelin was Professor of Psychiatry at the University of Heidelberg in Baden. Kraepelin's clinic was one of three hospitals responsible for the care of the insane in Baden. From the Heidelberg clinic, patients could be transferred to the other two clinics in Baden according to their capabilities and prognoses. Interested in classification, Kraepelin was perturbed by inaccessible patient records and by the slow procedures for patient transfer. On Kraepelin's analysis, "an understanding of the language of symptoms would allow the researcher to decode both the biological underpinnings of madness and their origins" (Bentall 2003, p.14). Richard Bentall and P. D. Slade have pointed out:

Although verbal hallucinations would seem to be very common among patients diagnosed as schizophrenic, they are also often present in patients with other diagnoses, such as psychotic depression. It should also be noted that, in some cultures, hallucinatory experiences are fairly common among people not regarded as mentally ill and that, even in our own society, they may be more prevalent among non-psychotic individuals than is often realized. (Bentall and Slade, 1986, p. 519)

After Kraepelin and Bleuler, the major influence on the classificatory and diagnostic use of the term 'schizophrenia' was the list of 'first rank symptoms' enumerated by Kurt Schneider in 1959 (1959). Schneider qualified as a psychiatrist in 1919 and in 1931 was appointed Director of the Clinical Research Institute for Psychiatry in Munich (Hoenig, 1982, p. 392). The Institute was founded by Kraepelin, and though Schneider seems to have been more pragmatic he equally was concerned with diagnosis and discrimination.

Schneider recruited Ernst Rudin to the Research Institute in Munich. In 1920 Rudin had co-written a pamphlet entitled *Permission to Destroy Life Unworthy of Living*



6. Permission to Destroy Life Unworthy of Living - Death ventriloquizes for Hitler. (Image reproduced from Kolland, 1998, p. 202) (Bentall, 2003, p. 30) which advocated compulsory euthanasia for varieties of psychiatric patients. Rudin was later complicit with the National Socialist Party, and his genetic studies of schizophrenia led easily to his advocating and executing the extreme eugenic measures of the Nazi era. Upon the instigation of enforced sterilization and later murder of mentally ill patients, Schneider left the Institute to become an army doctor during World War II. In 1945 Schneider was recognized as sympathetically anti-Nazi by the conquering American army, and he was appointed Dean of the reopened University of Heidelberg (where Kraepelin had been Professor).

In 1959, Schneider's textbook *Clinical Psychopathology* (1959) was published in English translation. From biographical reports (Hoenig, 1982 and 1983) it seems Schneider did not consider his analysis of schizophrenia as particularly important amongst his ideas. Schneider's was a pragmatic, 'phenomenological' approach. Schneider sought to answer the question: what were the characteristics peculiar to schizophrenia? He attempted to differentiate schizophrenia from general problems of personality, and chose so-called 'first rank' symptoms for the convenience of their recognition. Schneider did not think that these symptoms were especially important, but rather that they were easy to spot.

Schneider disagreed with Kraepelin's description of psychiatric diagnosis as identifying cases with a common aetiology (Hoenig, 1983, p.553). His pragmatic approach led him to be dismissive of attaching any 'meaning' to symptoms.

Diagnosis looks for the 'How?' (the form) not the 'What?' (the theme or content). If I find thought-withdrawal this is important to me as a certain mode of experience and as a diagnostic hint; I am not interested diagnostically whether it is the devil, the mistress or a political leader who withdraws the thoughts. Where one looks at such contents diagnostics recedes. In that case one sees only the biographical or the understandable existence. This is the case in psychoanalysis and in the new extreme types of existential analysis. There, it is true, diagnosis comes to an end and with that also the heritage of Kraepelin. (Schneider quoted in Hoenig, 1983, p. 555)

One can see from this statement that Schneider may be wary of the power relationship

implicated and entrenched by interpretation. Interpretation may be said to be the

substitution of the true meaning for the apparent meaning. The interpreter is semiotically

privileged and thus a power relationship is invoked. Schneider was able to say:

With the endogenous psychoses, which are purely psychological forms, one can make assessments only according to one's own concepts. One can only say: this is for me, or I call this cyclothymia or schizophrenia. (Schneider quoted in Hoenig, 1982, p. 398)

This sounds like Thomas Szasz years later pointing out:

All too often the problem of defining disease is debated as if it were a question of science, medicine, or logic. By doing so, we ignore the fact that definitions are made by persons, that different persons have different interests, and hence that differing definitions of disease may simply reflect the divergent interests and needs of the definers. (Szasz 1997, p. 17)

Schneider (1959) gave as first rank symptoms of schizophrenia: Audible thoughts; Voices heard arguing (including one's own voice); Voices heard commenting on one's actions; Experiences of influences playing on the body (e.g. electricity); Thought withdrawal (thoughts taken away by another); Thoughts which are ascribed by the patient to other people who intrude their thoughts upon the patient; Thought diffusion (others knowing one's thoughts as if having overheard them); Delusional perception (extravagant paranoia); Feelings, impulses (drives) and volitional acts that are experienced by the patient as the work or influence of others. One can see from this list that the importance in diagnosis is assigned to symptomatic display of verbal hallucination or delusion. Although Schneider thought this list a guide to diagnosis, subsequent definitions of schizophrenia have emphasized these criteria as precise, paramount and irreducible. Ventriloquism and verbal hallucination have this in common: when the mouth is closed one is free to speak, but with one's mouth open the voices stop. In the chapter of this thesis titled *Hallucinations* I mentioned the link psychologists have long made between (in Vygotsky's term) 'inner speech' and the voices heard by people who have verbal auditory hallucinations. This is more than conjecture as has been repeatedly demonstrated in experiment with electromyography (EMG) measurement of the small muscle movement in the chin and other speech muscles:

In the case of auditory hallucinations there have been empirical efforts to psychophysiologically measure subvocal speech and heightened EMG from the vocal musculature during the presumed hallucinatory experience. Gould (1949, 1950) was apparently the first to successfully record covert oral language behaviour prior to the overt oral report of the presence of hallucinations. McGuigan (1966) reported significantly increased amplitude of the chin EMG and pneumogram associated with slight whisperings that corresponded roughly to the content of the hallucination, immediately prior to the report of having heard voices. Malmo (1975) mentioned positive results that had been recorded some years earlier that were of a similar nature, viz., heightened EMG activity during auditory hallucinations. Inouye and Shimizu (1970) similarly reported that verbal hallucinations were often accompanied by an increase in speech muscle EMG. They measured the time lag between the onset of the increased EMG discharge and the verbal hallucination as being within 1.5 seconds, with the duration of the EMG increase being positively correlated with the duration of the report of the verbal hallucination. Furthermore, the loudness of the verbal hallucination was related positively to the amount of the EMG increase. Their conclusion was that subvocal speech is a part of inner speech that is produced at the moment of experiencing verbal hallucinations. (McGuigan 1978, pp.418-419)

If the subvocal speech that anticipates verbal hallucinations were prevented, would the verbal hallucinations be prevented? Subvocal speech seems to be the physical act of 'inner speech', and verbal hallucination seems to be inner speech with the feeling of agency missing, so it is to be presumed that these three are inseparable.

In 1987 Peter Bick and Marcel Kinsbourne (Bick and Kinsbourne, 1987, pp.222-225)

published their study of an attempt to preclude subvocal activity in hallucinating persons.

They chose eighteen patients who met DSM III criteria for schizophrenia. All described

hearing voices of the kind described in DSM III: voices that addressed them directly and either issued commands or commented on their behaviour. All were taking psychoactive drugs as part of their treatment. Eleven of the patients were described as chronic, having been inpatients for three months or more, and these eleven reported having heard voices almost daily for between two and thirty-three years. The seven others were in an acute admissions ward. All eighteen patients had reported hearing voices at first interview. The experimenters asked the subjects to perform three manoeuvres and report after each whether their experience of verbal hallucination had increased, stayed the same or gone away.

In a random order, counterbalanced across subjects, the experimenter asked the patients to 1) close their eyes tight, 2) open their mouths wide, and 3) make fists and squeeze tight for one full minute and then to comment on the voices they heard. The experimenter rated each reply as indicating an increase, a decrease, or no change in the voices. (Bick and Kinsbourne, 1987, p.223)

In thirteen of the eighteen subjects, the mouth-opening manoeuvre abolished verbal hallucinations. The control manoeuvres of eye or fist exercises had effect in only two subjects. None of the subjects reported an intensification of hallucination during any of the manoeuvres.

Perhaps more interesting than the efficacy of the simple mouth-opening manoeuvre in

precluding verbal hallucination, is the follow-up report on patient response:

The patients complied readily but seemed indifferent to the fact that they could abolish the voices by a simple movement. Patients who had characterized the voices they heard as burdensome or terrifying expressed no relief that they could control them. One patient who had reported hearing continuously harassing voices was reinterviewed one week later. Asked if she had used the mouth-opening manoeuvre when the voices became intolerable, she said that she had not and expressed no interest in doing so. (Bick and Kinsbourne, 1987, p.223) A chapter in David Mitchell's novel *Ghostwritten* (2000) dwells on differently conceived mental terrains and employs an homoncular protagonist to map these terrains. The narrator is a sprite that can manifest in a host mind, sometimes detected but never understood, and can affect desires and motives and agency within the host. Desires, motives and agency are, to us all, of either mysterious provenance or assumed as subjectively driven. Thus the sprite can effect its will after arriving unbidden in its host and nothing is felt to be altered or amiss. The mind is described as a physical space and yet clearly not that.

The narrator sprite has jumped from the mind of a young male Australian backpacker, to the mind of a Mongolian herdswoman. (My description has already failed the subtlety of the original.) The sprite compares the experience of being at loose in the one mind and the other. The Australian's 'mind-space' is like traffic on a ten-lane highway, and surrounded by neon advertising, with the radio on flicking loudly between channels all the time. It is easy for the sprite to hide here – there is so much noise, so much distraction. Conversely, the herdswoman has a barer space with no hiding place. She is attuned to what noises are in her mind, and the whole space is familiar to her and explored. She knows the wilful way of her moods, and not in retrospect but in concord. She has a cultural explanation for the feeling of having a wandering sprite at loose in her sense of self and mind-space. She is aware of the presence of the sprite, she is troubled by it, and feels her ancestors are not happy with her – that is her explanation for this unpredictable tenancy. It is an alien sprite with its own agenda; but even this is tolerated and understood by the woman.

It is not hard to imagine a narrator-sprite inhabiting our 'mind space,' because that is something we often imagine: the concept is very similar to Descartes's homuncular vision of the self. It is also quite easy to picture the mind as an over-crowded, over-busy city, or as a very clean and empty house with few rooms; these also accord with ways we could picture that 'space' we might find our selves. It is illustrative for us to create these representations, just as it is to suppose an embodied voice for one's inner speech. If verbal hallucination is a form of inner speech, then the qualities of the voices heard and the manner in which they are heard can tell us something about our own 'head space.' A survey of the 'out loud' qualities of inner speech in its form as verbal hallucination might serve as a sonar or echo-finder. Given the supposed roots and purpose of Vygotskian inner speech it is elucidating to consider whose voice (or voices) we hear when we 'hear' inner speech.

Ivan Leudar and Philip Thomas interviewed a variety of 'voice-hearers' for their study *Voices of Reason, Voices of Insanity* (2000). Some of the people they interviewed were diagnosed as mentally ill and some were not, and the published interview reports do not make a distinction between classes of interviewees. The researchers are not interested in interpretation, but in the understanding and experience of hallucinated voices in the explanations of the people interviewed.

There is great variety in the reports of voice hearing. Some voices are indistinct and some have great clarity. Some voices are commanding, others are just voices. Voice hearers might struggle to characterize a voice, but the voice is nearly always like enough to a known person that the link can be established. A voice is recognized by tonal or other 'audio' characteristics, or by the type of things the voice says, or by the occasions on

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which the voice is heard. All of these help point to an embodied equivalent in the social world of the hearer: parent, spouse, priest, etc. These signifiers help even when the person speaking is no longer alive; hallucinated voices are anyway enigmatic and an effort often has to be made to 'place' the voice. The voice hearer seems to continue to learn about the context of the voice heard: whose voice it is, when it is heard, what kind of things are said, how or if one should respond, etc. All of these aspects are reflexive in that the voice-hearer can, for instance, change his or her response to commands heard.

It is often given, by psychologists and psychiatrists, that verbal hallucination is at root a fault in source monitoring: that is, the hearer is unable to distinguish a voice heard only in his or her head from the kind of voice that might be heard by others. Voice hearers appear to be universally aware that this is a voice 'heard' only by them, and that they 'hear' the voice in their head rather than as in ordinary conversation; indeed, these are distinguishing characteristics of the voices they hear and constitute a part of the voice's enigma. The hearing of voices is not necessarily accompanied by magical belief:

Voice hearers rarely tell voices to do things. This is not surprising since voices lack bodies, and our informants did not construe them as did Schreber, as supernatural agencies which could act in the world and affect it without bodies. Under this description what one can tell voices to do must be concerned with talking. Indeed, the most frequent thing our informants reported telling voices was to shut up and go away. This rarely works. (Leudar and Thomas, 2000, p.197)

If verbal hallucination is a 'special form' of inner speech, presumably the voices heard are the voices in which we conduct our inner speech. Then, seemingly, we always conduct our inner monologues and dialogues with the voices of others. Is it impersonation? Or are we borrowing their voice? Or is our own voice borrowed always from another? Just like ventriloquism we speak for ourselves, always, in the voice of another. Vygotsky plotted a chronology thus: the child speaks out loud to his or her caregivers; the child speaks out loud to his or her self ('egocentric speech'); the child speaking to his or her self speaks silently, replacing the egocentric speech with 'inner speech'. At the transition from egocentric speech to inner speech, semantic structure and grammar alter in accordance with the changed context and purpose, and inner speech adopts the characteristics I listed earlier in this chapter. Vygotsky observed egocentric speech as occurring when a child tries to comprehend a situation or to plan nascent activity. Egocentric speech has a role as instrument of thought in the seeking and planning of a solution to a problem. Vygotsky observed that this thinking aloud is remarkably similar in child and adult, in content, use and structure. The processes of social speech and inner speech differ both functionally and structurally. Inner speech emerges in the matter of personal adaptation; it is speech-for-oneself and has no outwardly communicative role. Inner speech increases as egocentric speech decreases:

The child talks about the things he sees or hears or does at a given moment. As a result, he tends to leave out the subject and all words connected with it, condensing his speech more and more until only predicates are left. The more differentiated the specific function of egocentric speech becomes, the more pronounced are its syntactic peculiarities – simplification and predication. Hand in hand with this change goes decreasing vocalization. (Vygotsky, 1934/1986, p. 244)

My main point in rehearsing the observations and theories of Vygotsky regarding inner speech, is to stress the following remark:

Egocentric speech emerges when the child transfers social, collaborative forms of behaviour to the sphere of inner-personal psychic functions. The child's tendency is to transfer to his inner processes behaviour patterns that formerly were social. (Vygotsky, 1934/1986, p.35)

This process plays an important part in the acquisition of what is referred to as 'theory of mind,' or 'mentalization' (Fonagy *et al*, 2002). 'Theory of mind' is the name given to our

ability to attribute beliefs and desires to others in our attempt to comprehend motive or intention. It is indeed a theory of mind in that it explains or predicts social behaviour as due to motivating desires and mental states. Shared language ordinarily allows us to ask people to explain or excuse themselves with reference to this lexicon of reasons. This process was what Vygotsky observed in the interchanges between infant and caregiver. Theory of mind is often invoked in discussions of autism: autistic people appearing somehow hindered in their appreciation of, or allowance for, the minds of others. In philosophy and related sciences, and in folk psychology, the conventional view is that we need a theory of mind to understand others, but that we have privileged access to our own mental states. Francesca Happé, who is a researcher at the Institute of Psychiatry in London, has presented research (reported in Ross, 2003) that suggests otherwise:

Children are no better at attributing mental states to themselves than to others. And autistic children also have problems reading their own minds. It seems that we theorize our own states of mind no less than those of others...Do we activate the same regions to read our own and other minds? Neuroimaging studies show that theory of mind activity occurs in medial frontal cortex and paracingulate cortex for both kinds of mind reading. And in both cases, autistic subjects show decreased paracingulate activation in theory of mind tasks compared to normal subjects. So we seem to use similar resources for reading our own and other minds. More speculatively, our ability to read other minds may even precede and facilitate our ability to introspect. Evolution may have forced us to read other minds before our own. (Ross, 2003, p.78)

The above described process leads to what Alexander Luria called the 'regulatory function of language' (Solms and Turnbull, 2002, p. 260). The role played by egocentric speech, and later inner speech, transforms prohibitions into inhibitions. Action can be transformed into thought; we can subordinate our behaviour by means of verbal programmes such as, 'I will do this in order to have that.' Solms and Turnbull have described the process thus:

It is easiest to recognize it in young children, who still often externalise their inner

speech, thus making it clear how they are using words (often adopted wholesale from their parents) to regulate their behaviour and impulses. Consider the common example of the small child who points at the thing that it desires, while simultaneously saying 'No' or 'Dangerous' to itself. With time, these self-instructions become increasingly internalised and invisible. (Solms and Turnbull, 2002, p.260)

We are always speaking the voice of another. The ventriloquist dummy mouths the words and acts as agent, but the voice heard is the voice of another. Do we know what we are saying? The evidence indicates that we learn what to say by taking on a mentalistic paradigm of self and inner self and other. Moral responsibility is the subjective clamour of inner voices. What do we owe to others when we are deaf to ourselves? It is seemingly easy for us to disclaim any involvement with even our speech acts. Such referred agency is a hazard of subjective consciousness. No wonder we disown or are embarrassed by the recorded sound of our own voice. And no wonder our inner speech can be mistaken for the outward speech of another, for, antecedently, that is what it is.

Chapter Four: Riven Agency

The basic skills of ventriloquism are those that enable the ventriloquist to modulate his or her voice to suggest that their voice comes instead from another place a distance away from the speaker. Ventriloquism requires the ventriloquist to mimic the sound of a voice heard originating from somewhere other than their own mouth. Coram, the great ventriloquist act of the early 20th century, has this to say in his book *How To Become A*

Ventriloquist:

A very simple test will show you how difficult it is to tell the direction from which a sound comes. Go into a room without a carpet. Get a friend to blindfold you and then ask him to roll a penny on the floor. When the penny has come to the end of its journey see if you can tell where it stopped rolling. The chances are more than ten to one that your guess will be very wide of the mark, the reason being that you have only your sense of hearing to guide you. Perhaps you will understand from this illustration how a 'distant voice' ventriloquist is able to deceive you. He produces the sound of a voice as you would hear it if the speaker were at a distance from you and then, by the power of suggestion, the ventriloquist leads you to believe that the voice comes from a certain place. (Coram, 1900, p.5)

Murray Alpert (1986, p.518) has pointed out that the task for the nervous system

whilst ordinarily engaged in social speech is to not hear oneself. As regards listening to

others:

There are perceptual analysis tasks, such as speech perception, which would be beyond the limit of the brain's machinery if it didn't utilize ingenious anticipatory strategies that feed on redundancies in the input. Normal speech occurs at the rate of four or five syllables per second, but so powerful are the analysis machines we have evolved to 'parse' it, that people can comprehend 'compressed speech' – in which the words are electronically sped up without raising the tone chipmunk-style – at rates of up to thirty syllables a second. (Dennett, 1991, p.144)

These are the ways that our common social speech by passes any control we might

consider as 'conscious'. Our common social speech might be considered as ventriloquial

in that the sound we hear is not the sound which others hear. When one listens to a



7. Front cover of Coram's How to become a Ventriloquist (1900).

recording of one's voice it often sounds alien. We might fail to recognise a recorded voice as our own; this is because one never really hears one's own voice. We throw our voices in the sense explained by Murray Alpert's terms:

[People] may fail to recognise their own voice for a number of reasons. What they hear of their voice while speaking has a large bone conduction component which has a low frequency bias. The recording is, in fact, very different spectrally from what they might hear while speaking. In addition, as Hoffman remarks regarding efferent copy, alluding to the large differences between exafferent and reafferent stimulation, the task for the nervous system while speaking is to <u>not</u> hear oneself. If we did hear we would be shouting into our own ear as we talked to someone some distance away. (Alpert, 1986, p.518)

Is speech a 'ballistic' act? In a ballistic act, "many acts must occur so fast, and with such accurate triggering, that the brain has no time to adjust its control signals in the light of feedback" (Dennett, 1991, p.144). Piano playing and fast bowling are ballistic activities: once the act is triggered, its trajectory is unalterable. Is not speech like this?

The eye responds to information that the visual cortex of the brain never receives. In this way the act of seeing (seeing being a process rather than an event) by passes consciousness and is always, to an extent, a 'ballistic' act. There is direct functioning between the retina and the skeletal musculature of the eye. When the eye responds to light stimulation, some nervous propagation goes to the brain, but:

Some of this electrical reaction generated in the eye does not reach the brain-cortex but diverges by a side-path into nerve-threads which relay it to a small muscle, which...activates...the pupillary muscle. (Sherrington, 1906/1947, p.xx)

The pupil responds to muscular activity which is informed by efferent information from the retina, and which is unmediated by the visual cortex of the brain (which the information has not reached).

There are 130 million rods and cones in the eye. These cells make junction with one million nerve fibres; this ratio of 130 to 1 indicates that exceedingly complex events

must occur in the transfer of information from the receptor to the optic nerve. On the motor side, the oculo-motor nerve contains 25 thousand fibres, and the muscles that produce eye movements have approximately 3 muscle fibres for each nerve fibre. This ratio of 1 neural fibre to 3 muscle fibres invites thought about the transfer of information back from the brain to the eye musculature. (McGuigan, 1978, p.340)

The eye has to do a lot of information processing without recourse to the brain. The eye has to respond to information faster than would be possible if it were to refer all information processing to the brain. Some 'decisions' as to activity at the periphery are made at the periphery itself, and not at the traditionally conceived 'centres of consciousness' in the cortices of the brain. These decisions are not just adjustments to the centre of focus of the eye, but pupillary movements, and the marginalizing of some perceived light movement.

What comes to be more prominently represented in the optic nerve message is also more prominent subjectively, and similarly for features like prey and predators that are important for an animal. It is fascinating to see how information about the factors known to trigger various forms of behaviour is preserved in the optic nerve message, whilst information about other aspects of the retinal image is discarded. It is also fascinating to have an opportunity of studying in the retina the physiological mechanisms that achieve some degree of specificity for these behavioural releasers. (Barlow, 1977, pp.264)

The effect of television images might be said to be illusory or spectacular, a series of flashing lights which gives us enough of an impression of continuity, or plot, or presence that we can maintain a belief in them as 'event'. Paul Churchland (1998a) has written of this as an analogous picture of epistemological sense events as they transpire neurologically. Computational neuroscience (as practised by Paul Churchland) defines the basic unit of cognition not as the sentence-like model that is usually pictured, but as a pattern of excitation levels across a large population of neurons. The basic units of cognitive processing are "not the inference from sentence to sentence, but rather the synapse-induced transformation of large activation vectors into other such vectors" (Churchland, 1998a, p. 10). Paul Churchland has compared this model of processing to the momentary picture on a television screen. It is a pattern of brightness levels across a large 'population' of pixels. It is the sequence of such patterns that gives the moving image. There are only two hundred thousand pixels on a standard television screen and, for instance, one hundred million light sensitive cells in the human retina, but it is also as an activation pattern in a temporal sequence that the eyes convey the external world to the brain. Similarly, though not pictorially, the auditory cells in the cochlea of the human inner ear perform an "information-preserving transformation from external world to internal representation" (Churchland, 1998a, p. 10). Even in these two examples the transformation occurs in quite different ways, and in different ways again in the other sense modalities.

Churchland makes the point that that there is nothing 'propositional' about these representations either in terms of their various 'syntaxes,' or their various 'semantics':

These intricate patterns – or <u>activation vectors</u> as they are called – are projected inward from the periphery, along crowded axonal highways, to secondary cell populations within the brain called the primary sensory cortices, one for each of the sensory modalities. Here too, representation consists in the pattern of activation levels across the cortical population of neurons, patterns provoked by the arriving sensory vectors.

But the patterns at this level are not mere repetitions of the original patterns at the sensory periphery. Those patterns have been transformed during their journey to the cortical populations. They get transformed mainly by the vast filter of synaptic connections they have to transverse in order to stimulate the cortical population. The result is typically a <u>new</u> pattern across the cortical canvas, a principled <u>transformation</u> of the original sensory pattern. (Churchland, 1998b, p. 37)

Sight is always interpretive; there is always a transformative nature to seeing and to understanding what we see. The sense faculties mediate even as they register at the periphery, and also in filtering information to the cortical sense modalities. Sensory perception is characterized by reference, after-image and displacement and these are

ventriloquial qualities.

There is a similar mediation and transformation in the human perception of sound:

The auditory nerve is protected by a bony pyramid structure. Before the sound reaches it, the sound has to pass through a long and eventful journey. First, as soon as it enters the external ear, before it reaches the tympanic membrane, it touches upon the cartilaginous and skin lined passages of the meatus. This is not a dead surface. It is innervated by different nerves, i.e., the facial, which is at the back of the pavilion and comes from the auricular branch: then the trigeminal, which descends through the temple auricular and enters in front; and the pneumogastric, which is at the back of the meatus and reaches the tympanic membrane. This region of auditory canal disposes the ear to listen. The tympanic membrane, which is the barrier to the entering sound wave, gathers the sound. This sound, already marked by these imprints, is transmitted to the cochlea. It is, therefore, of importance to see what happened to the sound wave before it has reached the ear itself. It is certain that many parts of the organism have been alerted to the sound in the meantime. (Tomatis quoted in McGuigan, 1978, p. 343)

Not only is this relevant as regards the displacement of the 'centralized self' by means of

activity at the periphery; from this map of the procedure of hearing it seems clear that

symbolic data is being 'interpreted' before it is perceived by anything resembling brain-

based 'consciousness'. As McGuigan puts it:

We may note that all internal linguistic events following stimulus input necessarily are 'abstract', since phonemic and semantic entities are obviously not present in the acoustic signal. Consequently, the assertion of such linguistic entities as phonemes and meaning reactions requires processing of the stimulus input. (McGuigan, 1978, p. 341)

The interpretive work traditionally conceived of (in folk psychology and in neuroscience) as taking place within the realm of consciousness (by its varied meanings, and residing principally in the cerebral cortex) begins at the sensory periphery.

I quote this medical research with two-fold purpose: to indicate the lack of centrality which 'self' or 'consciousness' have in these matters of perception, and to point out the ventriloquial mediation which takes place in the process of perception. All epistemologically pertinent sense data is ventriloquized in the act of perception; there is a manifold and complex procedure which takes place between the incidence of perception at the periphery and the 'knowing', acknowledging, and awareness which is said to take place in the brain. Perception is characterized by reference, after-image, and displacement, and as such is a ventriloquial endeavour. In this model of perception there is no centrality of the self, but a multiplicity of activity wherein all could be said to be essentially peripheral, or marginal, and in which there is no holistically present self. Any amalgam, or mean level is just what the heterogeneity of 'self' would reject, being rather a dissemination of decoded, or re-coded material.

Neuroscience has a name for the way in which a ventriloquist act achieves its effects on the audience. Some vocal sounds are harder to ventriloquize, and require tricks to fool the audience as to what is being said: 'gottle of gear'. What the ear hears is influenced by what the eye sees.

Recent experiments using an illusion similar to the ventriloquism effect, known as the McGurk effect, indicate that the parietal lobe is an important contributor to the perception of acoustic space. The McGurk effect describes an illusion derived from the mismatch between the auditory and visual inputs. For example, the presentation of the phoneme /ba/ while viewing a videotape of a person speaking /ga/ results in the perception of an in-between stimulus, in this example /da/. By presenting an acoustic phoneme to the contralesional ear and the appropriate visual information to the ipsilesional visual field, patients with hemineglect show a significant improvement in their ability to identify the phoneme accurately. (Recanzone, 1998, p. 874)

This McGurk effect (McGurk and MacDonald, 1976, pp.747-748) has been extended in experiment to research the 'ventriloquism aftereffect'. The 'ventriloquism aftereffect' describes "an enduring shift in the perception of the spatial location of acoustic stimuli after a period of exposure of spatially disparate and simultaneously presented acoustic and visual stimuli" (Recanzone, 1998, p. 869). Put more simply: a person's perception of the origin of a sound can be manipulated in experiment, and the effects of this disturbance continue for tens of minutes afterwards.

The localization of auditory stimuli in space is known to be affected by concurrent visual stimulation, which is demonstrated by the ventriloquism effect, where the location of an auditory stimulus is perceived to originate from the same location as a simultaneously presented visual stimulus...The ventriloquism aftereffect is demonstrated when the same shift in the perception of an acoustic stimulus endures beyond the training period. (Recanzone, 1998, p. 869)

The effect described is the principle underpinning ventriloquism: that perception can, in practice, be lastingly confused as to the origin of auditory data. In the experiment described by Recanzone, the subject is placed in a darkened sound and echo-attenuated booth, facing a 15-loudspeaker array. The loudspeakers span + to - 28 degrees in 4 degree increments along the horizontal meridian. The subject is in complete darkness apart from dim red or green LED lights (one light for every loudspeaker), placed 1 degree above each loudspeaker. "The salience of the visual stimulus and the temporal correlation of the visual and auditory stimulus are critical for this ventriloquism effect to occur". A light flashes corresponding to the loudspeaker emitting a sound, and after a period of testing the subject's accuracy in spatially locating the sounds, the subject is trained to misplace auditory stimulus by 8 degrees to the right. This training is brought about by flashing the LED 8 degrees to the right of the loudspeaker emitting the sound, for periods during the 20-30 minute training. Ability to place the source of the sound is assessed by a headband, placed on the subject, measuring head orientation. The subjects are told they are listening to assess pitch and volume variation in the sounds emitted, and changes are indeed made in order that the subjects listen attentively. After this period of training, light and sound are once more paired spatially and temporally to an exact degree, and the

subject is once more tested in their ability to locate the source of the auditory stimulation. For tens of minutes after the light and sound stimulus have come together, the subject still places the sound source at 8 degrees to the right.

There was a significant shift of almost 8 degrees following the +8 degree training condition for all subjects...These data indicate that there is a shift in the representation of acoustic space after a relatively brief exposure to a mismatch in location between the auditory and visual modalities and no apparent shift in the absence of such mismatches...The ventriloquism aftereffect demonstrates a visually driven change in the perception of acoustic space...These data taken together, suggest that normal adult human subjects are able to alter their cortical representations over a relatively brief time course and effectively alter their perception of at least acoustic space. (Recanzone, 1998, pp.871, 874 and 875)

This is not so much the 'ventriloquism effect' but rather 'ventriloquism', as the process of fooling the attending subject is the same in clinical surroundings as in the music hall. The report quoted in this account concluded in confusion as to how or in what way the cerebral cortex was deluded in its response to the training, but certain that the ventriloquism aftereffect demonstrated a "visually driven change in the perception of acoustic space" (Recanzone, 1998, p.874). The report concluded unclear as to physiological change corresponding to this change in perception.

Given that the cerebral cortex is necessary for the perception of acoustic space, it is likely that the ventriloquism aftereffect reflects a change in the cortical representation of acoustic space...Although the phenomenon is robust, the underlying physiological mechanisms and the potential neuronal structures that change their representation of acoustic space remain unclear. (Recanzone, 1998, p. 869)

There is an interesting correlate in the way that ventriloquism works to exploit the flaws in human perception, and the flawed 'source monitoring' blamed for experiences of verbal hallucinations. Source monitoring is the name given to our process for distinguishing between possible sources of cognition. The ability to discriminate between cognition and perception is often described as compromised in those who experience verbal hallucinations. Thus, conflating speech and thought, or apparently confusing thoughts with what one has heard or seen are attributed to flaws in source monitoring. Perception is to a large degree a cognitive process. Consider the cases of Anton's Syndrome that I describe in my chapter entitled *Making Up Stories*, where visual perception is shown to be most dependent or intertwined with cognition.

It is often difficult to distinguish the exact source of a percept and no amount of perceptual discernment clarifies the matter. Nor is it a matter for introspection. Here is

Coram again:

The ventriloquist who use the 'distant voice' deceives the audience as much by his manner, gestures, acting generally, as he does by his actual voice. For example, if I produce the voice of 'the man on the roof,' I lead you to believe that a man on the roof is speaking. But, <u>using exactly the same voice</u>, by suggesting that the man is in the cellar I can lead you to believe that the voice comes from below. The voice is the same; it is the sense of hearing that is deceived. (Coram, 1900, p.5)

The ventriloquist's acting skills are apt to mislead us by indicating the presence of a possibly invisible other to whom the mimicked voice belongs. This also tells us something about 'truth' and ontological relativity: truth is not a matter of belief any more than a hundred other conceits that one upholds with the tongue without ever witnessing, (the sun does not 'rise', but this does not stop us witnessing a 'sunrise').

If you give someone a piece of your mind it is senseless to ask for it back. If a weight is taken off someone's mind neither grammes nor grains will measure it. Someone who casts his mind back does not find that his mind is some way behind him. Although someone may have something at the back or front or in the corner of his mind, we can make no legitimate deduction about its shape. Statements of mental topography cannot be taken at face value. (Squires, 1971, p.347)

These are examples regarding linguistically borne models of the self. Our relationship to the 'truth' about mental behaviour or self is very like our relationship to truth per se: one has no concept of 'truth' other than a workaday, notional version of the truth that one pays lip-service to but that one never actually sees.

What of 'emotional veracity'? The ideas in this thesis are often hard to uphold without resort to solipsistic 'truth telling', without resort to the 'self'. Is this a facet of language, or of my language, or of viewpoint? "Truth shot through me like a whistle" (De Wys, 2001), says Margaret De Wys in the sleevenotes to her album *I OH*. What can she mean? The term 'ventriloquist' comes from a Latin word 'ventriloquium' meaning 'a speaking in the belly', and there are umbilical connotations in this sense of the term. The true Latin word from which 'ventriloquism' is derived is 'ventriloquus' meaning 'a person that speaks inwardly'. This Latin term is literally translated as meaning 'one who speaks from (or in) the belly' (Skeat, 1961, p.688). This thesis aims to connect this ontological relativity with the power of speech.

When a ventriloquist works with a 'ventriloquial figure', or dummy, the acting skill is in persuading the audience that the voice spoken through the unmoving lips of the ventriloquist emanates rather from the dummy. The ventriloquist looks attentively at the dummy and responds to pauses or speech patterns in the conversation just as one would with any interlocutor. The acting skills of the ventriloquist, therefore, fool the audience even before any specifically ventriloquial skills fool their hearing.

Instructional books such as Coram's stress the importance of maintaining a consistent ventriloquial voice for that of the dummy and stress the importance of consistent characterization for the persona of the dummy. The ventriloquist's basic skill of disguising the speaking voice by suppressing lip movement is secondary to this acting skill, as:

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With regard to lip movement, you can console yourself with the assurance that a first-rate ventriloquist need never worry himself about these impossible words because his entertainment will be so good that the audience will be so engrossed in it that they will never notice what only the ventriloquist himself knows is a defect. (Coram, 1900, pp.6-7)

Coram concedes that it is impossible to disguise mouth movements in the pronunciation of words beginning with the letters p, b, f, v, and m. This, however, is not of issue for the accomplished ventriloquist. The ventriloquist can bend his or her head at the vulnerable moment of pronouncing these words, or shuffle on their chair, or turn slightly towards the dummy. The very presence of the dummy is distraction enough to indicate another speaker. The American ventriloquist Jimmy Nelson made an LP record in 1964 titled *Instant Ventriloquism and Ventriloquism for the Beginner* (1964,

sleevenote). It is an instructional album which guides the listener through lessons on 'the position of the mouth', 'the difficult letters' and so on: "YOU can learn to amaze and fool your friends; actually learn how to perform in front of an audience." Is this like 'letting daylight in upon magic'? If we know how ventriloquism works as skill of the performer, does that ruin it as an entertainment? I would say not, but why not?

There are ventriloquist acts which create an illusion beyond the presence of a dummy:

The illusion of making a voice 'distant' at first and then gradually less 'distant,' the imaginary person being supposed to be coming into the room, is not a difficult matter, but an audience usually receives this part of a performance very well. It is merely done by gradually allowing your mouth and jaw to take up the positions that are natural to them when you are speaking with your natural ventriloquial voice. A great part of this illusion is created entirely by the acting of the performer; by this acting he suggests to the audience that the imaginary person at a distance is coming nearer and nearer, and the performer so works upon the minds of his listeners in this way that their sense of hearing is deceived. When you have once persuaded your audience to believe, for the moment, that there really is a man on the roof, or in the cellar, or at the window, half the difficulty of producing the distant voice is over. The audience know just the sound they would hear if such a man were speaking and the ventriloquist has to imitate the sound. (Coram, 1900, p.15)

There really is no limit to what can be ventriloquised in these acts. Some ventriloquists can provide a voice for a brick, or chair, or lamp-stand. When one considers that the standard ventriloquist dummy is as inanimate as these, though having the appearance of a more likely speaking thing, the leap to providing voice for brick or chair is not so far. What of those acts who convince us of presence in the least tenable places, the ventriloquist who by impersonation of a voice can place the suggested speaker in a narrow chimney flue, or a box too tiny for anybody to speak from?

Jon Wood's essay With Hidden Noise: Sculpture, Video and Ventriloquism (2004) describes distant ventriloquism thus:

It does not entail the use of a ventriloquist dummy or figurative prop, but enclosed spaces such as crates, trunks, chests, cupboards and rooms (usually attics or cellars) that are, or are presented as being, far away from the ventriloquist. Distant ventriloquism can also be totally propless and come from nowhere, and it does not require the hands in the way that near ventriloquism does. Thus the ventriloquist pretends to be in two places, as well as in two 'bodies,' at the same time and the ventriloquist asks that the audience imagine the inner life not just of figurative bodies, but also of boxes. It is thus a more abstract and invisible deployment of the ventriloquial voice and has a spatial, architectural, acoustic and telephonic dimension. (Wood, 2004, p.19)

Consider computer chess and the notional opponent: there is no-one actually 'there' in opposition and any opponent we may suppose is only that, suppositional. In distant ventriloquism the suggested personage is often situated in a place where no one could be, yet we believe in it or are willing to entertain the conceit despite the obvious locational dilemma. Ventriloquism concerns a suppositional location and, for the sake of drama, we suppose a situation and a perspective that cannot possibly exist. I want to use the analogue of distant ventriloquism to indicate some plurality of the self, and to suggest a suppositional status for the self. To suppose a location and perspective for the self and for



^{8.} The ventriloquist asks that the audience imagine the inner life of a figurative body. (Image reproduced from Szilágyi, 1978, fly-leaf)

consciousness is no more than supposition and does not indicate an embodied presence. ('Theory of mind' is no more than that: a theory. A theory is not a theory unless it can be proved wrong.) What is indicated by such a distinction, by such a postmarked and dated parcel of percepts, is not the origin of self in time or space but the illusion of it. What is indicated by a sense of self is no more than ventriloquial speaking for and speaking from.

The neurophysiology of human visual consciousness illustrates my argument regarding the suppositional location for perception and thus for perceiver. Sir Charles Sherrington, described as 'the father of modern neurophysiology' (Feinberg, 2001, p. 109), posed the question: "How is it possible that there is a 'singleness' of normal binocular vision when either eye alone is able to generate a separate mental image?" (Sherrington quoted in Feinberg, 2001, p.109). The so-called 'Red Glass Test' makes apparent the slight deviations in the axes of our two eyes. It can do this because these slight deviations mean that the axes of the two eyes do not 'line up' properly. By placing a red glass over one eye the person experiences two independent visual images, the one image being coloured red. The person in the red glass test is 'seeing double'. Why then do we typically experience a unified visual perception? Sherrington wrote that:

How habitually and unwittingly the self regards itself as one is instanced by binocular vision. Our binocular visual field is shown by analysis, to presuppose outlook from the body by a single eye centred at a point in the midvertical of the forehead at the level of the root of his nose. It, unconsciously, takes for granted that its seeing is done by a cyclopean eye having a centre of rotation at the point of intersection just mentioned. In this visual field it obtains visual depth by unknowingly combining besides the actually identical fixation points, the host of homonymously – and heteronymously – crossed images of not too great lateral disparation. The combining of these last rests on a cancelling out – an algebraical submental summation – of the two disparations of left and right eye respectively. Oneness is obtained by compromise between differences, if not *too* great, offered to the perceiving 'self'. (Sherrington, 1906/1947, p.xviii)

Everything about normal visual consciousness indicates that we are seeing from a cyclopean vantage point located centrally between and behind the eyes, and yet this is not the case. We <u>seem</u> to have a central, cyclopean eye just as we seem to have a unified self, or any self at all. Our perspective seems to derive from this centrally situated cyclopean 'mind's eye,' but in fact it does not. Our perspective draws from disparate sources of perceptual stimuli; it is just that more often than not it <u>seems</u> coherent or unified. We experience visual consciousness from this suppositional perspective such that we take there to be something wrong should our vision be normally fractured or riven. We know we are drunk or concussed if we are 'seeing double.'

The well-known outline-figures, often called equivocal-figures, with which while we gaze at what depicts for instance an overhanging eave the interpretation suddenly changes to a set of ascending steps, have the character of giving always wholly either the one thing or wholly the other. The meaning is never at the same time partly this and partly that. Doubtless because to be so would be to have no meaning. Psychical integration is immensely influenced by meaning. (Sherrington, 1906/1947, p. xix)

There is something about sensing anything, says Sherrington, that 'points back to' a

unitary self; a unitary self that seeks sense and a confirmation of its unitary status.

The receptors at the starting-points of the nerve-thread we find now to be, by conspiracy with a psyche in the central organ, sense-organs. The full panel of the 'five-senses' is in session, and by further collaboration with the psyche, a world of subject and object for the individual is in being. The individual has attained a psychical existence. Phases and moods of mental life accrue. Each waking day is a stage dominated for good or ill, in comedy, farce or tragedy, by a *dramatis persona*, the 'self'... Although multiple aspects characterize it has self-cohesion. It regards itself as one, others treat it as one. It is addressed as one, by a name to which it answers. The Law and the State schedule it as one. It and they identify it with a body which is considered by it and them to belong to it integrally. In short, unchallenged and unargued conviction assumes it to be one. The logic of grammar endorses this by a pronoun in the singular. All its diversity is merged into oneness. (Sherrington, 1906/1947, pp. xvii-xviii)

There are a number of unfulfilled potentialities that reach their heaven in the unified self. The 'drive' to unity culls these lost futures and condemns us to another fulfilment, that of 'oneness'. Most of these resolutions regarding self are predicated on the feeling of what is 'in' and what is 'out'; how does the discriminatory self establish grounds for inclusivity or exclusivity?

In my earlier chapter on hallucinations I described Marcia Johnson's research on 'source monitoring'. Johnson (Johnson, Hashtroudi and Lindsay, 1993) has shown that in source monitoring we depend on a number of 'cues' to deduce the source of a percept or a perceived event. Johnson stresses the importance of contextual information in our assessment of the probability of an occurrence or the likelihood of our having invented it. The cyclopean nature of visual consciousness indicates not two eyes but one. The context of visual experience indicates a cyclopean eye that does not exist. All the visual cues point to a suppositional location for perception, and thus the suppositional location of the perceiver. Thus are cognition and perception conflated in ordinary visual experience. Context in a good ventriloquist act might indicate the dummy as speaker, or a speaker in an untenable location. The cyclopean nature of visual perception indicates not two eyes but one; such sensations as one might have indicating a unified self or the uniform nature of perception may be due to a similar quirk.

Whilst it may be arguable that any subjective experience points to a unified self, philosophers seem predominantly to have felt that it does. Descartes felt the 'soul' to be indivisible and intangible:

Because it is of a nature which has no relation to extension, nor dimensions, nor other properties of the matter of which the body is composed, but only to the whole conglomerate of its organs, as appears from the fact that we could not in any way conceive of the half or the third of the soul, nor of the space it occupies and because it



9. Pineal gland as centre of consciousness. (Image reproduced from Clarke and O'Malley, 1968, fig. 89) does not become smaller owing to the cutting off of some portion of the body, but separates itself from it entirely when the union of its assembled organs is dissolved. (Descartes quoted in Beakley and Ludlow, 1992, p. 111)

Descartes claimed the pineal gland as the site for liaison between brain and soul in

humans. He gave his reasons as:

The other parts of our brain are all double so that we have two eyes, two hands, two ears, and, finally all the organs of our external senses are double; and that inasmuch as we have only one solitary and simple thought of one single thing during the same moment, it must necessarily be that there is some place where the two images which come from the two eyes, or the two other impressions which come from a single object by way of the double organs of the other senses, may unite before they reach the soul, so that they do not present to it two objects instead of one. It can easily be conceived how these images or other impressions could unite in this gland through the mediation of the spirits that fill the cavities in the brain. There is no other place in the body where they could be united unless it be in the gland. (Descartes quoted in Clarke and O'Malley, 1968, pp. 471-472)

Why am I quoting Descartes, a seventeenth century philosopher, in my discussion of the

assumed tenets of the self? Because, as Daniel Dennett describes, Cartesian Dualism is

"the view that nobody espouses but almost everybody tends to think in terms of "

(Dennett, 1991, p. 144). And, as Roger Squires has put it:

Though doctors have long discarded the theory of humours, this fortunately does not prevent us from being in a good humour from time to time. Similarly, 'mentalism' has left a rich deposit of current idioms. Thus language fossilizes the metaphysics of the Stone Age. (Squires, 1971, p. 356)

Cartesian Dualism is not just a problem for philosophers. The way we habitually carry on in conversations, with ourselves or others, contains some startlingly wrongthinking conceits. If we take the folk psychological referencing of attributes and qualities of the human mind at face value we are entertaining some very dubious beliefs. We can hardly be who we take ourselves to be. If we give someone a piece of our mind it is senseless to ask for it back. Although someone may have something at the back or front or corner of his mind, we can make no legitimate deductions about its shape. Statements of mental topography cannot be taken at face value. (Squires, 1971, p. 347)

What selves do not have is consistency. Selves cannot be held to be dimensional because their characteristics are so often abstract (or potential).

Coram's explanation of how a ventriloquist act works to convince an audience serves to illustrate how cues can be misread in our source monitoring, and how we can be fooled as to the origin of a percept, or the part that cognition plays in perception. The example of ventriloquism illustrates how much is guesswork or 'filling in,' and how this cue reading is influenced by expectation and first impressions. How much harder, then, to be accurate regarding cues from internal sources such as memory or desire. Here is where the radar of source monitoring is most 'deceptive'.

Daniel C. Dennett's stature as a philosopher of mind, as a philosopher, and as an authority on self and consciousness are indicated by J. A. Ross's characterization of him as "one of the greatest living philosophers," and as "the Grand Oral Disseminator" (Ross, 2003, p. 82). If we are using the Daniel Dennett model of self then the process of being a self goes like this:

A self, according to my theory, is not any old mathematical point, but an abstraction defined by the myriads of attributions and interpretations (including self-attributions and self-interpretations) that have composed the biography of the living body whose Centre of Narrative Gravity it is. As such, it plays a singularly important role in the ongoing cognitive economy of that living body, because, of all the things in the environment an active body must make mental models of, none is more crucial than the model the agent has of itself. (Dennett, 1991, pp. 426-427)

Dennett goes on to draw an analogue between self and radar:

Thus do we build up a defining story about ourselves, organized around a sort of basic blip of self-representation. The blip isn't a self, of course, it's a <u>representation</u> of a self (and the blip on the radar screen for Ellis Island isn't an island – it's a representation of an island). (Dennett, 1991, p. 428)

The map is not the territory: one comes to believe that because there is a map of it that the territory exists. To whom does the radar represent the self? Is it representing the self to the self (as I take Dennett to be indicating)? How does the self represent the self representing the self to itself? This is not the indivisible soul of Descartes's description, but it depends on a similarly homuncular inhabitation.

Philosophy and the folk psychology that feeds into and out of its metaphysics can

miss the point horribly. This is a problem also for physics. Here is Henry P. Stapp,

physicist and author of Mind, Matter And Quantum Mechanics (1993/2004):

The idea that nature has two parts, one containing feelings and thoughts, the other material objects in motion, was created in antiquity. Revived in modern times by Descartes, it became the foundation for classical physics. But man, having put nature asunder, was then unable to see her whole....The difficulty encountered by the authors quoted above in the task of reconciling the conceptions of mind and matter stems from their tacit acceptance of the conceptualisation of matter provided by classical physics, and from the absence of a natural place for thoughts in the physical world as conceived in classical physics....Classical physics works well in many situations, but is inadequate for problems involving the atomic or subatomic structure of objects and materials. For problems of this kind one must use quantum theory, which supersedes classical theory in that it reproduces all the experimentally validated predictions of classical theory, and covers the atomic and subatomic domains as well. (Stapp, 1993/2004, pp. 83-85)

Consider the importance of timing in Daniel Dennett's picture of brain events:

[the brain] must gather information from that world and use it <u>swiftly</u> to 'produce future' – to extract anticipations in order to stay one step ahead of disaster. So the brain must represent temporal properties of events in the world, and it must do this efficiently. The processes that are responsible for executing this task are spatially distributed in a large brain with no central node, and communication between regions of this brain is relatively slow; electrochemical nerve impulses travel thousands of times slower than light (or electronic signals through wires). So the brain is under significant time pressure. It must often arrange to modulate its output in the light of its input within a time window that leaves no slack for delays. On the input side, there are perceptual analysis tasks, such as speech perception, which would be beyond the physical limits of the brain's machinery if it didn't utilize ingenious anticipatory strategies that feed on redundancies in the input. Normal speech occurs at the rate of four or five syllables per second, but so powerful are the analysis machines we have evolved to 'parse' it, that people can comprehend 'compressed speech' – in which the words are electronically sped up without raising the tone chipmunk-style – at rates of up to thirty syllables per second. On the output side, many acts must occur so fast, and with such accurate triggering, that the brain has no time to adjust its control signals in the light of its feedback; acts such as playing the piano or accurately pitching a rock must be <u>ballistically</u> initiated. (Ballistic acts are <u>ung</u>uided missiles; once they are triggered, their trajectories are not adjustable.) (Dennett, 1991, pp. 144-145)

What if the chronology we think we experience were just our means of ordering events

(Libet et al, 1979)? Quantum physics supports this view (Stapp, 1993/2004, pp. 25-26).

Consider the atomic clock that is so 'accurate' that a second is added now and again to

compensate for the irregularity of the earth, and which measures a second as

9,192,631,770 cycles of a caesium atom rather than as one-86,400th of a day (Loe,

1996/2000, p. 21). What if time were only a convenience of mental telemetry? What if

Julian Jaynes was correct in identifying chronology as mere 'side-by-sideness' (1976, p.

60) in the mind's spatializing of events? We are left with Kant's:

I can indeed say 'my representations follow one another, or are successive;' but this means only that we are conscious of them as in a succession, that is, according to the form of the internal sense. Time, therefore, is not a thing in itself, nor is it any objective determination pertaining to, or inherent in things. (Kant, 1781/1934, p. 52)

Consider the contingencies operating on perception and then wonder whether the conventional borders of the self ought to be re-drawn. Consider whether the self need be bordered or better experienced as an 'experiential anarchy'. That version of 'self' that appears to us as in control, and in control of itself, is a multiplicity of factors that, as often as not, divides against itself. Temptation, self-defeating actions, phobias, and addiction illustrate how events are often assigned to will in retrospect. The actual course of events is most often separate from our wishes, and our achievements are different from our aims. As Edward Conze has put it:

A psychological and philosophical analysis of sense-perception shows that it obscures more than it discloses, and that sense-given distinctions and boundaries are as arbitrary as the localization of sense-qualities, the whole being a tissue of falsehood designed to serve the purposes of practical life, without any basis in reality or bearing on it. (Conze, 1961/1996, p. 66)

George Ainslie is a psychiatrist at a Veterans Affairs Medical Centre in Pennsylvania. Ainslie's 1992 book *Picoeconomics* (1992) uses a marketplace analogy to define 'hyperbolic discounting'. 'Hyperbolic discounting' describes Ainslie's experimental finding that, "People devalue a given future event at different rates, depending on how far away it is" (Ainslie, 2001, p. 47). This is a theory that supports the spatializing characteristic of 'inner sense' rather than any objective notion of a temporal order. Ainslie describes a self that is a population of bargaining agents, blighted by shortsighted choices and disproportionately valuing rewards that are sooner rather than later.

We can no longer regard people as having unitary preferences. Rather, people may have a variety of contradictory preferences that become dominant at different points because of their timing. The orderly internal marketplace pictured by conventional utility theory becomes a complicated free-for-all, where to prevail an option not only has to promise more than its competitors, but also act strategically to keep the competitors from turning the tables later on. The behaviours that are shaped by the competing rewards must deal not only with obstacles to getting their reward if chosen, but also with the danger of being unchosen in favour of imminent alternatives. (Ainslie, 2001, p. 40)

Ainslie disregards the neuroscientific query as to whether the 'reward process' is

concentrated on specific locations in the brain; this line of inquiry is redundant so long as

there is, for instance, only one set of limbs to co-ordinate.

There may be a lot of people or part-people in your mind, but they're all constrained to coordinate what they do by the fact of being permanent roommates. If a given behaviour can be influenced by more than one centre, these centres must compete for the exercise of this influence, and whatever process governs this competition will act in effect like a single comprehensive reward centre. Insofar as one behaviour can be replaced with another, it has to compete with the other for expression, and this competition operates as a single reward clearinghouse for all suitable behaviours – all

behaviours among which a person can choose. This is the constraint that unifies a person's behaviour at any given moment. (Ainslie, 2001, pp. 41-42)

This process of power bargaining, made necessary by finite means of expression, may

be all that unites a person, but Ainslie goes on further to say:

Philosophers and psychologists are used to speaking about an organ of unification called the 'self' that can variously 'be' autonomous, divided, individuated, fragile, well-bounded, and so on, but this organ doesn't have to exist as such. The factor that impels toward unity the various behavioural tendencies that grow from a person's rewards may be the realization that they are, in effect, locked up in a room together. (Ainslie, 2001, p. 43)

In my chapter titled Other Selves I describe Roger Sperry's experiments (Sperry,

Gazzaniga and Bogen 1969) with commissurotomised patients. Those examples also

serve to illustrate what happens if Ainslie's 'room' is divided so that only some of the

person's learned processes have access to particular means of expression. This is when

divisions in intent or motive become most apparent in an 'individual'. Conversely, as

Ainslie points out:

When convention or necessity makes two people act in concert over long periods – for example, in some identical twinships and some marriages – the site of the marketplace seems to shift somewhat from the individual to the pair. But where in the pair? Here the choice-maker is clearly not an organ but a process, something in the empathic engagement between the two twins; and if this is true for the pair, why not for the individual or the neurosurgeon's half-individual? The constraint of limited resources for expression may be all that impels a person toward selfhood; and the success of her currently dominant interests in bargaining with interests that will be dominant in the future may be what determines the kind of unity her self will have. (Ainslie, 2001, pp. 43-44)

Sometimes an individual is a pair. In Psychiatry journal in 1985, John Hamilton

published a report titled Auditory Hallucination in Non-Verbal Quadriplegics (1985):

The study was conducted in a state institution for the developmentally disabled. Of the total resident population of 1,034, all were categorized as mentally retarded. Among those were 222 who were so physically handicapped that they required total care; they were unable to walk, talk, feed, bathe, toilet or dress themselves. Within this group were some who gave signs of unusual alertness. With those residents suspected of having the most awareness, communication methods were developed that provided more understanding of their receptive language abilities. Eventually, seven were identified as having questionable retardation, meaning that although they could not talk and had very limited information about the world beyond their own physical environment, they were able to understand what was said to them and could learn and retain new information in what appeared to be a normal manner. (Hamilton, 1985, p. 383)

The subjects of the study had very limited educational and experiential backgrounds. All had been institutionalised for ten years or more, and most from an early age. The subjects had gestural means of signalling yes or no, learnt either from family or from staff at the institution: typically the gestures were tongue, lip or hand movements. Of the seven subjects interviewed, five indicated that they 'heard voices'. Four more subjects within the institution were able to respond in interview to indicate that they also 'heard voices'.

Their disability pattern was similar; all were cerebral palsied, spastic-athetoid, quadriplegic adults who had always been totally dependent on others for physical care and had never been able to speak, but who were relatively unimpaired in receptive language skills. None had received any formal education; only one was able to read. (Hamilton, 1985, p. 384)

The quality and content in these hallucinated dialogues didn't differ from the most common forms reported by able-bodied, or any other, subjects of research on hallucinated speech. The voices could be said to respond to experienced stress in the lives of the subjects. Times of upheaval, or doubt, or guilt, or choice-making characterised the periods when the voices were heard.

The content of the messages of the voices as reported by these nine residents are as individualized as their own personalities, but some characteristics of the voice phenomenon are similar for all residents. The most commonly reported experiences included the following: The voice is heard frequently, usually on a daily basis. The experience is clearly an auditory one, not a thought, dream or vision but an actual sound heard as if spoken by another in understandable and complete sentences. The

direction of the voice has a specific localization from outside – from above and in most cases, from the left. The voice sounds as if it is a relative, living or dead, who has played an important part in the resident's life. It serves as an authoritarian conscience by telling the resident what to do, how to think and what to feel, and what is right or wrong. During periods of change or stress, it comes more frequently and for longer periods of time, taking charge of new situations by offering instruction and guidance. There is a compelling need to follow the dictates of the voice, not only because it is usually seen as right but also because disobedience brings harsh criticism and incessant harassment. The voice is perceived as being the highest authority; with the exception of one case, it is thought to be the voice of God. (Hamilton, 1985, pp. 391-392)

A person can be a dyad, and can rely on dissociated or imagined others for behavioural or psychological influence. This might be an instance of psychoanalytic 'splitting-off,' or Jaynes-ian bicameral mind, or something else entirely, but it indicates an individual who is not an individual. If a model of self could be extracted from the above cited research it would describe a self operating amidst a chorus. This thesis argues that the self has less to do with unilateral agency than with the phantoms of such. A picture of self is a picture we can't conform to.

There are many statements in Coram's guide to ventriloquism (1900), and Hercat's

(1916), and Robert Ganthony's (1920), and Douglas Houlden's (1958/1967), to the effect

that the dummy is the star.

Tommy, as I said before, 'plays the lead' or takes the leading part and it is up to you to get your audience ready for him. This is called in theatrical talk 'building up his entrance'....Tommy is always the more observant and draws your attention to things that are happening. All this helps the illusion that he is alive since he seems sharper than you. Many things may happen during your performance and some you can be ready for by having rehearsed some chatter that sounds impromptu. There may be a dog or cat or canary in the room and Tommy will notice these and point them out to you. You, of course, pretend you hadn't seen them before. (Houlden, 1958/1967, pp. 37-38)



10. The dummy performs the leading role. (Image of A. C. Astor and dummy reproduced from Vox, 1993, p. 87) The ventriloquist is the silent stooge, lips unmoving. What these manuals also stress is consistency of character for the dummy:

Having discovered your ventriloquial voice keep to it, and do not be persuaded by anyone to alter it. When you have developed it properly and have got it quite 'set' you will then be able to choose a figure to suit the voice. I know that this is not the usual procedure with amateurs, their custom being to buy a figure before they start to practice, with the result that the figure and the voice do not match....I lay great stress on this point of keeping always to the same voice ventriloquially. (Coram, 1900, pp. 7-8)

If one forgets to maintain one's usual self for a few minutes what happens? If one is diverted by something – thoughtlessness, involvement, derangement – does one always 'come back to one's senses' unchanged? Maybe one day one could walk off amongst the bears in the wood and never find one's way back to camp (where the fire meanwhile has gone out). This is the venue for all those versions of oneself, or versions of a life that didn't exist, that those unused synapses existed in order to map. Maps remain, charting other events and other versions of a self, a life one didn't get to lead. One can make utter transitions and change utterly. All the things one cared about or worried about or tried hard to cling to may be lost. Worse still, those things may no longer occupy us, and slip from our attention without notification or trace or sense of loss – they just aren't there any more. What about doubts? Self-doubts may turn to disbelief. We may come to disbelieve in ourselves as persons, and are we then ourselves? What kind of persons are we then?

Chapter Five: Memories

Can there be one locus for consciousness? There must be diverse centres often in opposition; there must be always separate centres with different aims, objectives, and agendas. Even the self that appears to be in control of events within itself (the Cartesian self, the English Empiricist self) must be a multiplicity of factors at work. Phobias, addictions, and temptations illustrate how multiple and often conflicting impulses and desires point to different centres of control, rather than to a unitary self.

Elsewhere in this thesis I have described how the heterogeneity of the term 'conscious(ness)' means it cannot provide the systematically fruitful explanandum or explanans that science could use. 'Memory' is not now considered as a likely candidate for 'natural kind' status. Kathleen Wilkes has pointed out that:

The number of distinctions people have seen fit to draw (short-term, long-term, and 'working' memory; procedural vs. declarative; semantic vs. episodic, iconic, non-cognitive, somatic, etc.) illustrate the diversity of the phenomenon. Alternatively one could consider the bewildering variety of types of amnesia, to make the same point. Amnesia can be anterograde, retrograde, or both; some amnesiacs can remember skills (like the Tower of Hanoi puzzle) while being unable to remember any facts – such as the fact that this puzzle has been seen before; some memory failures seem due to an inability to store information, others to a failure to retrieve it; some diseases (e.g. the Korsakoff syndrome) might spare some remote memories, whereas others (Huntington's, Alzheimer's) do not; the list could continue long. (Wilkes, 1988a, p. 33)

Wilder Penfield, with Herbert Jasper, made one of the more dramatic contributions to knowledge of human brain function when their research was published in the book *Epilepsy and the Functional Anatomy of the Human Brain* in 1954 (Penfield and Jasper, 1954). Both Penfield and Jasper were neurosurgeons working mainly in Canada. Their speciality was the surgical treatment of epilepsy.

In order to arrest severe epileptic seizures in their patients Penfield and Jasper excised by surgery that part of the patient's brain that was thought to be the focal area of the epileptic seizures. This is still the treatment for severe epilepsy in, for instance, Britain. Because the anatomy of the brain is known only approximately, and any particular example may differ from a standard, patients are only locally anaesthetized whilst being operated on and are able to talk to the staff around them in the operating room. This enables the surgeons to assess what damage they are doing to faculties such as speech, understanding, and so on. The surgeons can often identify irregular tissue in a zone close to where the seizures are known to originate, and then excise this tissue with recourse to the vocal response of the patient. Penfield and Jasper were often operating on the area of the brain known as the temporal cortex (an inch inside the cranium, near the top of the ear). A large expanse of the cortex of the temporal lobe seems to be related to memory, and it is adjacent to visual and auditory cortices (those parts of the brain that give the cortical representations of visual and auditory sensations). This seems often to be the area where seizures begin. The surgeons can assess damage to localized functions by discussing effects with the patient: failing visual recognition, slurring speech, memory failure, and so on.

With the patient conscious but in no pain, and a section of the cranium removed, and before any brain surgery was done, Penfield and Jasper stimulated discrete areas of the brain with an electrode. In a procedure known as 'kindling' they passed a small electric charge into that part of the brain. This procedure was conducted in the spirit of experiment and without proscribed or predicted outcome. They did not know what they would find. The unlikely result was that this process of kindling often stimulated a memory in each of the patients. It was a specific memory for the patient involved and it unfolded in 'real time' and as vividly as a contiguous, current moment. The patients still had some awareness of the room around them, however, and could respond to the questions of the medical team (and even ask questions themselves, regarding the verification of events). The memories were not purely auditory, or visual, or olfactory, but often all of those things. They were not a single sound or a frozen picture, and did not play out their narrative in an all-at-once moment. If there were music it would be heard from beginning to end. If it was a song then it wasn't a generalized version of a song (one that had been 'committed to memory'); it was one specific instance of that song, with the thoughts and emotional gravity that had accompanied the song in the context in which it was heard.

I shall quote an account from Penfield and Jasper's records of these operations and

the results they had:

The patient's attacks may be called temporal lobe seizures. They began with a cephalic aura followed at once by automatism. Marked abnormality was encountered in the posterior hippocampal gyrus at the time of excision. For the purpose of this section only the production of recollection by stimulation at operation will be described. Operation. Right osteoplastic craniotomy.

During the operative procedure it seemed advisable to explore some of the buried temporal cortex. For this purpose a coated monopolar electrode was used, the metal

temporal cortex. For this purpose a coated monopolar electrode was used, the metal of which was exposed only at the tip. This was inserted into the first temporal convolution to a depth of 1 cm so that the stimulating point was in the superior temporal cortex at the bottom of the fissure of Sylvius. The stimulating tip must have been somewhat anterior to the transverse gyrus of Heschl. When the current was switched on, the patient cried out in great surprise: 'Yes, Doctor, yes Doctor. Now I hear people laughing – my friends in South Africa.' He was asked if he could recognize who these friends were and he replied, 'Yes, they are two cousins, Bessie and Ann Wheliaw.'

When asked, he said he did not know what they were laughing at, but he thought they must have been joking.

After operation he was asked again about this and he said that it seemed to him that he was with his cousins and that they were all laughing together at something. This was obviously a real experience to him and he was much surprised that he seemed to be with them back in South Africa which he had left about a month previously. (Penfield and Jasper, 1954, p. 136)

What do the results and records of these experiments tell us about the working of memory or the 'construction of the self'? The research data does not seem to point to a differently clear conception of how memory and self function. These records might be said to indicate that memory and self are bound, but that their functioning together is in nothing at all of the manner that models in folk psychology represent. What was characteristic, in these memories kindled in Penfield and Jasper's patients, was the way in which they seemed to 'happen' to the patient as an affliction. The patient is often shocked or surprised at the nature or content of the memories. The patient seems also confused by the vividness of the memory - it really seems to be 'happening' in the present. Even more confusingly, the memory 'happens' concurrently with 'present experience'; neither the remembered, nor the contemporary world takes precedence and (much as in the psychoanalytic experience of 'transference') the two times seem to be running simultaneously with equally convincing 'sense data'. The memory seems to include information that the patient may not have chosen for his or herself and consequently the patient is often shocked at the kind of person that they find themselves to be. Here is another example of Penfield and Jasper's reports:

During the course of the operation upon this woman's right temporal lobe, stimulation of the superior temporal cortex as it lay upon the insula was carried out. It caused her to say, 'I just heard one of my children speaking.' She added that it was 'Frank' and that she could hear the 'neighbourhood noises' as well – by which she meant automobiles passing her house, and other children. When the same point was restimulated, she said she heard the neighbourhood noises but not Frank.

When questioned about it 10 days later she recalled that she had heard 'Frankie and the neighbourhood noises.' She was asked whether it seemed to her to be a memory and she replied, 'Oh no, it seemed more real than that.' She thought she was looking into the yard and saw as well as heard the boy. She knew she was, in reality, still in the operating room, but she supposed that the surgeon had somehow brought it about! 'Of course,' she added, 'I have heard Frankie like that many, many times, thousands of times.'

She had never had a similar experience during any of her habitual seizures. (Penfield and Jasper, 1954, p. 137)

The explanations of Penfield, who seems as confused as any about the indications or

import of these experiments, run along these lines:

Stimulation of temporal cortex may cause a patient to be conscious of what he may call a memory or a dream. In any case, the elements of the experience are derived from the storehouse of his memory. One of the functions of the temporal lobes is to provide a storehouse of potential recollections. (Penfield and Jasper, 1954, p. 140)

This explanation seems to indicate that memories and dreams are indistinguishable from one another. What would distinguish memory from dream at the point of perception? An implication of Penfield's report is that we can never be clear at the moment of experience that what one experiences is distinctly memory or dream. What is the moment of experience where memory is concerned? There is a storehouse of memory, writes Penfield, and it seems he does not mean this metaphorically. It seems that Penfield is describing a localized, spatialized place somewhere in the brain. If we have a storehouse of memory, does everything we see, or hear, or do go into it? When, or how, or why do we retrieve from it? And what might Penfield mean by 'potential recollections'? 'Potential recollections' might mean experienced events that we have stored for future use but that we have not actualized, or activated yet. Or 'potential recollections' might mean 'stock' experiences which are potential in that they have not happened yet, but are available for 'recall' should any future occurrence resemble what is in store. It is not clear what Penfield meant by this, and these quotes have the status of free asides amidst opinions more commonly assented to.

The experience may seem to the patient to be a dream, rather than an accurate memory. But it is a dream in which familiar places are seen and well-known people speak and act. Such hallucinations, or memories, or dreams continue to unfold slowly while the electrode is held in place. (Penfield and Jasper, 1954, p. 142)

What is temporal in these memories, hallucinations, or dreams? It is not clear to the subject which moments they are placed in. They have the quality of the psychoanalytic process of transference, in that two distinct time periods seem to coincide and overlap: both are real and current but simultaneously.

The conclusion may be drawn that there are in the temporal cortex innumerable patterns which constitute records of memory (Penfield and Jasper, 1954, p. 142).

By Penfield's description memories are in the same category as dreams and

hallucinations. Are memories based on occurrences, or are they occurrences recalled?

That is: are memories an unavoidably accurate recollection of experiences and events, or

are they fabrications based on the truth? Is there anything 'truthful' about memory? Or

only inasmuch as a memory can be verified and isn't that missing the point?

In the 2 years after her operation her only complaint was dizziness and headache on stooping, which was obviously due to the free movement of the subtemporal decompression. At the end of this time she began to have seizures again but they were of a new and curious type as follows:

<u>Hallucinatory seizure, auditory</u>. In these later attacks, she heard voices which seemed to be coming from her right. They were not the voices of her children. Indeed she said she could not hear her children speak to her during an attack. Once, on getting up at night to go to the bathroom, she heard <u>music</u>. She thought it came from the radio in the living room. It was a song she had frequently heard on the radio. She could not hear the words. In a later attack she thought the room had filled with people, all talking at once, although she could not tell what they were saying.

In these attacks she retained the ability to move about. She was able to see but she could hear nothing except the rather complicated auditory hallucination, the content of which was either a musical memory or voices.

One of such attacks, which occurred in hospital, was described by Nurse Margaret Goldie as follows: After the attack was over, the patient said she had a peculiar sensation in the chest which 'felt as though it came from the stomach.' Then the voices started on the right side of her. Then she said, 'I felt as if there were a crowd of people around me all talking to me. It made me very excited and nervous. Now I feel very tired and have a headache.' In other attacks she heard music, and several times at night she went to see if someone had left the radio on. She sometimes heard people sing but could not remember what the song was. The voices or music were completely realistic and convincing, and the duration about one minute; the direction of sound seemed to be sometimes to the opposite side (right), and sometimes she referred them toward the supposed source, e.g., the radio. (Penfield and Jasper, 1954, p. 459)

I am quoting at length from Penfield and Jasper's *Epilepsy and the Functional Anatomy* of the Human Brain because it is a book more read about than read. The findings of Wilder Penfield and Herbert Jasper are often lightly referred to, or hinted at, in various works of neuroscience. But the book itself is a 'rare book' and almost impossible to find in a library. Although the Phineas Gage case history (see chapter titled Change in this thesis) has been widely referred to without recourse to primary sources, recently there have been written studies which finally disinter the few firsthand accounts of Gage's injury and character. These recompense somewhat for the misappropriation and disingenuousness which has characterized even scholarly reference to Gage's life, character and pathology; the primary sources are at least now broadly available to those who care about such things. The commissurotomy studies of Sperry, Gazzaniga and Bogen (1969) (see chapter titled Other Selves in this thesis) have been interestingly and honestly interpreted by Thomas Nagel in his essay Brain Bisection and the Unity of Consciousness (1971), and there is a widely available literature written by the scientists most involved in the commissurotomy studies. Penfield and Jasper's studies however are never fully quoted, despite their detailed reports of an area of human life it is very difficult to report on (and hence scarcely reported).

In the instance of the Phineas Gage case history, the disingenuous use of his life story to support varied neuroscientific claims has benefited from a scarcity of historical detail concerning Gage. In the instance of the Penfield and Jasper reports, it may be their heterogeneous character and the heterodoxy of their import that prevents this evidence being more commonly used. The evidence in the Penfield and Jasper reports is so rich it is difficult to know what conclusion they point to. There is a variety in the reports that indicates the plurality of the subjects' experiences: they do not seem to add up to any one view of the neuroscientific study areas which the cases are purported to enlighten. Memory, self, consciousness, and any definition of human character are unrecognizable or without parameter in the evidence of these reports. The findings presented in the book are intransigent and problematically so for an understanding of the 'self'.

The Penfield and Jasper reports might be said to provide too much evidence, and as such the evidence makes it impossible to conclude with any decision. The voices reported indicate many and plural truths rather than a succinct and definitive truth. Similarly, this thesis is intent to deal with evidence that is similarly unwieldy or singular and intransigent. Feyerabend has put it that:

The idea that things are well defined and that we do not live in a paradoxical world leads to the standard that our knowledge must be self consistent. Theories that contain contradictions cannot be part of science. This apparently quite fundamental standard which many philosophers accept as unhesitatingly as Catholics once accepted the dogma of the immaculate conception of the Virgin loses its authority the moment we find that there are facts whose only adequate description is inconsistent and that inconsistent theories may be fruitful and easy to handle while the attempt to make them conform to the demands of consistency creates useless and unwieldy monsters. (Feyerabend, 1978, p. 36)

This is an important point to make about any academic endeavour: the things that can or cannot be said within any academic discipline are circumscribed by linguistic, theoretical, or institutional regimes. The nature of the discourse defines the subjects of the discourse (Lyotard, 1984, p. 17). Thus this thesis will often fall foul of those academic criteria which seek to constrain discursive or cross-disciplinary work.

There are those who think the safety of scientific language prevents any inquiries into the less visually verifiable areas of human subjectivity. Jaak Panksepp is a neuroscientist who researches 'affective neuroscience': that is, the neurological processes correlative to emotions. Panksepp has complained that the neutrality insisted on in scientific literature, and the insistence on excluding data which cannot presently be visually verified, has curtailed the scope of scientific inquiry. To Panksepp, these limitations are especially prevalent or damaging in matters of neuroscience:

Although language is the only way we can scientifically bridge the chasm between brain and mind, we should always remember that we humans are creatures that can be deceived as easily by logical rigour as by blind faith. Despite our scientific pride in using words precisely, the most important metrics for measuring our scientific insights are the predictions we can confirm and the useful products of our research. It is possible that some of the fuzzier concepts of folk-psychology may lead us to a more fruitful understanding of the integrative functions of the brain than the rigorous, but constrained, languages of visually observable behavioural acts. The dilemma that the 'prison house of language' presently imposes on our modern scientific and cultural pursuits should not be underestimated. (Panksepp, 1998, p. 335)

It is not simply that scientific language is a flawed medium for reporting research into affective neuroscience, or that medical discourse is an inherently inappropriate means of describing emotions, memory, and agency. Consensus is never a valid reason for belief, despite the absolutism and apparent transparency of scientific discourse.

As is clear from the history of science (especially medicine), neither does complete unanimity guarantee truth, nor does incomplete consensus necessarily imply an inherent inconclusiveness of the evidence or an impossibility of achieving subjective moral certitude. (Shewmon, 1997, p. 64)

In Penfield and Jasper's reports, 'memory' represents a tentacular calamity in terms of a definition. What would these reports signify in terms of a classificatory definition of 'memory' and its linguistic referents? That memory is a scientifically confused term does not make it useless in everyday use. Herein lies the importance of folk psychological examples as evidence: it does not matter that 'memory' does not conform to the terms or definition of its referents even as we describe them to ourselves. The term can still have cultural currency in everyday exchange; the term 'memory' still makes sense as we mean it even if we are unable to provide a genuine definition. It does not matter in ordinary language that we do not know precisely what the term means as the term still does what we want it to in conversation. The term has functional value if not ontological.

W. V. Quine has pointed out that we learn language by 'ostension'; that is, by hearing a word applied to samples or examples (1969, p. 121). Ostension is an induction into taxonomic groups. This is presumably as true of 'anger' as it is of 'yellow'. Quine highlights a problem with this ostensive language-learning process, as follows:

Not only is ostensive learning a case of induction; it is a curiously comfortable case of induction, a game of chance with loaded dice. At any rate this is so if, as seems plausible, each man's spacing of qualities are enough like his neighbour's. For the learner is generalizing on his yellow samples by similarity considerations, and his neighbours have themselves acquired the use of the word 'yellow', in their day, by the same similarity considerations. The learner of 'yellow' is thus making his inductions in a friendly world. Always, induction expresses our hope that similar causes will have similar effects; but when the induction is the ostensive learning of a word, that pious hope blossoms into a foregone conclusion. The uniformity of people's quality spaces virtually assures that similar presentations will elicit similar verdicts. (Quine, 1969, p. 125)

Although Quine uses the example 'yellow', the same principle presumably applies to

'anger'. But if I point to this effloresence of anger with the word 'anger' I am being

inducted into a sense of self and not just the meaning of a word.

Harry Jerison has written that,

Individuals capable of constructing elaborate multisensory 'real' worlds might construct a reality that seems more fundamental than the immediate information from the senses. The capacity for imagery, in which one manipulates a possible real world in one's imagination, must early have led the hominids, by the time these capacities were well developed, to reach an appreciation of a past prior to one's lifetime and a sense of a future after one's death. (Jerison, 1973, p. 429) Our image of ourselves might be said to be culturally founded rather than physiologically. The images we have of ourselves, as evinced by the metaphors of folk psychology, are convincing beyond the reach of science. Although folk psychological models of self might be said to be founded on the metaphorical constraints of language, they effectively become the self and not just our means of talking about it. Concepts invoked linguistically take on solid proportions. Turns of phrase such as 'my mind has gone blank,' or 'it has slipped my mind' represent in language an imagined physiological reference point which we cannot find by removing someone's scalp; the brain has the consistency of cold porridge.

If you read any recent work on neuroscience you'll read that the 'autobiographical self' relies on episodic memory. Yet observe how fragile, or contingent on any event is the basis of memory. In the matter of everyday recollection, can memory be an indelible record of that which one experiences? Is there really a storehouse of recollection which houses our impressions and that which we witness for future recall? Is that which we attend to entering into a state of potential future recall from the moment we witness it: like a filing cabinet where we can find the things we have lost? Julian Jaynes provides a number of examples that ought to indicate the recording power of memory, but which indicate the opposite.

Consider the following problems: Does the door of your room open from the right or the left? Which is your second longest finger? ... How many teeth do you see when brushing your teeth? ... If you are in a familiar room, without turning around, write down all the items on the wall just behind you, and then look. (Jaynes, 1976, p. 29)

If these things were one day changed for impostors one would probably spot the difference: this is the distinction between recognition and recall.

I can add some examples of my own regarding the fallibility of memory, and its temporally indistinct quality. Some things I remember but cannot have attended to firsthand. I remember a particular tree being cut down in the garden of the house where I grew up; and yet photographs of me in that garden show me as a very new baby with the tree already cut to a stump in the background. In that same garden I waved goodbye as an infant to my neighbour, my favourite person in the world: when twenty years later I remembered that event it came back to me with unfathomable vehemence and viciousness. Had it really happened like that? When I left my flat this morning I began to question whether I had locked the front door behind me: I remembered locking the door but I also remembered not locking the door. In Spain, the signs say 'Hunting Rights reside with the owner of the property': so, with whom do hunting rights reside in this instance?

Antonio Damasio is a neurologist and leading expert on neurophysiology. He is author of *The Feeling of What Happens* (2000), which is subtitled *Body, Emotion, and the Making of Consciousness*. I shall quote from that book because it is emblematic of the contemporary consensus in neurology and related fields. In his report of a New York Academy of Sciences Conference in 2002, J. A. Ross characterizes Damasio as, "Professor at both the University of Iowa and the Salk Institute, and he has received countless distinctions and prizes, including the Golden Brain Award in 1995...Here was a master at work" (Ross, 2003, p. 78). Damasio is quoted as authoritative by Mark Solms, Jaak Panksepp and other representatives of what Francis Crick called 'cognitive science' (that is, the pool of knowledge agglomerated from research on brain physiology and anatomy in medicine, psychology, philosophy, quantum physics, etc.). Oliver Sacks has written of, "the pioneer neuroscientific work of Antonio Damasio" (Sacks in preface to Solms and Turnbull, 2002, p. xi). Here is Antonio Damasio writing on the affirming role that memories play in the construction of the self:

The autobiographical self hinges on the consistent reactivation and display of selected sets of autobiographical memories. In core consciousness, the sense of self arises in the subtle, fleeting feeling of knowing, constructed anew in each pulse. Instead, in extended consciousness, the sense of self arises in the consistent, reiterated display of some of our personal memories, the <u>objects of our personal past</u>, those that can easily substantiate our identity, moment by moment, and our personhood. (Damasio, 2000, p. 196)

Except that there is something wrong with this, isn't there? I dare say that Damasio is

right in his supposition as to how the self resorts to 'personal' memories to shore up and

substantiate its conception of itself. But consider how memories are constructed.

Consider how one's 'past' is constructed. Julian Jaynes, in his book The Origin of

Consciousness in the Breakdown of the Bicameral Mind (1976) puts it thus:

Introspect on when you last went swimming: I suspect you have an image of a seashore, lake, or pool which is largely a retrospection, but when it comes to yourself swimming, lo!...you are seeing yourself swim, something that you have never observed at all! There is precious little of the actual sensations of swimming, the particular waterline across your face, the feel of the water against your skin, or to what extent your eyes were underwater as you turned your head to breathe. (Jaynes, 1976, p. 29)

With this in mind, how much do we remember of our 'formative' years? How many memories of that time do we have; do we have lots, or only a few? Is the function of consciousness to store up experience, having attended to it as a camera does and able to 'retrospect' on it in the same way? Then tell me how many teeth do you see when you are brushing them? Or, without looking, tell me which is your second longest finger? As Julian Jaynes has put it:

Did you not in each of these instances ask what <u>must</u> be there? Starting with ideas and reasoning, rather with any image? Conscious retrospection is not the retrieval of images, but the retrieval of what you have been conscious of before, and the reworking of these elements into rational or plausible patterns...Looking back into memory, then, is a great deal invention, seeing yourself as others see you. Memory is the medium of the must-have-been. (Jaynes, 1976, p. 28 and p. 30)

How much is fabrication or make-believe a part of selfhood? Consider how many 'memories' start off as suppositions based on old family photographs, or one's mother saying 'don't you remember that?' A black and white photo of a children's party; soon you can picture yourself there, and your relatives (whose memories also play tricks on them) verify that picture of events. Soon it becomes your memory and your past. How many of our self-defining memories are as-told-to? From 'must-have-been' to 'mighthave-been' and 'wish-it-would-have-been'. If the 'autobiographical self' is reliant on episodic memory and these memories are fallible to the point of untrustworthiness, or are not 'memories' at all, what does this say about the construction of the self? Does the self not have more of the qualities of a dream, or an hallucination, than it does the qualities we ascribe to memory? We should admit of the invention at work in the continued roleplaying of the self; it has more of the nature of a performance (albeit an unconscious one).

Chapter Six: Other Selves

The current consensus in neuroscience is that human babies are born with many millions more synapses than they are ever going to use. We use these nascent links between brain cells to map our world. And those principal maps we have as children we use as templates for other, future maps of our modified world; we change, the world changes, and our image of ourselves in that world changes.

Those other, unused brain cells are subject to the process of 'apoptosis,' which is selective cell death. In this process those unused cells effectively represent the world we didn't encounter. Potential worlds. Where are the worlds we didn't encounter? Did we ever imagine them as potential worlds? Here is Wilder Penfield, late neurosurgeon and author of the landmark work *Epilepsy and the Functional Anatomy of the Human Brain*: "One of the functions of the temporal lobes is to provide a storehouse of potential recollections" (Penfield and Jasper, 1954, p. 140). Are these memories 'potential' in that they have happened but we haven't yet recalled them? Or are they potential in that they haven't happened (as 'events'), but they might do (or something similar) so we keep them in store?

The description given by Solms and Damasio, and in most contemporary neuroscience, propounds the malleability of the brain:

Plasticity, or modifiability, is one of the fundamental capacities of nervous systems. In the construction of a complex 'real' world, in which each sense modality contributes to the cognitive image, it would be difficult to imagine a prewired central nervous system that was prepared, readymade for all the capacities. Among the consequences of the elaboration of functionally modifiable nervous systems, one must include the capacity for acculturation, the development of adult-child relations that lead to social and emotional dependence, the use of artefacts, communication by languages, and so forth. Each of these (or other categories, such as play, duration of infancy, love) can be used as a point of departure for speculations about the source of hominization. But in every instance, the question of the evolution of the brain has to be tied to the work of the brain. (Jerison, 1973, pp. 428-429)

This malleability concerns not just human adaptation in evolutionary terms, or in terms of individual human development in the sense that psychological trauma can affect the size and shape of the brain; but even genetic expression is mutable. Activating and expressing a gene is described as genotype turning into phenotype; that is, a virtual or potential structure encoded in one's DNA becoming tissue. This process is regulated by physiological mechanisms on which one's internal and external milieu can have an impact and can transform. The brain's structure and chemistry are open to the suggestions of experience or trial; in this way we change our minds. The way we see the world can radically alter, the picture we have of the world can alter, and one can conceive of oneself differently than one is used to doing. All these fundamental operations of perception are corrigible.

Mark Solms and Oliver Turnbull have written that:

We are all born with billions more synapses than we need. These synapses represent the <u>potential</u> connections between neurons that <u>might</u> be needed to create internal maps and models of the world in which we find ourselves. In a sense, they represent all the possible worlds we might find ourselves in. The <u>actual</u> environment we are born into results in only a subset of these connections being activated. These particular connections are then strengthened, and the ones that are not used fall by the wayside. This process is commonly referred to as neuronal 'pruning'. (Solms and Turnbull, 2002, p. 147)

One's experienced world changes the actual structure of one's brain: to change one's mind is *actually* to change one's mind. This process is not simply destructive or depletive and is not only a matter of pruning. Eric Kandel (Kandel, 2006) won the 2000 Nobel Prize for physiology and medicine for showing that the temporary, reverberating neural

circuits that constitute short-term memory have a 'permanent' effect on the cells involved. The repeated firing of cells at particular junctions will activate genetic mechanisms in those cells that promote the growth of synapses at those junctions; an increased density of neural tissue results. This effect is activity-dependent and continues throughout life.

Nor does the pruning cease in childhood:

Although that is when the bulk of excess neural tissue is shed, the 'use it or lose it' principle continues to operate throughout life. As a result, connections that may have been activated frequently in childhood (and therefore preserved) can subsequently fall away at later stages of development, for the simple reason that they are no longer required. (Solms and Turnbull, 2002, p. 147)

It is, however, quite likely that:

The networks that survived the great pruning processes of early childhood serve as <u>templates</u> around which all later memories are organized. These deeply consolidated 'trunk' circuits would be activated on a very regular basis, even if the events that forged them are not consciously brought to mind in the process – and even if the events that forged them <u>cannot</u> be brought to consciousness any longer. (Solms and Turnbull, 2002, p. 148)

New and differently configured neuronal circuits mean that new or different patterns

of behaviour are possible. Psychological changes are accompanied by physical changes in

the brain. These anatomical changes can be large enough for CT or MRI scanning to

detect. Richard P. Bentall writes that:

Several studies have shown that the volume of the hippocampus (an area of the brain that plays an important role in memory) is reduced in people who experience post-traumatic stress following warfare or sexual assault. Other studies have shown that the corpus callosum and other anatomical structures are reduced in volume in children who have been victims of sexual or emotional abuse. (Bentall, 2003, p. 160)

Similarly, research by the Institute of Neurology in London studied taxi drivers learning

'the knowledge' of London street routes (Bentall, 2003, p. 160). The research showed

that as the taxi drivers struggled to acquire the new, detailed information the posterior hippocampi of their brains became enlarged. Our use and experience of language has a measurable effect on brain architecture too.

As with most other brain systems that have been studied, the vigorous use and disuse of the language-processing areas of the brain should yield measurable changes in the underlying neuronal architecture. A great deal of research on other brain systems has indicated that enriched environments facilitate the growth of cortical systems, especially in young animals. Such effects have been especially well documented in the visual system. For instance, closing one eye in a young animal leads to permanent lifelong deficiencies in that eye's ability to process information, due to accumulating weaknesses in the underlying neural circuits. Thus it has been of some interest to see how sign language is processed in deaf children, and preliminary brain mapping suggests that they process language in very different ways than depicted in the classic view. For them, language is much more a function of information processing in somatosensory and somamotor representations of the hand. This remarkable finding suggests that in the young brain, many other areas than Broca's and Wernicke's [areas of the brain ordinarily considered central to language processing] are capable of elaborating the processing of linguistic material. (Panksepp, 1998, p. 335)

In an organism so mutable isn't it impossible to seek the stasis and stability which

words such as 'mind,' 'consciousness' and 'self' point to? It might be the fault of our

language that we arrive at these static concepts. In The Unconscious Before Freud, L. L.

Whyte (1962) writes that:

Certain African and American Indian communities, the Hopi and others, appear to put the cognitive emphasis, not on separable traces representing isolable entities, but on the actual process of personal experiencing. Whorf has suggested that their languages are moulded to represent the <u>transformation of the subject</u> in the course of his experienced activities and of his participation in the processes of his world. The Hopi, for example, view reality as 'events,' rather than as 'matter'. These languages, far from being vague or undifferentiated, make finer discriminations in regard to the action of thinking than do the European. They are highly developed systems of communication, stressing a different aspect of experience. (Whyte, 1962, p. 33)

It is a misconception that genetic influences are fixed and predetermined. Genetic influence on character is mutable and inextricably linked to environmental factors. Genes are sequences of deoxyribonucleic acid (DNA) strung together in a double helix to form chromosomes. Humans have 23 pairs of chromosomes and the gene sequences on these chromosomes have two functions that are known as the 'template' and the 'transcription' functions. Genes replicate themselves. The genes of the male and the female mix at conception; it is the unfolding of the mixture of parental genes that results in a baby. The ability to replicate is known as the template function of genes. All of our genes are represented in every cell of our body but this template function is, in a sense, restricted to the genes in the cells of the sperm and the ovum.

This leads to the important question of what all the genes in the rest of the body do, including the genes in the billions upon billions of cells that make up the nervous system...The transcription function of genes is closely bound up with what we call the 'expression' function of genes. The genetic codes (sequences of acids) making up the strands of DNA are designed to produce different proteins. In the simplest case, a particular protein thus produced will make your eyes blue or brown, and your hair black or red. (Solms and Turnbull, 2002, p. 219)

Genes create and modify various brain structures. Particular genes do not work in isolation; genes work in complex interactions with each other. To produce even one neural circuit requires a very complicated sequence of genetic events. This sequence does not unfold in isolation either, but in interaction with the body's inner and outer

environment.

We have said that each of the cells of your body contains all of your genes. All of them can therefore <u>potentially</u> produce a huge range of proteins. But in reality there is a division of labour between the different cells of your body. They do not all involve themselves in the full diversity of things that the human genome can produce. The genes in different cells produce proteins that represent only a small sample of their potential range – which is the same as to say that only a small sample of the genes in any one cell is actually <u>expressed</u>. The difference between a liver cell and a brain cell arises from the fact that the genes that are expressed in them are different, resulting in the growth of different types of cell and ultimately (due to the clumping together of cells) different types of tissue. This is how the body comes to contain the great variety of organs and functions that it does. (Solms and Turnbull, 2002, p. 220)

This process of activating and expressing a particular gene is described as its transformation from genotype to phenotype. The virtual, potential, structure encoded in the DNA transforms into actual tissue. The environment influences this mechanism in numerous ways (the environment, in this instance, represents everything outside the cell itself). In the brain, when one neuron activates another: "It stimulates genes in the second neuron to manufacture particular proteins, which in turn leads to the growth of new synapses in that cell" (Solms and Turnbull, 2002, p. 221). In this way memory, for instance, is a process that is inextricable from genetic transcription. It is by the multiplication of synaptic connections at repeatedly activated junctions that long-term memory translates into the physical matter of nerve cells. Transient memory is rendered into the physical structure of our body's cell mass with every change of mind. Propensity and possibility are conjoined in genetics.

During our life 50,000 cells in our body die each second. Each day about 50 billion cells in our body are replaced, resulting in a new body each year. During each year about 98 percent of the molecules and the atoms in our bodies are replaced. Where are continuity and stability in this process? There is no true pattern. We seem to characterize consciousness as a stream. Regrets, volitions, small talk to oneself, frustration, and the exterior sensations of which we are selectively aware all seem to fall into a tidal estuary that fills even through dreamless sleep. Julian Jaynes has asked:

If we think of a minute as being sixty thousand milliseconds, are we conscious for every one of those milliseconds? If you still think so, go on dividing the time units, remembering that the firing of neurons is of a finite order – although we have no idea what that has to do with our sense of the continuity of consciousness. Few persons would wish to maintain that consciousness somehow floats like a mist above and about the nervous system completely ununited to any earthly necessities of neural refractory periods. (Jaynes, 1976, p. 24) It is likely that the seeming continuity of consciousness is an illusion along the lines of the way one eludes the lacunae of the 'blind spot' in one's field of vision. The same principle seems to be at work in registering an integrated spatiotemporal representation in the visual field as in eluding the lacunae in 'consciousness'. There is a two-millimetre gap on the nasal side of our retinas where the optic nerve fibres are gathered together and leave the eye for the brain. This creates a blind spot in one's visual field.

The blind spot is that region on the retina where the ganglion cells leave the retina and project to the lateral geniculate nucleus of the thalamus. The packing density of light-sensitive cones is greatest at the foeva, decreasing sharply in the peripheral field. Rod density is greatest in the region that immediately surrounds the foeva, and gradually decreases in the more peripheral regions. The region of the blind spot is in the peripheral field. (Churchland and Ramachandran, 1998, p. 178)

The foeval area of the retina is the area in which one's vision has relatively high resolution and high acuity. It encompasses a very small area of one's perceptual space. The foeval area of relatively clear and fused visual perception is about thumbnail size at arm's length, and a few centimetres deep; closer to the eye the fused space of visual perception covers an even smaller area. The blind spot of the retina covers a larger area of visual space than the foeva; the foeval area encompasses only 2 degrees of visual angle whereas the blind spot is about 6 degrees in length and 4.5 degrees in width. Put simply: the area of one's eye that sees clearly is smaller than the area of one's eye that does not see at all. In order to compensate for the minimal extent of the foeval area, or to extend the foeval reach as it were, the eyes continually make small scanning movements called 'saccades'.

The eyes make a small movement – a saccade – about every 200 to 300 milliseconds, sampling the scene by continually shifting the location of the foeva. Presumably, interpolation across intervals of time to yield an integrated spatiotemporal representation is a major component of what brains do. Interpolation in perception probably enables generation of an internal representation of the world that is useful in

the animal's struggle for survival. (Churchland and Ramachandran, 1998, p. 177)

Visual consciousness is always partly this 'imagined whole'. In failing to ordinarily notice a 'blind spot' it is not that we ignore this gap in visual aspect. There are limits to the eye's capabilities for response to light, and it is in the work of one's visual perceptual capacity to create a pictured seamlessness, a visual aspect which is represented as fused and coherent. One does not merely 'think' one has seen that which is occluded by this blind spot, it is rather that one has seen it as one sees anything in the visual field. That which one 'completes' in the visual aspect is a visual phenomenon rather than a nonvisual judgement. It makes no difference whether it is 'there' or not.

Relying on two eyes, a perceiver – even a careful and discerning perceiver – will fail to notice the blind spot, mainly because the blind regions of the two eyes do not overlap. If light from a thimble, for example, falls in the blind spot of the left eye, it will nevertheless be detected normally by the right retina, and the viewer sees a thimble. Even in the monocular condition, however, one may fail to notice the blind spot because objects whose borders extend past the boundaries of the blind spot tend to be filled in, without gaps. (Churchland and Ramachandran, 1998, pp. 177-179)

One visually registers the world thus, by these rules and owing to these means. The world is context specific dependent on perspective.

If one closes one's left eye and stares at the left margin of this page, one is not conscious of the large gap in one's vision about four inches to the right of where one focuses. But if you now, still with your left eye closed, observe your finger move along the line of print from left margin to right, you can see the top of your finger disappear during its passage through this 'blind spot' and reappear on the other side. Julian Jaynes has observed of the 'blind spot' in visual perception:

The interesting thing about this gap is that it is not so much a blind spot as it is usually called; it is a non-spot. A blind man sees his darkness. But you cannot see any gap in your vision at all, let alone be conscious of it in any way. Just as the space around the blind spots is joined without any gap at all, so consciousness knits itself over its time gaps and gives the illusion of continuity. (Jaynes, 1976, pp. 23-24)

Julian Jaynes compares consciousness to a torch in a dark attic. To consider that which we are not conscious of is to ask the torch to search around the attic for something that does not have any light falling on it. Given that there is light wherever the torch directs itself, the torch would have to conclude that there is light everywhere. However bright our light we cannot see where we are not looking. Similarly, the conscious mind can seem all knowing, elucidating, and uneluded.

To continue with this metaphor: the torch, like consciousness, could be said to be conscious of being on only when it is 'on'. Huge gaps of time could pass in darkness and, assuming things were broadly as they were before the light went out (and even if they were not), the torch when turned on again would 'overlook' that period of darkness and register instead an uninterrupted period of light falling everywhere it directs its attention.

Ventriloquism is a trick, a spectacle, a magic show, a stage effect, a deception maintained way beyond any pretence of disbelief: What else is like this? A bold psychologist, or neurologist might suggest that the self is a construction or an illusion. Consciousness might be compared to a magician's act: it is an act of misdirection and it disguises process to present an illusory whole. In magic (a technical artform), cards can levitate and disappear. In a magic act the magician can misdirect us so that we see what is not there, and do not see what is there. In an article in *The Guardian* newspaper (Jha, 2005), Richard Wiseman (a professor of psychology at the University of Hertfordshire) explicitly stakes a claim for correspondence between stage magic and consciousness:

Over the last five years there's been a reawakening as we look at things like change blindness [a failure to notice large changes in a visual scene] and at the fact that consciousness is a construction and may even be an illusion. (Wiseman quoted in Jha,

2005, p. 4)

In this analogy, who is the illusionist? The article describes the misdirection practised by stage magicians to hide the procedure of the illusion: if we do not see the ball, for instance, pass from hand to hand then we can really believe it has disappeared. If consciousness "may even be an illusion," then who is the illusionist?

Magicians are manipulating your consciousness. They are showing you something impossible. They're getting you to construct a narrative which simply isn't true. So that means they know how to make you aware of certain things and blind to other things... Our visual representation of the world is much more impoverished than we would assume. People can look at something without being aware of it... What it shows is just how much of the picture in our head, of our surroundings, is a massive construction, based on expectations, what we think is important, what we normally encounter, and so on. (Wiseman quoted in Jha, 2005, p. 4)

Is it the self that constructs a self? The omnipotent self, the same one posited by Wiseman and Descartes, is given here as an illusion. But drawing the analogy with stage illusion is a deception, a crowd pleaser. The above analogy points back always to the self: a self that is both illusion and illusionist. If the self is an illusion, doesn't that mean it is not there? How can the illusory self create the illusion of self?

It should come as no surprise to us that we are these multiple potential selves and that one lies to ourself (consciously or unconsciously, it matters not) to maintain a spurious sense of continuity. One is always principally two separate people in league (or not) to attain an apparent unity. The corpus callosum is a bridge of white matter that connects the two hemispheres of the brain. In the 1960s a dozen or so patients with otherwise intractable epilepsy were treated with a surgical procedure known as commissurotomy. They were patients of a surgeon called Dr. Philip Vogel. Commissurotomy is the cutting down the midline of all interconnections between the two hemispheres of the brain, (though the two halves are still connected at the stem and limbic system at the 'deeper' parts of the brain). Each of these patients had undergone, in a single operation, complete transection of the corpus callosum, the anterior commissure, and the hippocampal commissure. The procedure was used as a treatment in cases of severe epilepsy that were otherwise untreatable. The surgery was developed in an attempt to localize the abnormal neural excitation that constitutes an epileptic seizure. Commissurotomy acts in the brain as a fire-wall does in a forest; the seizure stays in the hemisphere that is its focal point and can't spread across the divide to the other hemisphere.

In the 1960s neuroscientist Roger Sperry realized that these dozen or so commissurotomized patients could be studied to learn about the normal lateralization of the brain's halves. Are the halves of the brain divided by the dominance of one half or another, or by speciality, or by discrete roles? Sperry elicited the ingenuity of neurologist Michael Gazzaniga in devising ways to test commissurotomised patients for divisions in the brain's labours.

With regard to this experimental research with commissurotomized patients Roger Sperry has written that:

Instead of the normally unified single stream of consciousness, these patients behave in many ways as if they have two independent streams of conscious awareness, one in each hemisphere, each of which is cut off from and out of contact with the mental experiences of the other. In other words, each hemisphere seems to have its own separate and private sensations; its own perceptions; its own concepts; and its own impulses to act, with related volitional, cognitive, and learning experiences. Following the surgery, each hemisphere also has thereafter its own separate chain of memories that are rendered inaccessible to the recall process of the others. (Sperry, 1968, p. 724)

In the immediate aftermath of the commissurotomy some patients lost their speech for up to two months, whilst other patients had no obvious problems. Some patients suffered memory loss and others not; why is still a mystery. Aside from its physical linking of the two hemispheres it was unknown what role the corpus callosum fulfilled in the brain. It is now supposed that there might be a different relationship in each of us between the two halves of the brain. Thomas Nagel has commented on the commissurotomized patients that,

All this is combined with what appears to be complete normalcy in ordinary activities, when no segregation of input to the two hemispheres has been artificially created. Both [hemispheres of the brain] fall asleep and wake up at the same time. The patients can play the piano, button their shirts, swim, and perform well in other activities requiring bilateral coordination. Moreover they do not report any sensation of division or reduction of the visual field...By and large the hemispheres cooperate admirably, and it requires subtle experimental techniques to get them to operate separately. (Nagel, 1971, p. 154)

Despite the two halves of the brain being separated at their main means of conference, a

sense of unity was maintained for the subject and for the observer. The two hemispheres

continued communication mostly by means of peripheral clues: the right eye can see what

the left hand is doing, the left ear can hear what the mouth is saying, and so on.

Gazzaniga's tests were devised to isolate sensory input to one half of the brain or the

other, so as to particularize each isolated hemisphere's understanding of events.

Julian Jaynes has highlighted the division between the brain's hemispheres, thus:

As you look at anything, say, the middle word of this line of print, all the words to the left are seen only by the right hemisphere, and all the words to the right only by left. With the connections between the hemispheres intact, there is no particular problem in co-ordinating the two, although it really is astonishing that we can read at all. But if you had your hemispheric connections cut, the matter would be very different. Starting at the middle of this line, all the print to your right would be seen as before and you would be able to read it off almost as usual. But all the print and all the page to your left would be a blank. Not a blank, really, but a nothing, an absolute nothing, far more nothing than anything you can imagine. So much nothing that you would not even be conscious that there was nothing there, strange as it seems. Just as in the phenomenon of the blind spot, the 'nothing' is somehow 'filled in,' 'stitched together,' as if nothing were wrong with nothing. Actually, however, all that nothing would be in your other hemisphere which would be seeing all that 'you' were not, all the print to the left, and seeing it perfectly well. But since it does not have articulated speech, it cannot say that it sees anything. It is as if 'you' – whatever that means – were 'in' your left hemisphere and now with the commissures cut could never know or be conscious of what a quite different person, once also 'you,' in the other hemisphere was seeing or thinking about. Two persons in one head. (Jaynes, 1976, p. 114)

Although recovery from the operation is gradual, after a year or so the patients do not seem to feel very different than they felt before the operation. Nor would an observer notice any difference. There is no sense of anything obviously amiss. The tests that Michael Gazzaniga (Gazzaniga, 1970) devised were ways of controlling the sensory input of these patients in order to reveal any defects that the commissurotomy might have led to. The researchers needed to be able to control the sensory data that was available to the patient and to isolate the availability of sensory data to only the half of the brain that they were testing at a given point.

The tests conducted on the commissurotomised patients were mainly variants of a test in which the patient was required to fixate on the centre of a translucent screen whilst photographic slides of objects or scenes were projected onto the screen from behind. Of the sense modalities, only olfactory fibres do not cross en route to the sense cortices of the brain. All other inputs to the sense modalities on the left register in the right hemisphere of the brain and vice versa. Projections on the left side of the screen are thus 'seen' only by the right hemisphere of the brain.

Visual material can be presented selectively to one or the other or both hemispheres as desired, by having the patient fix his gaze on a designated point on the viewing screen. Pictures of objects and other visual stimuli are flashed to the left and right halves of the subject's visual field using tachistoscopic exposure times of 1/10 sec or less. The brief exposure insures that stimuli intended for a given half-field will not be projected into the wrong hemisphere through scanning movement of the eyes. Visual material seen to the right side of the vertical midline is projected to the left hemisphere and vice versa. (Sperry, Gazzaniga and Bogen, 1969, p. 277) In most people language and speech are a speciality of the left side of the brain. Ordinarily only the left hemisphere of the brain has access to language and, in the way Jaynes suggests, information or processes from the right side of the brain are inaccessible to those persons who have had commissurotomies, (or are available to them but 'inexplicably'). In these tests the right side of the brain also has the stimulation of visual data and 'sees' as well as the left hemisphere, but can't convey it to the other sphere (where articulated language typically resides).

When stimuli fall in the left-field, however, in a random right-left presentation schedule, the subject's comments indicate he did not see the stimulus. If further questioned, he usually insists he saw 'nothing' or at most, a 'flash of light'. In literally hundreds of such test trials, conducted over the past three years, the commissurotomized patients have remained consistently unable to describe in speech or writing pictures or objects presented visually to the left side of the vertical meridian. (Sperry, Gazzaniga and Bogen, 1969, p. 277)

The patient is not 'aware' of any visual sense data available only to the right hemisphere (by means of the left eye), but can often respond, to their own confusion, as if cognizant of that visual information. When the patient is asked to point with their left hand (controlled by the right hemisphere) to a picture they have just seen only with the right hemisphere, they will do so correctly more often than chance could dictate and whilst maintaining that they saw nothing at all.

If two different figures are flashed simultaneously to the right and left visual fields, as, for example, a 'dollar sign' on the left and a 'question mark' on the right, and the subject is asked to draw what he saw, using the left hand out of sight under a screen, he draws the dollar sign. But asked what he has just drawn out of sight, he insists it was the question mark. In other words, the one hemisphere does not know what the other hemisphere has been doing. (Jaynes, 1976, p. 115)

The right hemisphere of the patient's brain can also respond emotionally without the left hemisphere knowing or understanding what the emotion concerns, or by what it was prompted, or even that it is feeling anything. Enough of the emotion reaches both hemispheres through the limbic system of the mid-brain where the hemispheres are still linked for the emotion to be 'felt,' but not enough of the exclusively visual data that would make the feeling understandable in terms of its prompts. In an experiment unpleasant odours were presented to the right nostril (olfactory fibres do not cross); the 'talking' left hemisphere could not name the smell, but could respond to the smell's nastiness by pulling faces and exclaiming 'ugh!'

There appears to be an improbable division of roles between the two hemispheres of any one brain. Assessing and updating knowledge of what the brain has been doing, and interpreting it for the brain as a whole, seem to be roles played somewhere in the left hemisphere. The specific emotional response of displeasure, though, seems commonly triggered by some agency of the right hemisphere. Thus:

In test situations, where the speechless right hemisphere is made to know the correct answer, and then hears the left dominant hemisphere making obvious verbal mistakes, the patient may frown, wince, or shake his head. It is not simply a way of speaking to say that the right hemisphere is annoyed at the erroneous vocal responses of the other. (Jaynes, 1976, p. 117)

Daniel Dennett has described this process as the shifting of the 'centre of narrative gravity' (Dennett quoted in Kinsbourne, 1988, p. 250); moment by moment attention focuses in one hemisphere and then the other as if there were 'two fields of awareness'. After commissurotomy these two fields of awareness have not the connection to 'co-ordinate' and yet they overlap in what they attend to. Each side of the brain could 'tell a story' to which the other side of the brain is not reconciled. Marcel Kinsbourne describes a test of commissurotomised patients in which:

Patients were simultaneously presented with one incomplete form just right of the

fixation point and another one just left; for instance, three sides of a square open centrally to the right and two sides of a triangle open centrally to the left. The patient reports a complete square (picking it out with the right hand) and a complete triangle (picking it out with left hand). The patient discerns no contradiction in identifying two totally different objects in the same location in the visual field. (Kinsbourne, 1988, p. 250)

It is normal for the two hemispheres to receive different inputs even in people who haven't undergone a commissurotomy. In the normally integrated brain a more 'complete' representation of events is constructed, incorporating the 'evidence' of both spheres. But, in commissurotomised patients, any incongruity between the differing tales of experience from the two spheres is not branched and any discontinuity is not homogenized. All this experiment does is highlight a division that occurs normally, and the work that usually has to be done in homogenizing a 'picture' of events – both as the events take place and in retrospect. Two, even contradictory, pictures of events can paradoxically co-exist without conflict. Marcel Kinsbourne has argued that:

In so far as the cognitive strengths and emotional proclivities of each hemisphere are not the same, processing of, and response to, the onrush of events would to some extent differ, further amplifying discrepancies in the experiences of the two hemispheres. (Kinsbourne, 1988, p. 252)

That is: given the different proclivities of the two halves of the brain, more than one

'mind' could be said to be in existence. And this is not purely a feature of

commissurotomy.

Awareness is a property of neural networks, not of any particular locus in the brain. Were it possible further to subdivide the human brain, there is no reason in principle why several or many independently aware neural systems might result. They would not be as perfectly equipped with a full range of input and output facilities as each hemisphere is, but that is matter of detail, not principle. The only theoretical limit on the size of the set of consciousnesses would be the (as yet unknown) level of system complexity below which neurons are not able to actualise their potential for generating representations of which the individual is aware. (Kinsbourne, 1988, p. 252) Even in the normally integrated brain, it really is as if two separate brains were viewing the left or right halves of the visual field. The right half sees (with left eye) but cannot convey, not having the language to do so. The only difference in commissurotomised patients is the lack of direct contact between the gnostic experiences of the one half of the brain with those of the other half. But if direct access to the visual sensations, percepts, memories, etc. between one half of the brain and the other is not available there are still indirect means of access. In tests:

Objects to be verbally identified must be kept away from the right hand and from the head and face. In many tests the major hemisphere must be prevented from talking and thus giving away the answer to the minor hemisphere through auditory channels. Similarly the minor hemisphere must be prevented so far as possible from giving nonverbal signals of various kinds to the major hemisphere. There are many ways in which an informed hemisphere can cue in the uninformed hemisphere and hence conceal the commissural defect in unrestricted behaviour. (Sperry, Gazzaniga and Bogen, 1969, p. 285)

What happens in the normally integrated brain is a more direct conferring to 'get the story straight'. Some effort is made within the brain to present a unified front. Incongruities and discrepancies are smoothed over and any gaps are filled in by fabrication or rationalization. One ordinarily opts for the impoverished whole at the expense of the fertile diaspora. Why do we persist with a unitary model of self despite physiological evidence which contradicts this model? The evidence of the commissurotomy research points to a human brain which unifies only by distinct efforts to conspire. The default model of self would have to be something more plural, something more in line with Bakhtin's (1920s/1983, p. 119) dialogic principle. The vocal conspiracy of inner speech is conducted in voices we can only partially lay claim to, for they are 'overheard,' or 'borrowed,' or 'adopted'. The discrepancies, and efforts to unify, highlighted by commissurotomy research indicate something about the 'human mind' which is seemingly unpalatable to the human mind; we are aghast at our finitude and yet abhorred by our plurality. With regard to the commissurotomy research, Thomas Nagel

has put it that:

The concept of a person might possibly survive an application to cases which require us to speak of two or more persons in one body, but it seems strongly committed to some form of whole number countability. Since even this seems open to doubt, it is possible that the ordinary, simple idea of a single person will come to seem quaint some day, when the complexities of the human control system become clearer and we become less certain that there is anything very important that we are <u>one</u> of. But it is also possible that we shall be unable to abandon the idea no matter what we discover. (Nagel, 1971, p. 164)

We are bewitched by this unitary analogue we regard in the mirror of self-perception:

bewitched by its unity and by its analogous quality.

Chapter Seven: Making up stories

There is a neurological condition known as 'blindsight' (Weiskrantz, 1988, p. 188). A person with this condition has suffered damage to the visual cortex of the occipital lobes of their brain. This area of the brain is identified as the primary visual cortex because it is where most of the nerve fibres from the retinae terminate. It is the 'activation' of this part of the brain that generates the neural activity that is the physiological correlate of 'visual consciousness'. A person with damage to this area of their brain suffers from 'cortical blindness'; that is, their eyes are undamaged and functioning, but they are not conscious of seeing anything.

If you were to hold up an object to a person with blindsight and ask them to identify it, they cannot. But if you were to offer them options to confirm what they had seen, perhaps asking them to identify from a choice of objects by pointing, their rate of correct identification is far above that of lucky guesswork. Of this phenomenon, Antonio

Damasio comments:

This indicates that some correct processing is taking place such that the structures in charge of movement can guide the arm and finger in the appropriate direction even if part of the information underlying that process is not made available to the process of consciousness making. (Damasio, 2000, p. 268)

Information from this kind of research is often used to illustrate that one can 'by-pass' the main areas of 'consciousness' in the brain and still function adequately. This by-passing of consciousness is probably a common feature of our existence. Dreaming is an example. Patricia Smith Churchland has written that:

Copies of the signals sent to the occulo-motor muscles from the brain-stem structures (what is called 'efference-copy') probably reach cortical areas [undamaged in persons with 'blindsight'], and may be a significant component in the information the cortical

networks try to incorporate into a coherent picture. (Churchland, 1988, p. 299)

During 'dream sleep,' of course, there is no signal at the visual-perceptual periphery; the eyes are not seeing anything but the brain is.

There is a further neurological condition known as Anton's syndrome (identified by G. Anton in 1899). Persons with Anton's syndrome are cortically blind but assert that they can see. Whereas people with blindsight insist they are blind but are able to make visual identifications during tests, people with Anton's syndrome are equally as cortically blind and yet insist that they can see. People with Anton's syndrome act and speak as if they can see as well as ever and their conversation is often full of allusions to a visual reality that doesn't, in a sense, exist and that often conflicts with the physical reality those around them can actually see. They will persist in behaving as if they could see even at the expense of bumping into things, and will vocally rationalize as to why they might seem blind but are really not so. This process of rationalizing is also known as 'confabulation' (that is, 'telling tales').

Anton's syndrome is also described as 'visual form agnosia' and it relates to the wider neurological classification of 'anosognosia' (from Greek, and literally translating as 'not knowing of one's disease'). In a classic example of anosognosia, a patient who has suffered a stroke and is entirely paralysed in the left side of their body, and unable to stand or walk, will nonetheless claim that there is nothing wrong with them. Patients whose brain lesions affect only the right side of their body do not develop anosognosia. Anosognosia only occurs in patients who have suffered right hemisphere brain damage. I quote here an example from the work of Mark Solms and Oliver Turnbull:

A patient who claims that she is able to run is asked why she is in a wheelchair; she

might respond: 'There was nowhere else to sit.' If asked why she is not moving her left arm, she would say something like: 'I exercised it a lot earlier today, so I'm resting it.' And so on. These patients seem prepared to believe anything, so long as it excludes admitting they are ill...This is literally true. Not uncommonly these patients make bizarre claims about their paralysed limbs, such as denying that their paralysed arm belongs to them and saying that it belongs to someone else. (Solms and Turnbull, 2002, p. 262)

What is probably most extraordinary about this condition is the seeming anomaly of the patient's inability to sense the defect automatically, instantly and internally through the body's sensory system. It is within their body that so much change has occurred, and so rapidly, and it is about their person that they could find such evident change; why don't they feel such a change when we can assume they have special knowledge of it? Given that this change in the functioning of their body is obvious to all observing and requires no special knowledge, the patient's lack of insight (if that is what it is) is even more disturbing. What is disturbing is that a person can be oblivious to this most glaring alteration in their bodily condition.

It seems to be not just obliviousness but denial (though of course it is consciously neither of these behavioural traits). It was discovered in 1991 that if one pours cold water in the left ear of a patient with anosognosia, the effects of caloric stimulation (causing the area to warm itself up) means that the neglect disappears. This is interpreted by V. S. Ramachandran (1994) as a "temporary, artificial correction of the attentional imbalance between the spheres" (Ramachandran in Solms and Kaplan-Solms, 2000, p. 157).

Ramachandran (1994) tried this experiment on a patient who had consistently denied the paralysis that afflicted the left side of her body. In the after effects of administering 10 ml of ice-water into her left ear the patient not only acknowledged her paralysis, but also acknowledged that she had been paralysed consistently since she had suffered the stroke which had so afflicted her. Eight hours later the caloric effects had worn off and the patient was again denying any paralysis, and denying that she had ever made a statement that might indicate she acknowledged the paralysis.

Even arch 'physicalists' (Wilkes, 1978) have trouble explaining this feature of anosognosia and its related syndromes; Antonio Damasio writes:

I have suggested that anosognosia results primarily from an inability to represent current body states automatically and through the appropriate signalling channels, which are those of the somatosensory system. In one form or another, this is the most frequent explanation of the problem. But although the traditional explanation may well clarify the main source of the disturbance, we also need to explain why, after patients are specifically told that they are paralysed, they fail to remember such an important verbal statement a few minutes later. And why, even after they see that they are paralysed and concur that they are unable to move the left limbs in the same way that they move the right, they also fail to remember such visually presented facts when questioned sometime later. To explain the aspect of anosognosia that allows someone to hold a persistent false belief in spite of having received information to the contrary we need to invoke something more complicated than mere lack of somatosensory updating. (Damasio, 2000, p. 211)

It seems to be a feature of the brain to complete a picture even if that means fabrication, or substitution, or elision, even if it means falsifying known facts, or denying self-evident truths. The body longs for completion, or wholeness, and yet is aghast at its finitude. It is appallingly curtailed and yet open-ended.

If we sometimes disclaim areas of our bodies (and we know of occasions when we would like to have done), what is odd about this? Or, our whole bodies: 'Something came over me,' 'I'm not feeling myself today,' etc.?

Michael Gazzaniga (Gazzaniga, 1970) was the man responsible for devising the tests

used to examine the commisurotomised patients I describe in the chapter of this thesis

titled Other Selves. Gazzaniga describes one of the tests:

[An] example of the left brain interpreting actions produced by the disconnected right brain, involves lateralizing a written command, such as 'laugh,' to the right

hemisphere by tachistoscopically presenting it to the left visual field. After the stimulus is presented, the patient laughs and, when asked why, says: 'You guys come up and test us every month. What a way to make a living.' In still another example, if the command 'walk' is flashed to the right hemisphere, the patients will typically stand up and begin to leave the testing van. When asked where he is going, the left brain says: 'I'm going into the house to get a coke.' However you manipulate this type of test, it always yields the same kind of result. (Gazzaniga, 1988, p. 234)

What if the stimulus in such a test had a more emotional relevance to the patient? In

one of the more written-about tests used in the work of Gazzaniga, Sperry and Bogen,

pornographic pictures were included amongst the images they projected to the isolated

right hemisphere of a commissurotomised patient. Julian Jaynes reported the experiment:

If among a series of neutral geometric figures being flashed to the right and left visual fields at random, which means respectively into the left and right hemispheres, and then a picture of a nude girl by surprise is flashed on the left side going into the right hemisphere, the patient (really the patient's left hemisphere) says that it saw nothing or just a flash of light. But the grinning, blushing, and giggling during the next minute contradicts what the speech hemisphere has just said. Asked what all the grinning is about, the left or speech hemisphere replies that it has no idea. These facial expressions and blushings, incidentally, are not confined to one side of the face, being mediated through the deep interconnections of the brainstem. The expression of affect is not a cortical matter. (Jaynes, 1976, p. 116)

These test results tell us a particular story about the lateralizing of feelings, or affects, or

emotional response. Sperry, Gazzaniga and Bogen (1969) make the following conclusion

following their report of the experiments:

The minor hemisphere also appears to possess distinctively human emotional sensitivity and expression. This is indicated in situations where information conducive to emotional response is restricted to the right hemisphere. Reactions of pleasure, annoyance, amusement, embarrassment, and the like, are evident in the facial expressions of the subject at times when the major hemisphere is ignorant of the cause and reason for these reactions. If the subject is asked at such a time why he is so pleased, annoyed, amused, or embarrassed he (the major hemisphere) is unable to explain and may resort to confabulation. It is interesting that an emotional tone generated in the minor hemisphere can spread into the opposite hemisphere. This we infer when the subjects verbalize the general emotional effect with words like 'nice,' 'pretty,' 'funny,' or 'ugh!', but remain incapable at the time of describing the particular stimulus that caused the reaction. It remains uncertain whether this

inter-hemispheric transfer of emotion is effected through feedback from the periphery or via intact brainstem connections. (Sperry, Gazzaniga and Bogen, 1969, p. 287)

In his studies of amnesia Daniel Schacter (Schacter, Harbluk and McLachlan, 1984) suggests that amnesia may frequently be more accurately described as 'source-amnesia'. That is: often persons suffering from amnesia remember the content of an event but not its source; they remember details of what has happened to them but not 'why' it happened, or the events that led up to it – its context. And what they do during tasks demanding identification of the source is to confabulate a source that they then quickly believe to be the source. Michael Gazzaniga has commented that his work and the work of Schacter point to:

A brain model that is heavily committed to parallel processes that are co-active in our conscious lives. Their function proceeds as it must, and as do most other physiological processes, outside of our awareness. Coralling all of these activities and making sense of them appears to be the function of special processes present in the left brain of humans. This function, the interpretive function, works on the products of the modular activities to build a schema that can explain the logic behind all the ongoing activity that results in a behaviour. Behaving, alas, becomes a powerful determinant in what we come to believe as true. (Gazzaniga, 1988, p. 236)

Do these test results really tell us anything about how a person with a normally integrated brain behaves in ordinary life? Is the rationalization and confabulation that appears in these tests a feature of life only after commissurotomy (or of the anosognosia in the previous examples in this chapter)?

Social psychologists Nisbett and Ross (1980) experimented with everyday situations that might elicit this confabulatory behaviour in any of us. In an American shopping mall they made available a sale tray of pairs of tights, from which the mall's female customers were invited to choose a pair they liked best. The tights were identical. The tights chosen by the shoppers came predominantly from the right-hand side of the table from which

they were choosing.

There was a pronounced position effect on evaluations, such that the right-most garments were heavily preferred to the left-most garments. When questioned about the effect of the garments' position on their choices, virtually all subjects denied such an influence (usually with a tone of annoyance or of concern for the experimenter's sanity). (Nisbett and Ross, 1980, p.206)

The explanations given by the shoppers referred to non-existent differences relating to the

softness of the tights or differences in the care taken with their construction. None of the

shoppers cited the right-hand positioning of their chosen tights, which in the analysed

data was seen to be the dominant causal factor in their choice making. Of the results of

this experiment Patricia Smith Churchland has concluded:

The regular appearance of confabulation in ordinary, everyday explanations of one's behaviour suggests that we do not have anything like unmediated access to our desires, beliefs, decisions, or intentions. This confabulation seems to be normal, inveterate, and habitual, and does not involve anything like Freudian repression, nor is it done with deliberate or conscious awareness. There are many other studies showing similar results, and they strongly suggest that theorizing about one's motives, intentions, and other internal states is not anomalous, but commonplace. (Churchland, 1988, p. 289)

An honest declaration of our intent might be given as: 'I do not know who I am, but I shall lie that I do, and I shall make up stories to substantiate these lies. All of this shall pass unnoticed by my supposedly conscious self, as I believe my own lies. To my mind, all is continuity; why doubt, even when there is evidence to the contrary.' And who would dare see the vacuity of their own intent? There is nobody in occupation of ourselves except as we say there is, and what we say accords to something other than the facts. To what truths do our claims for ourselves accord? Who or what is the mystic judge of our veracity? Or by invoking veracity and truth am I missing the point?

In the preceding chapters of this thesis, selfhood and consciousness have been increasingly shown to be vague conceits. The terms with which we refer to them, and define them, may be practical in folk psychological use, but there are many concepts that survive folk psychological use whilst remaining deliberately heterogeneous or even fallacious (consider 'sakes' etc.). Just because we can commonly refer to a thing does not mean it exists: the sun, for instance, does not rise. Bestowing 'thinghood' is a property of language that can mislead. Medical science, though, needs to deal in terms that are clear and unambiguous.

In her essay ----, yishi, duh, um, and consciousness Kathleen Wilkes (1988a) points out that the English term 'conscious' is, in its present range of senses, only three centuries old. Yet the term is fundamental to accounts of human life in contemporary psychology and neuroscience. Did Europeans have to wait until the seventeenth century to recognize their selves in the mirror? Who put their trousers on before they became 'conscious' at that recent date? Wilkes puts it:

The problem of whether 'conscious(ness)' - and, albeit to a lesser extent, 'mind' – must be central to present and future theory deserves discussion; i.e. whether either picks out genuine or central <u>explananda</u> for the science. (Wilkes, 1988a, p. 16)

English before the seventeenth century lacked the terms 'conscious(ness)' and 'mind'. When the referents seem so crucial to us, how could they have escaped the attention of our English-speaking forebears? Wilkes points out that those who countenance the obviousness of consciousness would give it as something easily recognizable; recognizable in the manner that tigers are rather than in the manner that electrons are. Most contemporary science has an attitude to consciousness which could be given as: we know we have it, now how to describe and explain it? Given the central and transparent role consciousness and mind play in psychological models of self, how could the English language until recently so insouciantly lack terms for what they represent?

To indicate the 'chaotic' definition of the term 'mind' Kathleen Wilkes describes the complexity of finding an equivalent for the term in other languages. Wilkes's confusion also indicates how a definition for the term varies between disciplines. Working with Croatian psychologists and philosophers, Wilkes asks how they would translate the English term 'mind' into their own language:

'Um' was a popular candidate. One defender, a professional psychologist, was certain that this was really an exact translation, and hence that 'uman' translated as 'mental'. But two philosophers preferred 'duh', while conceding that 'duh' was not really all that close; and 'dusevni' as the adjective. Opposition to 'um' stemmed from the fact that it seemed too intellectual, focusing rather on rationality, wisdom, controlled emotions. It is not exclusively 'rational': 'razum' is the direct translation for analytical reason, and 'um' is a bit more synthetic than that, with a suggestion of value judgment; but 'um' is still closer to the Greek sophia than to the English 'mind'. Thus, no more than sophia, it cannot readily serve to capture the irrational, uncontrolled, irresponsible thoughts and feelings that 'mind' allows for. 'Duh', however, smacked rather too much of 'spiritual' to translate the term 'mind' smoothly. Interestingly, a (Slovenian) psychology textbook of 1924 (Veber 1924) freely employed derivatives of both terms: an alternative to 'psihologija' (psychology) was 'duseslovje', and 'telo in dusa' was the phrase used to express the contrast of mind with body ('telo'); but it equally talked of the 'psihologija umskega dozivljanja'... ('Um', and 'duh' seemed to be the only serious contenders; but it illustrates well the chaos of the English term to note that in a medium-sized English-Croatian dictionary there were no fewer than ten terms offered alongside 'mind'.) (Wilkes, 1988a, pp. 30-31)

The fine calibration of definitions is axiomatically impossible in translation, and there are

arguably no direct correlates between languages. The point being that in this instance the

translator's confusion equates to a confused definition for the term being translated.

'Mind' is blurry in what it signifies, and the term carries with it such unwieldy baggage

that perhaps no equivalent term is capacious enough to fit it. Translating from the

Croatian terms into English would equally miss the meanings meant to carry.

If the term 'consciousness' goes missing from one's language is there anything less one can talk about? Not even a cardiologist can tell you precisely when their patient becomes conscious or unconscious (Van Lommel, 2004, p. 125) and the cardiologist's criteria for assessing consciousness is much cruder than you or I would use. Different kinds of medical practitioners are looking for different things when they are looking for 'consciousness' and there is certainly not an easy or homogenous natural kind for them to search for. This thesis has quoted data from research into epilepsy. There, particularly, consciousness is hard to define due to 'automatic' states and the role that autobiographical memories have at the onset of, and during, epileptic seizures.

If one cannot define consciousness by these medical frames of reference, to what are we referring with our ordinary unscientific use of the word 'consciousness', or with the use of that word in philosophy or psychology? If the referent of our folk psychological use of the term 'consciousness' does not correspond to a neurological or physiological definition, how is it different to the 'life spark' (or any similar pre-scientific term) referred to by medieval or earlier writers?

In her essay ----, yishi, duh, um, and consciousness Kathleen Wilkes considers whether consciousness can be considered a 'natural kind' (Wilkes, 1988a, p. 32). If the question were asked 'what does science describe and explain?' the answer could be given as 'natural kinds'. Natural Kinds are:

Systematically fruitful explananda and explanantia, where members of the kind are held together and governed by law(s) (and sometimes by symmetry principles, or descriptions of structural isomorphism). (Wilkes, 1988a, p. 32)

The terms 'explananda' and 'explanantia' derive from Aristotle's explanation of the 'Four Causes'. That which needs to be explained we call the 'explanandum' (pl.

explananda) and that which serves to explain it we call the 'explanans' (pl. explanantia).

Aristotle took there to be four kinds of explanation, answering four different kinds of

questions:

A thing is called a cause in one way if it is a constituent from which something comes to be (for example, bronze of the statue, silver of the goblet, and their genera); in another way if it is the form and pattern, that is, the formula of its essence, and the genera of this (for example 2:1, and in general number, of the octave), and the parts present in the account; again, if it is the source of the first principle of change or rest (for example, the man who deliberates is a cause, and the father of the child, and in general the maker of what is being made and the changer of what is changing); again, if it is a goal – that is, that for the sake of which (for example, health of walking – Why is he walking? – we say: 'In order to be healthy', and in so saying we think we have stated the cause); and also those things which, when something else has initiated a change, stand in between the changer and the goal – for example, slimming or purging or drugs or instruments of health; for all these are for the sake of the goal, and they differ from one another in being some instruments and some actions. (Aristotle quoted in Barnes, 1982/2000, pp. 83-84)

There is a difference between scientific language and everyday language (as if this thesis had not already made that clear). Everyday language can be flexible and contextually nuance-ridden. Scientific language aims for inflexibly precise terms that are contextually neutral. When science appropriates terms from everyday language it aims for terms that refer to natural kinds and which will respond to systematic exploration. Thus, to use Wilkes's examples: 'gold' but not 'briefcases', and 'tigers' but not 'fences' (Wilkes, 1988a p. 32). Even if science discerns natural kind status in a term from ordinary language, it is most often the case that science still needs to adapt the term for its use. For scientific use the term needs to be refined of its "context-dependency, vagueness, and imprecision" (Wilkes, 1988a, p. 33). Consider the contrast in definitions between the scientific and everyday uses of the terms 'mass' and 'charm'.

Some natural kinds are clearly governed by laws or principles that define all the members of the kind, for example: 'gold' or 'tiger'. In other natural kinds some laws

apply to most, only, of the constituent members and other laws apply only to 'sub classes' of the natural kind. Consider 'metal' or 'acid' as examples of these 'cluster' natural kinds. The groups are still natural kinds rather than arbitrary sets and even in the case of cluster natural kinds the laws governing the sub classes may have "significant structural analogy, or isomorphism" (Wilkes, 1988a, p. 32).

(Structural) isomorphism is a useful term in understanding what is meant by 'natural kinds', but the two terms are not synonymous. In biology the term isomorphism refers to that similarity in organisms of different ancestry that has resulted from evolutionary convergence. It refers to a similarity of identity of form, or shape, or structure. Again we can refer to Aristotle's four causes: isomorphism describes similarities in form, matter, and 'coming into being'. It also describes 'what it is tending towards'. If one considers a human baby as the explanandum, its 'efficient causes' are its parents and, though its 'final cause' is potentially a human adult, it is not the same though similar to the human adults who were the baby's 'efficient cause'.

Science borrows its natural kind terms from everyday language: consider 'mass', 'acceleration' and 'charm'. These terms are necessarily context-ridden when adopted, and biased towards an experience that is human. Everyday language in its form as 'folk taxonomy' or 'folk psychology' gestures towards 'somethings' that may or may not exist as science views things. Science may use the terms with the same sense but constitute their meaning very differently from the everyday use: that gold has the atomic number 79 does not indicate its value in a pawn shop. In the currency of everyday expression and communication it is useful and understandable to point to something we can call 'memory', despite the problems we would have explaining what we mean by the term.

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Even if a term from everyday language can be adopted by science to refer to a natural kind, the refining and adaptation of that term for its use in science indicates how terms thought unitary and exclusive in ordinary use are too impossibly heterogeneous for scientific laws to interestingly or fruitfully apply. This suggests the selective interest of science in human experience and also the imprecision of folk psychological terms despite their use value and applicability. An imprecision or effective meaninglessness does not discount the validity of folk psychological terms as regards everyday use. The efficacy of a scientific term does not ensure its use value for the humans whose experience it refers to, and as such these scientific terms do not have application to referents outside of their science. Discourse is bound to context, and discourse confers meaning.

In everyday language we point to things that may or may not be there at all. Wilkes points out that, "We do something for some-one's <u>sake;</u>...we give someone a piece of our mind, have something weighing on our mind, or at the back of it" (Wilkes, 1988a, p. 32). Psychology, also, has very few clear and unambiguous terms. The term 'conscious(ness)' is too heterogeneous to form even a cluster natural kind. As Wilkes puts it:

There are thousand upon thousand of ordinary language psychological terms, of which 'conscious' is but one – it is one that does not even exist in other languages with the same range and scope; before 'adopting' it, there should be some reason to think that doing so will serve a genuine theoretical need. (Wilkes, 1988a, p. 38)

Wilkes draws an analogy with 'intelligence':

'Consciousness' should be regarded as a second-order concept; 'intelligence', which certainly is so regarded, provides a useful analogy. Nothing is called intelligent if it can perform just one, or a very few, tasks well, even if it does them with extreme efficiency and sophistication; spiders building intricate webs, fish and birds travelling unerringly thousands of miles, chess playing computers, pocket calculators or the 'idiots savants' who can juggle numbers with lightning speed – none of these is intelligent. Intelligence is ascribed as a function of the degrees of skill, flexibility and originality with which a number of tasks of diverse sorts can be performed. Put another way: I.Q. tests do not tests intelligence, but rather test performance at a set of first-order tasks, and intelligence is ascribed to the extent that these are well done. It is thus a second-order predicate in the sense that its ascription rides pick-a-back upon the ascribability of a number of directly testable predicates. That it has a healthy adverbial form ('intelligently') bears out the claim that it is not a first-order ascription, since first-order ascriptions tend to lack the adverbial cognate. (Wilkes, 1984, p. 237)

Conscious(ness) is a folk psychological term that is so generous in scope and reference that it is 'damned by a thousand qualifications'. In some forms of philosophical logic that would be enough to prove that the term's referent does not exist at all. In folk psychology it does not matter whether the term has a referent as long as it has use value. That the term 'consciousness', in ordinary language use, has no precise definition does not make it unusual as very few such terms do. To an extent these are 'unthought knowns' in ordinary language and they have cultural currency even if they cannot be examined. As other languages and cultures indicate, however, one could do just as well without terms equivalent to 'consciousness' or 'self' or 'mind'.

Menzel and Juno (1985) have picked out the problems of natural kind definition, again with reference to 'intelligence'. Their studies of the social foraging of marmoset monkeys lead to larger questions regarding measurements of 'animal intelligence'. The imposition of an order of 'general intelligence' is shown, in Menzel and Juno's study, to be an arbitrary and misleading bracketing of abilities.

Marmoset intelligence, as we see it, is whatever marmosets do, especially if it gives them an advantage over their competitors... Speaking more generally: although 'the ability to quickly solve new problems' or 'to apprehend the relationships between novel presented facts and organize one's actions accordingly' constitute the major ingredients of most definitions of intelligence, most 'standardized' tests of this hypothetical process, if not this definition as such, amount largely to definitions of *human* intelligence. Before animals are confronted with any given test situation, every species if not every individual has faced a different set of problems and developed a different set of strategies for solving them. These strategies might well all be optimal. Furthermore, depending largely upon how one's test situation and test criteria are loaded for or against it, almost any animal might in principle be made to rank either at the top or bottom of one's unidimensional quantitative scale of so-called correct responses. (Menzel and Juno, 1985, p. 155)

From throwing light on the species-biased criteria for discriminating 'animal intelligence,' Menzel and Juno are drawn by their study into questioning the essentialism of kind-based thinking, and thence to questioning the value of 'intelligence' as a useful taxonomic concept.

axononne concept.

To most of humanity some animals quite simply look smarter and seem to act smarter than others. The fact that the smart-looking ones happen to be our own fairly close kin is no accident... This, however, is only to say that judgments regarding intelligence might best be viewed as folk taxonomy rather than scientific taxonomy, and that no taxonomist should trust any external 'field marker' implicitly, let alone treat it as a sufficient definition of his or her genotypic concepts. Species do not have any platonic 'essence'; and neither does intelligence. (Menzel and Juno, 1985, p. 156)

Aside from the scientific implausibility of some folk psychological terms of reference,

this point also tells us something about the implausibility of searching human experience

for the referents of scientific terms. There is a problem with 'kind'-based thinking:

science makes use of kinds in a way that seems superficially similar to the intuitive

taxonomy that we use all the time. These intuitive inductions into a taxonomy support the

initial scientific enquiry, but often science departs in its classificatory references.

[One] taxonomic example is the grouping of kangaroos, opossums, and marsupial mice in a single kind, marsupials, while excluding ordinary mice. By primitive standards the marsupial mouse is more similar to the ordinary mouse than to the kangaroo; by theoretical standards the reverse is true... A theoretical kind need not be a modification of an intuitive one. It may issue from theory full-blown, without antecedents; for instance the kind which comprises positively charged particles. (Quine, 1969, p. 128)

W. V. Quine (1969) has argued that we use this taxonomic similarity notion, or

'spacing of qualities', from our earliest development. Language learning would seem to

be very difficult without this facility, as would any prediction in the physical world.

These learnt groupings of characteristics inform the scientific classification of kinds:

Between an innate similarity notion or spacing of qualities and a scientifically sophisticated one, there are all gradations. Sciences, after all, differ from common sense only in degree of methodological sophistication. Our experiences from earliest infancy are bound to have overlaid our innate spacing of qualities by modifying and supplementing our grouping habits little by little, inclining us more and more to an appreciation of theoretical kinds and similarities, long before we reach the point of studying science systematically as such. Moreover, the later phases do not wholly supersede the earlier; we retain different similarity standards, different systems of kinds, for use in different contexts. We all still say that a marsupial mouse is more like an ordinary mouse than a kangaroo, except when we are concerned with genetic matters. Something like our innate quality space continues to function alongside the more sophisticated regroupings that have been found by scientific experience to facilitate induction. (Quine, 1969, p. 129)

Here is the problem of context. Presumably the standpoint of the subject constitutes part

of the context. Standpoint must incorporate the particular functional capacities of the

human being. These capacities are not so much flawed as particular, and particular to the

species.

Nothing in experience, surely, is more vivid and conspicuous than colour and its contrasts. And the remarkable fact, which has impressed scientists and philosophers as far back at least as Galileo and Descartes, is that the distinctions that matter for basic physical theory are mostly independent of colour contrasts. Colour impresses man; raven black impresses Hempel; emerald green impresses Goodman. But colour is cosmically secondary. Even slight differences in sensory mechanisms from species to species, Smart remarks, can make overwhelming differences in the grouping of things by colour. Colour is king in our innate quality space, but undistinguished in cosmic circles. Cosmically, colours would not qualify as kinds. (Quine, 1969, p. 127)

Quine indicates that we learn language by means of ostension. By 'ostension' it is

meant that we learn by resort to samples: we know what to call yellow (for instance) by

hearing what is referred to by that designation.

Similarity being a matter of degree, one has to learn by trial and error how reddish or brownish or greenish a thing can be and still be counted yellow. When he finds he has applied the word too far out, he can use the false cases as samples to the contrary: and then he can proceed to guess whether further cases are yellow or not by considering whether they are more similar to the in-group or the out-group. What one thus uses, even at this primitive stage of learning, is a fully functioning sense of similarity, and relative similarity at that: a is more similar to b than to c. (Quine, 1969, p. 121-122)

Does this model of language learning apply to, for instance, emotional states? There is probably something more at stake in referring accurately to one's anger than to the colour of one's eyes. How can one know one has pointed accurately to one's emotional state, or even that emotional states have names? These states would seem to indicate who is being referred to, and what is at stake by referring at all, rather than just accurate naming and ease of designation.

Ventriloquism is a kind of disowning of the body, and of the rights to designation. Any ventriloquist can speak through any dummy and nothing is amiss. Films and stories representing ventriloquism often represent a magical disjuncture with the body. Take, for instance, the most famous of all representations of ventriloquism on screen: Dead of Night (1945). Dead of Night is a portmanteau film which forms its plot around a gathering at a country house party. A character played by Mervyn Johns is (unbeknownst to the other guests) prey to some sort of psychosis. He has premonitions about a disaster to befall the party and the guests begin to tell each other stories about similarly paranormal events. A psychiatrist amongst the group tells a story of a ventriloquist (played by Michael Redgrave) whose strange relationship with his dummy leads to murder. This story is presented in such a way as to always confuse the agency and volition of the characters. Michael Redgrave's character 'Maxwell Frere' is tormented by that of the dummy 'Hugo'. In one scene Hugo appears at the stage curtain to invite a rival ventriloquist in the audience ('Sylvester Kee') backstage to his dressing room. When Sylvester gets there he finds only Hugo, and chats to him alone until Maxwell appears from the bathroom. Maxwell Frere is angry and jealous to find his dummy Hugo chatting

to another ventriloquist about a possible new partnership. How far can a voice be thrown? How far can it be said that Maxwell's character inhabits the dummy, or vice versa?

These stories and images represent a state that is not unique to the ventriloguist act. It can sometimes feel one's body is not one's own because: what does one know of it? One's visual knowledge of one's body is limited to what is externally apparent to all. One has no visual special knowledge of one's body. Fundamentally anything can be going on in there. One can be wrong about the state of one's body. One can, in a sense, be deceived about the state of one's body: phantom pregnancy, or a pregnancy one is not aware of; cancer that develops unknown; there are many 'undiagnosed' diabetics; congenital defects such as aneurisms or hole-in-the-heart. There are many examples to suggest that we have no especial or privileged knowledge of the well-being or otherwise of even one's own body. Are there levels of consciousness that this kind of registerable knowledge passes under like a jet flying under radar? Nor do we 'operate' our bodies with any physiological understanding of its operation. There is no working manual, (though one could perhaps be written: maintain a temperature of between a and b degrees; maintain a pulse rate of between a and b beats per minute, etc.). If one can be wrong or clueless as to the working state of one's body, how much easier to be wrong about the state of one's mind, or one's 'feeling state'.

One would think that it would be easy and obvious to decide whether a person is conscious or unconscious. But apparently it is not. We all have different criteria that we use for making such a decision. It would appear to be a broad spectrum 'between the darkness and the light'. Wilder Penfield was a neurosurgeon whose work on epilepsy and the memories provoked by discrete kindling of the temporal lobes during surgery are discussed in the chapter of this thesis titled *Memories*. Penfield was intrigued by the 'automatic' states that often occurred in his post-ictal patients. ('Ictal' refers to the period during the epileptic seizure and 'post-ictal' refers to the period immediately after it.) Penfield's confusion as to when his patients in an automatic state became 'conscious' highlights the problems that a scientist has with such a loosely defined term as 'consciousness', and why these problems effectively disqualify consciousness as a candidate for natural kind status in science. Penfield's problems defining a moment when unconsciousness becomes consciousness are also problems we might encounter even within the loosely defined terms of ordinary definitions of consciousness. Penfield's confusion or imprecision in this realm highlights the conflict and inaccuracy that arise in any epistemological decision-making concerning states of consciousness. In many cases what looks like a state of wakefulness to a third party may be the utter blackness of amnesia, or dreamless sleep to the person most concerned.

Wilder Penfield devotes part of his epochal work with Herbert Jasper, *Epilepsy and the Functional Anatomy of the Human Brain* (1954), to a discussion of their enquiries into, and observations of, these automatic states. Penfield defines these automatic states:

When a patient develops a state of confusion and amnesia during, or immediately following, an epileptic seizure, but retains his motor control, his behaviour is said to be automatic and the state may be conveniently described as <u>automatism</u>. (Penfield and Jasper, 1954, p. 497)

What is interesting about these states is that it is hard even to know where to place them on a 'spectrum of consciousness'. An automatic state might include some degree of confusion on the part of the patient, or total confusion, or no apparent confusion at all. None of these qualities observed in the patient helps to indicate whether or not they will remember the period observed. The temporary- ictal, or post-ictal patient has not lost motor control but appears to have lost 'understanding' and the capacity to make durable memory records. There is no 'condition', as such, physiologically, only the appearance of one. It is not an event, as such, but a narrative of events. Penfield describes a typical

scenario thus:

In a major seizure a patient suddenly loses consciousness and has a generalized convulsion. There is no evidence of physical activity, only silence. There is gross, purposeless somatic and visceral activity. The return to normal may be much more deliberate. The storm of the convulsion having passed, the patient lies motionless. Electrical potentials in the brain are damped or almost completely absent. The respiratory centres continue to function, although, perhaps imperfectly... If he does not go to sleep and if consciousness is slow to return, he may get up and go about in a confused manner. It is easy to see that his behaviour is automatic. There is for the time being freedom or release from conscious control. In this state, consciousness is apt to return to him gradually. He may first be aware of himself, then of his environment, and finally, after a little confusion, he gains access to memory, to understanding and insight. (Penfield and Jasper, 1954, p. 498)

If the variety of consciousness cannot be described as a spectrum, can it be described

as like a cosmos? Consciousness, surmises Penfield, might be said to be a light made up

of several points:

It may burn brightly, or it may be dimmed or partially extinguished, as in a dream state. It may be completely and suddenly extinguished by deep coma. But this return of the light seems to be gradual, beginning with only a glimmer at one point which is gradually joined by the others until the illumination again seems complete. (Penfield and Jasper, 1954, p. 498)

Although this 'coming to light' may be observed by the doctor to be a gradual process, to the patient it can be black and white. It may seem to the patient (Penfield and Jasper, 1954, p. 498) that there had been complete darkness as in dream-less sleep, and then the complete light of waking. For the patients this period may fall into two distinct categories: that period which the patient remembers and that period which the patient does not remember. It is worth pointing out that 'sleep laboratory' research into the process of dreaming is often characterized by arguments between doctor and patient (despite the use of functional imaging techniques to monitor neural activity) as to when the patient was in fact dreaming (Solms, 2000a).

Not all questions regarding our own state of consciousness can be answered by introspection. But when is it time for an outside observer to assess one's state of consciousness? It is true that one does not always discern accurately regarding one's own states of consciousness (consider dream states, or hallucinations, etc.), but it is also true that one's state of consciousness is not always apparent to even the most skilled third party observer (no matter how hard they look). I am not just referring to the matter of whether one's happiness or sadness is readily apparent to an observer; it is not necessarily clear even to an expert witness whether the actions of those they observe are actions conscious or unconscious.

Biology has a phylogenetic scale. As William Lycan points out:

Nature actually contains a fairly smooth continuum of organisms, ranked roughly by complexity and degree of internal monitoring, integration, and efficient control. Where on this continuum would God tell us that consciousness exists? (Lycan, 1997, p. 767)

Where would a neuro-surgeon tell us that consciousness exists? Extrapolating from automatic states to the ordinary mental states of human life, Wilder Penfield writes that: "We are from moment to moment differently conscious" (Penfield and Jasper, 1954, pp. 498-499). Cannot one be said to be conscious of one's dreams? Isn't one often clear about events in one's dreams and able to report on them upon waking? In his accounts of automatic states Wilder Penfield uses the term 'normally conscious'. A man may be said to be normally conscious,

When he gives evidence that he is aware of his personal environment, and understands his own purposes in a manner which the observer considers to be normal for him. (Penfield and Jasper, 1954, p. 499)

Does it take two people to recognize where consciousness is present, ventriloquist and dummy? Does one need one's manner verified by another as being in line with one's usual behaviour before one can be sure of oneself, or sure one is conscious? Between what is 'normally conscious' and an automatic state, Penfield observes a great variety of 'degrees of consciousness'. There may be a 'dawning awareness of the meaning of things' in which case the patient may be said to be 'partially conscious' like anyone who is inebriated or half-asleep. Penfield makes the observations that:

An individual who is amnesiac for a certain period may or may not have been unconscious during that period. Amnesia should not be taken as the final evidence of a lack of consciousness... A patient who is completely paralysed might be acutely conscious, but we can make no judgment of this fact unless he is capable of some distinctive activity. (Penfield and Jasper, 1954, p. 499)

It is very interesting to read the neurosurgeons Penfield and Jasper equate 'release from conscious control' with 'freedom' (1954, p. 498), as if yearning for another, looser definition of consciousness, an experiential anarchy. (Is 'freedom' a natural kind? Consider 'free radicals'). It is interesting also to read Penfield's confusion regarding

consciousness:

No doubt consciousness is never twice exactly the same thing... This renders definition difficult. Nevertheless, as clinicians, we must not allow this embarrassment to be an insurmountable obstacle. We cannot remain on the 'side lines' for psychological debate. (Penfield and Jasper, 1954, p. 499)

It is only out of shame for his profession's apparent ignorance that Penfield attempts a

definition at all. To end this account of a neurosurgeon's confusion regarding automatic

states I shall repeat a case history of ictal automatism:

This young man complained of epileptic seizures which were ushered in by epigastric aura. An attack was described by our associate, Dr. Frank Echlin, who was watching the patient as he lay asleep in bed in the hospital ward. The first evidence of a seizure was twitching of the right hand followed by convulsive movements of the right arm and generalized stiffening of the whole body. After the major part of the seizure seemed to be over, the patient stood up, but while maintaining an erect posture he became greatly cyanosed and froth came from his mouth. While in this state he moved about in an automatic manner, got down on the floor seeming to search for something, and finally tried to get into a bed that was not his own. When attendants attempted to put him into his own bed, he struggled against them. (Penfield and Jasper, 1954, p. 501)

This would seem to be the perfect example to demonstrate the personal pronoun which floats in the confused and confusing matter of creative agency. What was the 'young man' looking for? I quote at length from this neurosurgeon's concern regarding consciousness and the mind to prove a point: this thesis does not invent difficulties in regard to definition of concepts regarding human mind, or agency, or consciousness. This thesis is not counting angels on the head of a pin and lack of distinction in these most salient points would seem to constitute a point zero of artistic, let alone philosophical or scientific endeavour. Why would a thesis written as part of an artistic practice consider any other nicer point before considering what is in process in the act of self? Art would seem to be mostly a crisis of agency. This thesis takes as its starting point the confusion of Edgar Bergen when struggling to justify his philosophical conversations with a dummy: who is at work here, and where would agency reside in such a dialogue? The binary between consciousness and unconsciousness would seem to be fundamental to an appreciation of the brain's abilities and of the limits of the brain's control over its attendant body; the professional confusion regarding these terms is most telling. This thesis suggests repeatedly that the consensus models of the self forwarded and upheld in the fields of discourse most concerned with its description, indicate a process of ventriloquism where agency slips between dual poles of body and mind and cannot be

tracked to a hiding place. Just as with ventriloquism it is unclear who is doing the talking, and the skill of performance would seem to make this distinction almost redundant. The self seems a complicity of often conflicting agents when analysed as its constituent parts. And not there at all when viewed as a whole.

Chapter Eight: Change

The story of the head-injury suffered by Phineas Gage in 1848 is retold in

neuroscientific literature from the inception of that science in the nineteenth century right

through to recent works by the main figures in the field, (see also the attached illustration

from a contemporary magazine, one unconnected to any field of science and closer to

folk psychology). I here quote a passage from The Brain and the Inner World: An

introduction to the neuroscience of subjective experience (2002) by Mark Solms and

Oliver Turnbull:

In the 1840s, an unfortunate man by the name of Phineas Gage was laying railway tracks in the Midwestern United States. He was pressing down a charge of dynamite into a rock formation, using a tamping rod, when the charge suddenly exploded. This caused the tamping rod to shoot through his head, from underneath his cheekbone into the frontal lobe of his brain and out through the top of his skull. Partly because the rod passed through so rapidly, probably cauterising the tissue on its way, the damage to Gage's brain was not very widespread...[his physician] Dr. Harlow noted that, despite the good physical recovery and the relatively small extent of the brain injury, his patient was radically changed as a person; his <u>personality</u> was changed. Before the accident Gage had been the foreman of his team, a position of some responsibility; he was regarded as of reliable character and was highly valued by his employers. (Solms and Turnbull, 2002, p. 2)

Solms and Turnbull begin to recount this story on page two of their book and this indicates the fundamental relevance Gage's story has to neuroscientific accounts of subjective experience. I might equally have quoted from other leading neuroscientists, such as Antonio Damasio (1994, p. 8), or J.-P. Changeux (1983, p. 159), to indicate the continued centrality of Gage's story in neuroscientific accounts of mind. The 'Gage is no longer Gage' claim for the aftermath of Gage's injury acts as founding principle in Damasio's book *Descartes' Error* (1994). As in Solms and Turnbull's book (2002), Gage



PHINEAS GAGE

THE RAILROAD ENGINEER WHOSE GORY-ACCIDENT HELPED OUR UNDERSTANDING OF THE BRAIN.

In autumn 1848 construction foreman Phineas Gage was packing gun powder into bedrock to clear the way for a new railroad. A spark ignited the charge and launched his three toot iron tamping rod like a missile into his left cheek, up behind his eye and out through the top of his skull, taking a sizeable chunk of his brain with it. Despite the massive injuries Gage was still conscious and, taken to the nearest tavem, expressed concern that he might have to miss work for a couple of days. His coworkers meanwhile were already preparing for his funeral.

Ten weeks later, after seeing off brain fungi, delirium and loss of vision in his left eye, Gage's doctor declared him fit, attributing the remarkable recovery to the angle of the wound which provided natural drainage for the discharge. Indeed Gage appeared quite unaffected by his injuries except in one surprising regard. His personality and behaviour had changed.

Where before he was likeable, responsible and socially adept, Gage was now crude, vulgar, unreliable and insensitive. He had lost all idea of monetary value, showed no concern for his future or co-workers and, despite being able to recall every detail of the accident and his life before it, became obsessed with telling fantastic lies about his past experiences.

He soon tost his job but spent the next 12 years, trading off his new found infamy and blzarre personality, travelling the world with his iron rod, entertaining high society parties with his foul mouthed antics and lack of inhibitions. He even appeared in PT Barnun's legendary circus. Death finally caught up with him in May 1861, when he was 38, but his legend has lived on in academic circles forever. The stories of his accident and subsequent behaviour reached doctors who recovered his skell and examined his records. The "crowbar case" become a subject of great debate between scholars of phrenology and neurology.

"Initially Gage was used to show there isn't any localisation of the brain," says Dr H Richard Tyler of Harvard University. "But, many years later, when they realised he had this personality, "change, he was used as an example for localisation."

MAYA DEREN

AVANT GARDE 40S FILMMAKER STUMBLED UPON VODOU TO SEAL HER LEGEND, AND HER FATE.

Maya Deren once joked that her films cost less than most Hollywood movies spent on lipstick, but her self-funded works have had a large scale smoact. Ukrainlan-born, New York-raised. Deren was a left-wing activist at NYU in the tate 30s and made her first short, "Meshes of the Afternoon" in 1943 with her first busband, Czech cinematographer Alexander Hammid, while on tour write a dance trouge in LA. They 14 minute, 16mm paranelo vision of Hollywood has become the most frequently screened American avant garde film of all time and was paid full homage over half a century later by David Lynch in Mulholland Drive. 26-year-old Deren took a lead role, as she would in many of her films, moving as though in a dream, as sequences are frozen, repeated, accelerated and slowed down. Subsequent works continued to break ground and create scandal and envy amongst fellow Greenwich Village radicals like Henry Miller, Tennessee Williams and Anais Nin.

In 1947 Deren was the first filmmaker to be awarded a Guggenheim Foundation to travel to Haiti. When she stepped off the boat in 1947, her intention had been to produce a study of Haitian dance. Four years and three trips later she had become utterly engrossed in the complex ceremonies and rites of Vodou. What is remarkable about Deren's Haitian footage is how indifferent the revellers and worshippers are to her camera. She showed tribes dancing in their Sunday best, their bodies loosening up as possession took its hold, their eyes tixed in a fire of frenzy. Deren amassed over 18,000ft of film and her ensuing film *Divine Harsemen: Living Gods of Haitil* still serves as a rough guide to Vodou's rituals.

Maya Deren died at the age of 44 In 1961 after being crowned Grand Priestess by New York's Haitian community. Although the official line is that she died from a brain haemorrhage, caused by her addiction to amphetamines and sleeping pills, rumours repeatedly linked her death to Vodou. For more than a decade after her death she was forgotten but according to Amos Vogel, founder of legendary film club Cinema 16, her influence cannot be underestimated: "I felt like I was in the presence of a new kind of takent, who had absorbed the 20th century revelations."



DAZED & CONTUSED 27

Popular culture magazine indicating contemporary representation of Phineas Gage's accident and 'transformation' and its meaning for science.
 (Page reproduced from *Dazed and Confused* magazine, 2004)

is discussed in detail in Damasio's first chapter; so, what is at stake here? In books written by neuroscientists and psychologists the story of Gage's head-injury and his recovery are the background to the character changes he is said to have undergone in their aftermath. It is the character changes that are important in the retelling of the story. On page three of their book Solms and Turnbull quote Dr. John Martyn Harlow, Gage's physician and author of the only reliable written account of contemporary witness to the events retold in these stories of Phineas Gage.

His health is good and I am inclined to say that he has recovered...[but] the equilibrium or balance, so to speak, between his intellectual faculties and animal propensities, seems to have been destroyed. He is fitful, irreverent, indulging at times in the grossest profanity (which was not previously his custom), manifesting but little deference for his fellows, impatient of restraint or advice when it conflicts with his desires, at times pertinaciously obstinate, yet capricious and vacillating, devising many plans of future operation, which are no sooner arranged than they are abandoned...In this regard his mind was radically changed, so decidedly that his friends and acquaintances said that he was 'no longer Gage'. (Solms and Turnbull, 2002, p. 3)

Gage changed so much after recovering from his head-injury that 'his friends and acquaintances said that he was no longer Gage': this is the point always made when Gage's story is told in works on neuroscience or psychology. In the 1840s the stories of Gage's injury and subsequent life were used to establish connections between injury to brain and injury to 'psyche'. Damage to the physical but mysterious matter of the human brain could be observed as direct cause and correlative of damage to the injured person's personality and character.

Since those early accounts of Gage's injury, and Harlow's 1868 attempt to follow up his case history, the story is told of Gage's nefarious post-injury existence. In Damasio's account Gage becomes, post-injury and post-recovery, a braggart, a drunk, a liar and unemployable. Damasio writes of Gage exhibiting himself in Barnum's Circus, being fired from jobs for ill-discipline, and as unstable and capricious where he ought to have been independent and trust-worthy (Damasio, 1994, pp. 8-19). For Damasio this change in Gage is a moral or ethical depletion, and the injury takes Gage's soul:

The most striking aspect of this unpleasant story is the discrepancy between the normal personality structure that preceded the accident and the nefarious personality traits that surfaced thereafter and seemed to have remained for the rest of Gage's life. Gage had once known all he needed to know about making choices conducive to his betterment. He had a sense of personal and social responsibility, reflected in the way he had secured advancement in his job, cared for the quality of his work, and attracted the admiration of employers and colleagues. He was well adapted in terms of social convention and appears to have been ethical in his dealings. After the accident, he no longer showed respect for social convention; ethics in the broad sense of the term, were violated...Gage lost something uniquely human, the ability to plan his future as a social being. How aware was he of his loss? Might he be described as self-conscious in the same sense that you and I are? Is it fair to say that his soul was diminished, or that he had lost his soul? (Damasio, 1994, pp. 10-11 and 19)

Damasio's is one of a number of claims to 'psychopathic' behaviour in Gage's post-

injury life, and the claims are often made in order to localise brain function. This, for

instance, is quoted from Natalie Angier's Woman: An Intimate Geography (1999):

Before, he had been intelligent, hardworking, abstemious, churchgoing. Afterward, he was intelligent, impulsive, and profane. He cursed at his superiors. He cursed people who tried to keep him from fulfilling his fleeting desires. He cursed himself for abandoning plans to live his fantasies. He couldn't keep a job or a promise. 'He was no longer Gage,' John Harlow, his doctor, wrote. Using brain imaging technology and computerized renderings of Gage's skull, scientists have reconstructed his brain injury, pinpointing the left orbitomedial frontal lobe as the site of greatest damage. They have suggested that herein lies a locus of impulse control – the brain's temperate zone, as it were, or its moral centre, as the scientists have suggested. (Angier, 1999, p. 283)

On what are these stories of Gage's altered existence based? Malcolm Macmillan's

book An Odd Kind of Fame: Stories of Phineas Gage (Macmillan, 2002) sets out to

establish which if any of these posthumous accounts of Gage are based on primary

sources, and which of the primary sources are more than tabloid sensationalism and

hearsay. Over 562 pages he concludes that it is only a few hundred lines, mostly by Dr.

Harlow, that reliably bear witness to Gage's injury and its aftermath and that those few

hundred lines substantiate only the details of Gage's injury and a sketchy few other

particulars of the remaining 11 years of Gage's life. Anything else since written about

Gage is surmise.

So what are the sketchy few details of the changes in Gage's character following his

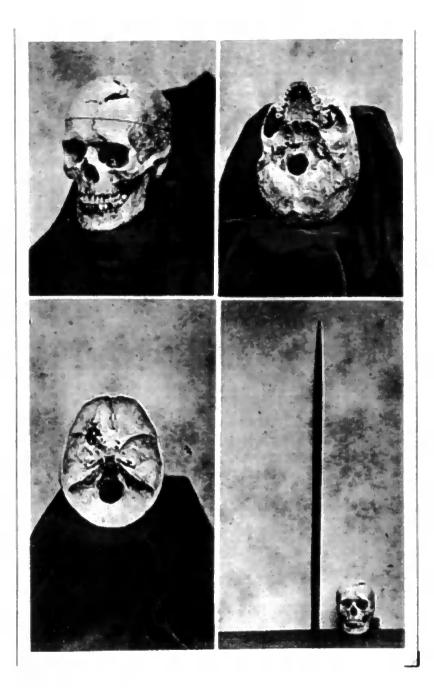
head-injury? Here is Dr. Harlow's 1868 follow up report on the post-injury life of

Phineas Gage, printed first in the Massachusetts Medical Journal in the same year:

His mother, a most excellent lady, now seventy years of age, informs me that Phineas was accustomed to entertain his little nephews and nieces with the most fabulous recitals of his wonderful feats and hair-breadth escapes, without any foundation except in his fancy. He conceived a great fondness for pets and souvenirs, especially for children, horses and dogs – only succeeded by his attachment to his tamping iron, which was his constant companion during the remainder of his life. He took to travelling, and visited Boston, most of the larger New England towns, and New York, remaining awhile in the latter place at Barnum's, with his iron. In 1851 he engaged with Mr. Jonathan Currier, of Hanover New Hampshire, to work in his livery stable. He remained there, without any interruption from ill health, for nearly or quite a year and a half.

In August, 1852, nearly four years after his injury, he turned his back upon New England, never to return. He engaged with a man who was going to Chile, in South America, to establish a line of coaches at Valparaiso. He remained in Chile until July, 1860, nearly eight years, in the vicinity of Valparaiso and Santiago, occupied in caring for horses, and often driving a coach heavily laden and drawn by six horses. In 1859 and '60 his health began to fail, and in the beginning of the latter year he had a long illness, the precise nature of which, I have never been able to learn. Not recovering fully, he decided to try a change of climate, and in June, 1860, left Valparaiso for San Francisco, where his mother and sister resided. The former writes that 'he arrived in San Francisco on or about July 1st, in a feeble condition, having failed very much since he left New Hampshire. He suffered much from seasickness on his passage out from Boston to Chile. He had many ill turns while in Valparaiso, especially during the last year, and suffered much from hardship and exposure.'

After leaving South America, I lost all trace of him, and had well nigh abandoned all expectation of ever hearing from him again. As good fortune would have it, however, in July, 1866, I was able to learn the address of his mother, and very soon commenced a correspondence with her and her excellent son-in-law, D. D. Shattuck, Esq., a leading merchant in San Francisco. From them I learned that Gage was dead – that after he arrived in San Francisco his health improved, and being anxious to work, he engaged



12. Gage's skull and the tamping iron that went through it. (Image reproduced from Macmillan, 2002, p. 424)

with a farmer at Santa Clara, but did not remain there long. In February, 1861, while sitting at dinner, he fell into a fit, and soon after had two or three fits in succession. He had no premonition of these attacks, or any subsequent ill feeling. 'Had been ploughing the day before he had the first attack; got better in a few days, and continued to work in various places;' could not do much, changing often, 'and always finding something which did not suit him in every place he tried.' On the 18th May, 1861, three days before his death, he left Santa Clara and went home to his mother. At 5 o'clock, A.M., on the 20th, he had a severe convulsion. The family physician was called in, and bled him. The convulsions were repeated frequently during the succeeding day and night, and he expired at 10, P.M., May 21st, 1861 – twelve years, six months and eight days after the date of his injury. These convulsions were unquestionably epileptic. It is regretted that an autopsy could not have been had, so that the precise condition of the encephalon at the time of his death might have been known. In consideration of this important omission, the mother and friends, waiving the claims of personal and private affection, with a magnanimity more than praiseworthy, at my request have cheerfully placed this skull (which I now show you) in my hands, for the benefit of science. (Macmillan, 2002, p. 415)

Apart from the absence of any of the contradictory or wilful behaviour such as that claimed for the post-injury Gage by Damasio, Changeux and Angier, I think the most interesting point to be drawn from Harlow's 1868 report is this: either Gage didn't notice the change that occurred in him as a result of the accident or it was a change to which he could adapt using the resources by which he had managed the rest of life up to that point.

Phenomenological changes apparent in Gage's approach to life after his accident could be read as a response to circumstantial changes in his life after his accident. It is usually given that changes occurring in the manner of Gage had as their cause the injurious changes to the matter of Gage. The things we know about the changes in Gage's life after the accident do not tell us anything clear about whether he managed those changes with ease or with difficulty. What remains as reliable contemporary record of Gage are the words of his doctor. Twenty years after the injury Gage's doctor attempted to follow up his case history. Most apparent from this attempt are the paucity of detail and the absence of character study. We don't know how Gage felt. We may not know whether Gage managed the changes in his life with ease or difficulty, but we know this: whatever apparent change which Gage underwent as a 'result' of his injury he seems to have negotiated with fluidity, and taken to his new role with convincing belief; at least as much belief as he had brought to his former role, and recognisably resembling the belief any of us brings to any of our roles.

Any difficulty in adapting to this new role for Gage was apparent in those observing his behaviour rather than in Gage who seems to have been led by beliefs, or motives, or desires that he seems to have registered or obeyed in much the manner that he had always done. Isn't it easier to be led by strong feeling? The stronger one's motivating desires (which are not all anti-social or prohibited or destructive) the less courage one needs to be obedient to the pull of one's strong convictions. How much bolder and more honest one can be if one's feelings speak in a way that is inarguable and that one can't help but live according to (and, again, why assume these feelings are all negative or selfish in intent?). Gage's immediate response to injury was a promise to see his colleagues at work the following day. He refused an offer to bring his mother to his bedside by insisting that he would soon be well. After the six or eight-week period of physical recovery it took for Gage to leave his doctor's care, Gage applied for his former (sub-contracted) post with the railroad. The railroad company refused Gage his former post of employment as they doubted he would have his former capacities and abilities. The head injury liberated Gage in that he became less driven to advance himself independently of his individual aspirations.

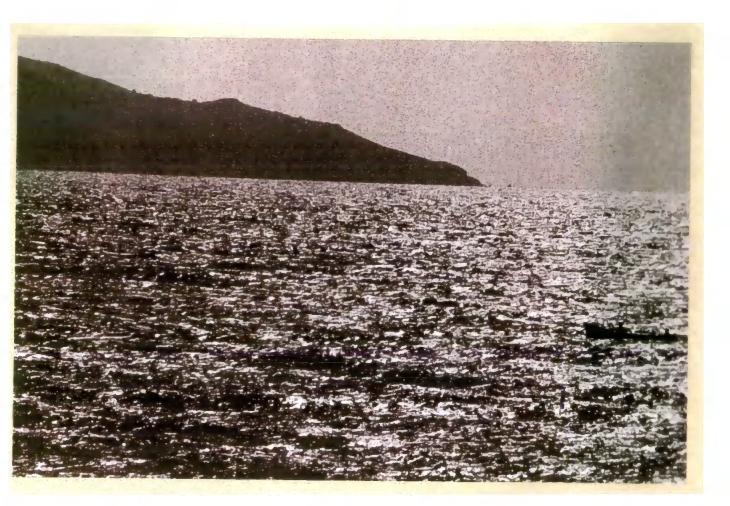
Here are the words of Wilder Penfield regarding automatic states in his epileptic patients:

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But if he does not go to sleep and if consciousness is slow to return, he may get up and go about in a confused manner. It is easy to see that his behaviour is automatic. There is for the time being freedom or release from conscious control. In this state, consciousness is apt to return to him gradually. He may first seem to be aware of himself, then of his environment, and finally, after a little confusion, he gains access to memory, to understanding and insight. (Penfield and Jasper, 1954, p. 498)

In this account it is hard not to view consciousness as a burden or curse. The person in an automatic state is subject to 'freedom' and 'release from conscious control.' Is there any other way to read these terms in this context than as conferring qualitatively positive attributes or characteristics to the person concerned? Certainly Penfield seems envious; to be without 'conscious control' is to be released into a freedom otherwise unavailable. Consciousness returns as an inhibitory curse, and its attributes are self-awareness and self-consciousness; in this light 'memory,' 'understanding' and 'insight' fall to the patient as burdens. It is the first fall, after which there can be no escape from self-consciousness and no return to automatic desire. Consciousness is the key to the chambers of memory, understanding and insight and these are doors we might better keep closed. This brings to mind an image of Penfield at a border, wishing there were a way he could persuade the immigrants to leave their luggage at the crossing.

Is it naïve to suggest that Gage is liberated by his change in character? We don't know if the adjustments Gage had to make, in becoming a different character, were difficult or not, required much adjustment or not, hurt or confused or bereaved Gage or not. We only know that Gage made these adjustments and those around him did not. If you think that consciousness is a facet of every waking state, consider days spent at the beach: the bright and reflected light, the undifferentiated sea and sky, the very distant horizon, the boats sailing toward the open sea. On days like this doesn't one question what normally passes for thought? Isn't ordinary thought better described as the noise



13. Days spent at the beach: the bright and reflected light. (Image reproduced from Nutting and Bowles, 2000, p. 114) made by anxiety? Aren't we safer the less we submit ourselves to a conscious control? On the occasions we felt safe as children, could we tell the reasons why? What concerns one is the background to whatever it is one consciously considers, and this is out of our control in the ordinary conscious way. Mastery is not always the sagacious route to wisdom.

It doesn't seem to have been Gage, ever, who complained of a lack of continuity. Gage doesn't seem to have despaired that the co-ordinates of his personality had changed, or that he now felt so different he no longer knew the parameters of himself, or that he seemed to have slipped by degrees into another way of being that he could no longer claim to be himself. Gage seems to have carried on as before, without a very different temperamental response to circumstantial changes he either suffered or sought. The career he chose required dexterity and physical strength. He was bold enough to travel to Santiago in Chile in a business venture that required him to drive a six-horse carriage, caring for horses, luggage and human cargo. He was consistent enough to follow this profession for eight years. It was hard work and his health deteriorated and yet he persisted.

Gage seems to have carried on as before, with a not very different temperamental response to the very different co-ordinates of his self. Gage adapted to these changes with or without equanimity. This might be said to be a common procedure. Don't we all negotiate changes with an adjustment to our temperamental view of things that those around us could not characterise as large or small, trying or facile? Is there any law of correspondence between cause and effect in this adjustment to changes in our internal or external environment? Knowledge of certain things lead one to feel that the world is to us

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like a distant star, that may have died long before we see it. It may be that Gage could no longer perform the role of 'Phineas Gage' that he had been wont to do and by which others would recognise him. Isn't it always the case that the co-ordinates of our world (inner and outer) may change so much that we can no longer be thought to be who we have habitually taken ourselves to be, or who we have habitually been taken to be? These changes might occur under any circumstances, even the most ostensibly mundane or habitual. We might become this 'other' by no other means than doing what we ordinarily do. The role we play out for ourselves and for an observing public may no longer suit our outlook or circumstance, and we may slip into another disguise and another way of being.

Damasio has this to say in his neuroscientific study of emotion:

When states of emotion tend to become fairly frequent or even continuous over long periods of time, it is preferable to refer to them as <u>moods</u> rather than emotions. I believe moods should be distinguished from background emotions; a particular background can be sustained over time to create a mood. If people think you are 'moody' it is because you have been sounding a prevailing emotional note (perhaps related to sadness or anxiety) consistently for a good part of the time or maybe you have changed your emotional tune unexpectedly and frequently. Fifty years ago you would have been called 'neurotic,' but nobody is neurotic anymore.

Moods can be pathological, and we speak, then, of mood disorders. Depression and mania are the standard examples. You are depressed when the emotion sadness is dragged on for days, weeks, and months, when melancholic thoughts and crying and loss of appetite, sleep, and energy are not a single burst or a gentle wave but a continuous mode of being, physically and mentally. The same applies to mania. It is one thing to jump with joy at the right event or to be enthusiastic about your prospects in life, it is another to sustain the joy and exuberance on for days on end, justifiably or not.

Because moods are dragged-out emotions along with the consequent feelings, moods carry over time the collections of responses that characterise emotions: endochrine changes, autonomic nervous system changes, musculoskeletal changes, and changes in the mode of processing images. When this whole package of reactions is deployed persistently and inappropriately over long periods of time, the cost to the individual so affected is prohibitive. (Damasio, 2000, p. 341)

It was never Gage who complained of feeling so thoroughly different that he must be

considered as another, stranger kind of person than he had been used to being. It was

third parties, work colleagues as reported by a physician, who commented that he 'could no longer be considered to be Gage.' Gage just got on with things as he now took them to be, and lived the life dictated by his desires, thoughts, emotions and responsibilities as he felt them to be, just as we all do in any circumstance. If anything, post-injury Gage seems to have adopted the role of being 'Gage' with more gusto and conviction than he had before the injury. Post-injury, Gage's engagement with life seems to have been more thorough than previously; and if his approach seems to have been more selfish or more in accordance with his desires, isn't this an adjustment we could all make, much to our

family's chagrin or panic?

Madness doesn't *have* to be regarded as an illness. Why not as a sudden – more or *less* sudden – change of character?

Everybody is (or most are) mistrustful, & perhaps more so towards their relations, than towards others. Is there any reason for mistrust? Yes & no. Reasons can be given for it, but they are not compelling. Why shouldn't someone suddenly become *much* more mistrustful of people? Why not *much* more withdrawn? or devoid of love? Don't people get like this even in the ordinary course of events? – Where is the line to be drawn here between will & ability? Is it that I *will* not open my heart to anyone any longer, or that I *cannot*? If so much can lose its attraction, why not everything? If someone is wary even in ordinary life, why shouldn't he – & perhaps suddenly – become *much* more wary? And *much* more inaccessible? (Wittgenstein, 1980a, p. 62e)

Gage doesn't seem to have been hindered beyond the third party claims regarding the lack of continuity in his performance, as if this were a film set and he was failing to stay in character. Whatever changes Phineas Gage underwent he seemed more capable of adjusting, or accepting, or adapting than those around him who watched this apparent change in his behaviour. At what point does it require a third party to recognize whether or not one is being who one is? Or to remind one that not only is one not being oneself, but that one has never been who one truly is? Consider addiction: 'I feel myself again' (now that I have administered some foreign chemical agent into my bloodstream). 'I feel more myself when high'. How more so? And this is not self-deception is it? Consider anti-depressants: 'I feel myself again when medicated with prescription drugs'. More like myself, more my old self again, free of the burden of depression or psychosis that prevented me being myself. And yet unmedicated I don't feel this way. Surely I know how much myself I averagely feel myself to be, and how that quantity or quality changes when the drug is administered? 'I like being this person more than that'.

I prefer myself when I exhibit the qualities of bravery, or generosity. This is only partly cultural. The cultural influence stops at the qualitative point that my joy begins, my preference: 'This feels better than that, now feels better than the average, there is a qualitative difference between this moment and another and I am now more pleased than then'; culturally it matters why, qualitatively it matters not (except in learning how to make it a habit).

What do I think is wrong with the common neuroscientific readings of the Phineas Gage story (aside from their proven detachment from primary sources)? Why is my reading different? In Solms and Turnbull's account of Gage (2002), and in Damasio's (1994), the emphasis is on distinctions and an extraordinary transfer between opposites of character. Their accounts represent Gage's perceived change as an unbridgeable gap in character coherence. They seem to indicate a suspension of disbelief is necessary to having faith in a coherence of character (Gage's or anyone's), and that this suspension of disbelief was confounded or foiled by the about-turn apparent in Gage's character. A lack of continuity in Gage's behaviour foils our belief in his continued presence. Where is Gage for the last eleven years of his life if this is 'no longer Gage'? In my account I wanted less of an emphasis on extraordinary change from one distinct entity to another,

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and more a fluid and constant slippage between definitions which it is provably (in this case at least) erroneous to believe in. Distinctions are misleading in this instance because they indicate discrete entities, even self-contained states of being. In Gage's case it is this fallacious transfer from Jekyll to Hyde, from respected foreman to profane itinerant that misleads us with its description of a binary reversal of character.

Let me give you a related example from the science of genetics. Many of us are quite attached to our distinction as one gender or another, being specifically male or female. We might regard our distinct genitalia as proof of our designated gender, as undeniable biological determinant of our gendered role. For this, we assume, is an outward correlative of chromosomatic or hormonal determinism. We are this or that. Hormones, even, are gendered. Here is Lesley Rogers from her book *Sexing the Brain* (1999):

Just as we assign individuals to the categories of female and male, so we refer to the male and female sex hormones. Testosterone is referred to as a male sex hormone and oestrogen and progesterone are referred to as female sex hormones. As a result, we tend to think that only males have testosterone and only females have oestrogen and progesterone. This is not the case. Both females and males secrete all three sex hormones, although they do so from different organs. For example, whereas males secrete testosterone from the testes, females secrete it from the adrenal glands. On average, males have more testosterone than females, but there is a considerable overlap, with many women having higher levels of testosterone in their bloodstream than many males. Similarly, although oestrogen and progesterone are referred to as female sex hormones, there are times when men have higher levels of these hormones than women. In women the levels vary according to the menstrual cycle and, during one phase of the cycle, the levels of both these hormones in the bloodstream of a woman are lower than the levels of the same hormones in men. Also, after the age of about fifty years, men have on average higher levels of oestrogen and progesterone than do most women. All of these facts show that hormonal distinctions between the sexes are not as great as we usually think. Referring to the hormones as either male or female constructs an absolute division that misrepresents the biology of the sexes.

Other hormones come into the picture, too. For example, androstenedione is another so-called male hormone, or androgen, but it tends to be present at higher levels in women than in men. Biology is never as simple as some would have us believe. There are more sex hormones than the four mentioned so far. They are all steroid hormones, meaning that they have different and interacting effects on the development of the genitals and other parts of the anatomy. They also have different effects on the brain. One such hormone, 5-a-dihydrotestosterone, causes the genitals to develop into the male form (that is, it leads to growth of the penis and to the testes descending into the scrotum). (Rogers, 1999, p. 32)

The human body produces 5-a-dihydrotestosterone from testosterone through the action of an enzyme called reductase. The human body produces no 5-a-dihydrotestosterone without the reductase enzyme. There are two families, one in Texas in the United States and one in the Dominican Republic (Rogers, 1999, p. 33), who have a genetic condition that means the males in the families don't produce this reductase enzyme until they reach puberty. As a consequence the pre-pubescent males have a feminine physique and appear to the world as girls and are raised as such. They are only 'genetically' and chromosomally male, and to the world they are girls with all the consequent cultural distinctions. At puberty their bodies begin production of the reductase enzyme, and to convert testosterone to 5-a-dihydrotestosterone, and their penises grow and their testes descend. They appear to physically change sex and from puberty they live as men.

The question might be asked: how do these children adapt at puberty when their bodies change from an outwardly female form to having all the appearance of masculinity? And the answer is: they adapt. We all adapt at puberty when our bodies change in a way that seems hormonally and logically incomprehensible. For where are we provided with knowledge or tools to comprehend such an illusory formal shifting, deceptive and polymorphous? Nature/biology is indeterminate but culture is determinate; that is why so many concepts fall through the gaps in between, and we feel undescribed by our own language. We can be oblivious of the largest changes taking place in our perception. Books by neuroscientists always include exemplary case studies of patients suffering from hemispatial neglect. For example, in a 1988 essay, Edoardo Bisiach describes his patient 'P.R.':

As a consequence of a right-hemisphere stroke, P.R. had a severe left hemiplegia and hemineglect anosognosia and obstinately refused to admit that his left arm belonged to him, unshakenly maintaining that it was the examiner's arm. Because he was an educated man, he could maintain relatively fluent conversation on a variety of topics without disclosing any sign of intellectual impairment. Indeed, he had himself supplied a detailed and exact anamnesis, except for one probably revealing particular: he had left out the report of a surgical operation he had undergone a few years before for removal of a left inguinal herniation. On one occasion, the examiner placed P.R.'s left hand on the bedclothes, between his own hands and asked the patient whose hands they were: unhesitatingly, P.R. replied that they were the examiner's hands. Ouestioned as to whether he had ever met a three-handed man, P.R., pointing to the three arms in front of him, answered that because the examiner had three arms he also must have three hands. Although one day P.R. spontaneously commented on the apparent singularity of some of his statements, he never questioned their soundness. Notwithstanding his expressed conviction, he too manifested no desire to leave his bed or to do anything that presupposed use of his left limbs. (Bisiach and Geminiani, 1991, p. 34)

In the chapter of this thesis titled Making Up Stories, I describe Anton's Syndrome.

Persons described as having Anton's Syndrome are cortically blind but assert that they

can see. This seems to me another example of major changes passing within us seemingly

unnoticed by the person those changes must affect most directly and intimately.

In his book Altered Egos Todd E. Feinberg (2001) describes his patient 'Seymour':

Seymour came to my office with the complaint that he was 'a little nervous.' He was an older man, well into his seventies. He was immaculate in appearance, spoke in a refined manner, and carried himself like a real gentleman. He was now retired, but had been an accountant his entire adult life. His only complaint was that he occasionally gets a little 'nervous' and he would like to try some medication that might calm him down. The only unusual thing occurred when he went over his past medical history. Initially, Seymour denied any surgical procedures, but he subsequently recalled that, indeed, he did have a 'bit of surgery' on his brain when he was much younger, perhaps when he was in his late teens or early twenties. He was not sure why the surgery was performed, but he thought it may have been for 'nerves.' In any event, that was a long time ago.

Now I was really curious. Before I treated Seymour with any medications, I suggested we get a CAT scan and see exactly what was done to his brain. When I saw the scan, once again I was amazed. Some time in his past, Seymour had had a frontal lobotomy, and substantial portions of his frontal lobes had been removed. I assume Seymour had the operation for a psychiatric condition, but to this day neither Seymour nor I know why the operation was performed.

Patients like Seymour do not come along every day. Indeed, I have never since seen a patient who was unaware that they had had a lobotomy. (Feinberg, 2001, p. 104)

Most concepts of 'self' – from philosophy, from neuroscience, from psychology and folk psychology – pre-suppose that we have an access to our moods, thoughts and motives of a kind that seemingly we do not. These concepts of self also pre-suppose a process of 'self selection' we which we can't actually lay claim to. Change is the normal way of things. Even drastic change is miraculously steered through. That is why it seems preposterous to pronounce that Gage is 'no longer Gage'. If he is no longer Gage then

what is the alternative?

John Locke would have me, you or Gage as an assemblage:

That this is so, we have some kind of evidence in our very bodies, all whose particles, whilst vitally united to this same thinking conscious self, so that we feel when they are touched, and are affected by, and are conscious of good or harm that happens to them, are a part of ourselves; *i.e.* of our thinking conscious self. Thus the limbs of his body is to everyone a part of *himself*; he sympathizes and is concerned for them. Cut off an hand, and thereby separate it from that consciousness we had of its heat, cold, and other affections; and it is then no longer a part of that which is *himself*, any more than the remotest part of matter. (Locke, 1689/1997, p. 303)

Any recourse to phantom-limb phenomena would dispute this Locke-ian picture of a human self. Any recourse to the asomatognosia (see P.R.'s story above) would also refute this Locke-ian claim to 'one body one self,' as would examples of conjoined twins and Sperry's 'split-brained' persons (see *Chapter Five: Other Selves* and *Chapter Six: Making Up Stories* in this thesis). The self in neuroscience (despite their evidence to the



14. Advertisement for Gamage's ventriloquial figures and heads, circa 1900. (Image reproduced from Coram, 1900; back cover) contrary) most often resembles this Locke-ian model. Or it resembles the Cartesian dualism of mind plus body with brain as interface: if the brain is 'irreversibly' destroyed (as in 'brain death') then the mind is cut loose from the body and the person (as

composite of mind/soul plus body) has died. As D.A.Jones has put it:

If personal identity comprises the identity of conscious attributes (rather than anything 'underlying') then it seems it can be lost by degrees. A phrase like 'He is not the person he used to be,' could be taken literally. Over time persons would gradually cease to be themselves and become other persons. (Jones, 2000, p. 103)

Is this not the common picture of the self in science and in folk psychology? I am

reminded of an instruction from an Edwardian manual on ventriloquism:

A performer, if an artist, or say a man of imagination, after a time feels that the doll is an individual. He knows him and would never make him say anything out of keeping with the doll's character. The performer's hands move after practice with the speech of the doll, and instead of moving his own lips he just as mechanically moves the mouth of the figure. (Ganthony, 1920, p. 88)

Would we rather hold ourselves to be a fabricated whole, than accept the ungathered

attributes to which we are subject?

Chapter Nine: Death and Unconsciousness

All too often the problem of defining disease is debated as if it were a question of science, medicine, or logic. By doing so, we ignore the fact that definitions are made by persons, that different persons have different interests, and hence that differing definitions of disease may simply reflect the divergent interests and needs of the definers. (Szasz, 1987/1997, p. 17)

Substitute 'death' for 'disease' in the above quotation and you have the point of this chapter. In the previous chapters of this thesis I have shown 'consciousness' to be a vague construct, ill-defined but accepted in medical, philosophical, and psychological discourse. Whereas the term may have utilitarian value in folk psychological discourse, 'consciousness' does not bear analytical scrutiny. The constituent factors comprising 'consciousness' are an arbitrary set rather than the systematically related set of constituents required of 'natural kinds'. This thesis has shown 'consciousness' to be a term so loosely defined that it leaves users unsure to what they are referring. Whereas this is common and unproblematic for terms in their everyday use, science and philosophy need a terminology that is firmly defined. Nor are referents of the terms 'mind', 'self', 'intelligence' or 'memory' substantiated by recourse to the sciences, by physics, evolutionary psychology or behaviourism. Despite this, studies of 'consciousness' and 'mind' proliferate in those disciplines:

The concern with consciousness is now to be seen wherever you look, but typically in significant places: in the <u>titles</u> of collections, in Presidential Addresses summarizing the general state of discipline, or, when a textbook is consulted, usually either in the preface or in the concluding chapter. The notion crops up rather infrequently in the bread-and-butter reports of work in experimental psychology. Philosophers interested in the work of their laboratory colleagues share this ambivalent attitude to the problem; some, like Nagel suggest that it is in principle impossible for an objective science to do justice to subjective experience, while others, like Dennett, prod cognitive psychologists along by sketching an outline theory of consciousness within which research into the phenomenon might proceed. (Wilkes, 1984, p. 224)



 15. A phrase like 'She is not the person she used to be' could be taken literally – Puppeteer Ilka Schönbein ventriloquizes for her own corpse. (Image reproduced from Blumenthal, 2005, p. 211) The preceding quote comes from a paper that Wilkes wrote twenty years ago, but if anything neuroscience is more than ever interested in promoting its claims regarding 'consciousness'. Philosophy of mind concerns itself with little else and produces books by the yard in an attempt to re-draw these second order concepts in its own image. This emphasis has the effect of forwarding 'consciousness' as a salient topic for enquiry, and worthy of research within scientific disciplines. If it is not 'consciousness' in the title of every book then it is 'mind' or 'self'. Far from being the 'hard topic' of research in these 'cognitive sciences', it seems to be the only topic (and an easy and obvious one at that). Given that topics thrown up by contemporary medicine (stem cell research, transplants, etc.) are requiring of voluminous bio-ethical consideration, second-order categories such as 'consciousness' might be regarded as shadow boxing.

As this chapter will show, this vagueness of definition surrounding 'consciousness' is problematic not just when describing ictal or post-ictal automatic states, or hallucinations, but when pronouncing death. The pronouncement of death would seem to require 'consciousness' to be defined in broad terms; but this definition is equally the subject of debate, indecision, and contest. It is here that the term's lack of clarity, or lack of a referent 'natural kind', is most distinct. The difference between 'alive' or 'dead' is most significant medically, legally, and in any number of personal ways; it is in this realm of discourse that the linguistically ill-defined terms cognate to 'consciousness' are constituted by agreement rather than by testing. The terms of its definition are, besides, determined by a consensus which is curiously previous to 'medical proof'. Another impulse toward writing this chapter came during an interview I once heard¹, between a journalist and a surgeon. The surgeon was being asked about statistics relating to the number of patients who died during surgical operations. The surgeon said that patients who could be considered 'fit' (in the athletic sense) were twice as likely to survive an operation than those who were considered 'unfit'. When the surgeon was asked why this should be, he said: "Those who are unfit are that bit closer to death anyway."

D. A. Shewmon and E. S. Shewmon (2004) have written of 'death' as a semiotic problem, describing the paucity of distinctions in medical terminology referring to death and dying. They compare the medical practitioner faced with 'the death event' to

pioneers learning west Greenlandic terms referring to snow:

Now imagine that pioneers from the tropics migrated to the arctic and suddenly had to learn how to survive there. Their very language, which allows them to see only 'snow' and 'ice' all around, is itself detrimental to survival. They would do well to learn the Eskimo vocabulary in order to focus attention on important aspects of their new reality, critical distinctions regarding that white stuff they so carelessly refer to as 'snow'.

This is precisely the situation we find ourselves in regarding 'death'. We have migrated through human history into the modern ICU, bringing with us the linguistic baggage of a relatively simple concept of death for which medically real and ethically critical distinctions lack words in the common vocabulary. The best we can do is to speak in awkward phrases, such as 'the point in time beyond which cardiac auto-resuscitation is impossible.' To ask which of these technological mumbo-jumbos is <u>really</u> 'death' may be perhaps as linguistically and epistemologically inappropriate as asking an Eskimo which of sullarniq, qaniit, nittaalaq,...is <u>really</u> 'snow'. (Shewmon and Shewmon, 2004, p. 96)

The problematic key terms relating to self in human kind: consciousness,

unconsciousness, mind, memory, intelligence, etc. might equally be considered as

semantic ailments. Maybe the problems would go away if we stopped using the terms, or

¹ I'm sorry I cannot trace this reference at all; perhaps I dreamt it?

got the terminology right? In Is Consciousness Important? Kathleen V. Wilkes (1984)

puts her position:

I shall question the existence of 'a problem of consciousness', suggesting that in fact consciousness as such is not at all important, and that psychology, and the neurosciences would lose nothing, and gain much, by refusing to chase this will-o'-the-wisp. It should, though, become clear that this is not a particularly radical suggestion. It is much tamer than a more extreme argument to the effect that commonsense psychology and the philosophy of mind need not bother with the notion either; I shall conclude by defending briefly this further claim. (Wilkes, 1984, p. 224)

The PhD thesis that you are reading broadly conforms to a Humboldtian view of

language: "Distinctions in language derive from the awareness of distinctions in reality;

but the reverse is also true: the perception of distinctions in the real world is facilitated

when a linguistic distinction already exists" (Shewmon and Shewmon, 2004, p. 102).

When 'theory of mind' (described in the chapter titled Hallucinations in this thesis) is

considered from this Humboldtian perspective, one can see that a picture of the self is the

self. How one conceives of the self colours how one sees anything: one's moral attitude,

one's perception of others, one's conception of one's own self.

What a person values depends, basically, on what he believes himself to be. If he believes that he is an isolated hunk of protoplasm, struggling to survive in a hostile world, or a physical organism constructed by genes to promote their own survival, then his values will tend to be very different from those of a person who regards himself as a being with a mind-like aspect that makes conscious choices that control in part his own future, and are also integral parts of the global process that generates the unfolding of the universe. (Stapp, 1993/2004, p. 270)

When 'theory of mind' is mistaken for a theory rather than a practice, there is an implicit conception of the self that is accepted with it. Neuroscience and philosophy of mind perpetuate this error. To pre-suppose internal co-ordinates to outward behaviours and emotions is to posit a physiological 'control centre' correspondent to the behaviours of a self. It is to conceive of the self as glyphic remainder of neurological ur-text. If this neurological sub-strata for the self exists, presumably one could put one's hands on it.

The brain death debate is important because it forces neurologists to state their case: that they believe consciousness is neuroanatomically 'placed' in the cerebral cortex, and that this is the sole residence of 'consciousness'. In 1988 Dr. R. E. Cranford, neurologist and former chairman of the Ethics and Humanities Subcommittee of the American Academy of Neurology, wrote a paper entitled *The Persistent Vegetative State: The Medical Reality (Getting the Facts Straight)* (1988). As might be guessed from the subtitle of this paper, there is no equivocation regarding the neurological residence for consciousness: "The cerebral hemispheres...contain the function of consciousness or awareness (which is more precisely located in the outer layers of the cerebral cortex)..." (Cranford, 1988, p. 27). In a 1987 paper entitled *Consciousness: The Most Critical Moral* (*Constitutional*) *Standard For Human Personhood*, Cranford and Smith write:

It is a fundamental fact of neuroanatomy and neurophysiology that consciousness and the capacity to feel pain and suffering are functions of the neocortex. When a physician can determine on physical examination that there are no neocortical functions present, the patient is completely unconscious and has no capacity to experience pain or suffering...These views on the medical reality of the PVS [Persistent Vegetative State] patient are scientific medical positions – statements of fact, not values. Whatever one's opinions on quality of life, euthanasia, autonomy, privacy, ensoulment, abortion, or other deeply held opinions on the meaning of life, whatever one's judicial or constitutional philosophy: judicial activism, judicial restraint, legal positivism, legal realism, or original intent, the medical reality remains the same. (Cranford and Smith, 1987, p. 237 and p. 241)

There is no doubt or hesitancy in the above quoted article in its use of the terms 'consciousness' or 'completely unconscious', or of conflating consciousness with the capacity to feel pain, and the sense of these words is intended as entirely transparent. Nor is there any doubt as to the medical ability to determine neocortical function by physical examination, or to determine the capacity for suffering in another. The certainty of these

views translates to the practice of teaching medicine.

Every medical student in introductory neuroscience learns a basic set of facts about the brain, among which the following two are key to the issue of 'brain death':

- 1. The brain is central integrator of the body
- 2. With respect to consciousness:
 - (a) the cerebral hemispheres (particularly the neocortex) mediate the content of consciousness, and
 - (b) the brain stem (specifically the ascending reticular activating system) mediates arousal.

These principles are so fundamental and so universally accepted as established beyond doubt that their truth is simply taken for granted in professional circles. (Shewmon, 1997, p. 35)

The certainty of these terms pertains also in neuroscience, and in philosophy of mind.

Daniel Dennett's Consciousness Explained (1991) is the most influential work in the

'philosophy of mind'. Dennett may not be as 'good' a philosopher as W. V. Quine or

Thomas Nagel, but to discuss matters relating to philosophy and mind is to contend with

the influence of Dennett and Consciousness Explained. Throughout his writing Dennett

uses terms taken from anatomy and physiology and from neuroscience; he will, for

instance, refer to cerebral achromatopsia to support his theories regarding qualia

(Dennett, 1988, p. 64). Why? What is it that recourse to medical terminology confers on a

philosophical argument? It confers authority; it is to inarguably substantiate one's

standpoint. It says: 'If you want proof, here I have 'the body' itself to back me up'. The

facts of the body are owned by medical consensus; medical statements regarding the

body have a brute materialism and absolutism whatever the metaphysics inhabiting

medical metaphor.

There is little certainty in philosophy and plenty of certainty in medicine; medicine is the realm of haptic actuality. So what are the medical 'facts' of death and how is one to interpret them? In 1968, The Harvard Medical School Ad Hoc Committee to Examine the Definition of Brain Death proposed whole brain death as the criterion for pronouncing a person dead. This newly proposed criterion for death was quickly accepted by physicians, philosophers and the general public. Historically the belief of Judeo-Christian peoples had most commonly been that breath constituted life and that permanent cessation of breath equals death. Or they accorded with the Ancient Greek belief that permanent cessation of heartbeat equals death. It goes without saying that even with these traditional criteria for death people were often buried alive. Great pandemic disasters and the need for speedy burial increased the risk of premature burial. As a consequence Winslow, in 1740, argued putrefaction as the only reliable confirmation of death.

The mid-20th century invention of mechanical ventilators and cardiopulmonary resuscitation meant that a person could survive massive brain damage with their other major organs still functioning. The 1968 ruling by the Harvard Ad Hoc Committee meant that a patient could be pronounced dead even whilst their blood still circulates their body and their respiratory system functions (with the assistance of a ventilator to expand their diaphragm and provide oxygenated air). The 1981 report of the President's Commission for the Study of Ethical Problems in Biomedical and Behavioural Research confirmed the ruling that death occurs when the entire brain, including the brain stem, permanently ceases to function.

There are three approaches to the issue of which parts of the brain must be destroyed before the individual concerned is considered dead:

(i) The <u>whole-brain</u> formulation requires the irreversible destruction of the whole encephalon: cerebral hemispheres, brain stem, cerebellum.

(ii) The <u>higher brain formulation</u> defines death as 'the irreversible loss of what constitutes the human essence of a being' and considers the criterion that fulfils that

definition to be the irreversible loss of consciousness and all cognitive functions following the destruction of the neocortex.

(iii) <u>The brain-stem formulation</u> comes from the United Kingdom. It considers that the total and irreversible destruction of the brain stem is a necessary and sufficient condition for death, irrespective of the possible persistence of activities in the brain hemispheres. In some way, the brain-stem formulation is the mirror image of the higher brain formulation. (Guerit, 2004, p. 16)

Let us consider the criteria established in the United Kingdom. The Conference of Royal Medical Colleges and their Faculties, in 1976, formalized a process of decisionmaking that had, in any case, been practised by doctors since the advance in intensive care techniques in the mid-1950s. Since those technical advances of the 1950s doctors had made decisions as to when treatment was burdensome for patients and families and bound to end in failure. Often in consultation with medical colleagues and the patient's family, doctors would decide to abandon treatment or not to embark on it in the first place. This withdrawal of treatment was not sanctioned by law but appears never to have been followed by legal action. The protocol established by the 1976 Conference provided a "uniformity of practice and a reassurance for those having to make such decisions" (Hill, 2000, p. 160).

The recommendations of the 1976 Conference required pre-conditions of a known potentially fatal condition, and bedside tests of brain stem function:

To establish diagnostic criteria of such rigor that on their fulfilment the mechanical ventilator can be switched off, in the secure knowledge that there is no possible chance of recovery. (Hill, 2001, p. 160)

Although the Conference refers to these criteria as 'diagnostic' they are of course 'prognostic,' as ventilation is discontinued with the intent of allowing the patient to die. Paul A. Byrne and Walt F. Weaver have written that:

The brain's ceasing to function does not imply a priori its destruction but only

absence of physiological activity at the time of evaluation. If the persistence of absence of physiologic activity is accompanied by asystole, hypotension, and other detrimental responses, then this tends quickly, if not instantaneously, to destruction of the brain and disintegration of the body that we call death. However, with immediate institution of life support measures, the brain tissue may end up being only stunned. Often at the time of the initial absence of physiological functioning, this will have caused the patient to be declared 'brain dead'. (Byrne and Weaver, 2004, p. 44)

In 1978 pressure from the Transplant Advisory Panel led to a Memorandum that equated this same condition, established by means of exactly the same clinical tests, as "the stage at which a patient becomes truly dead, because by then all functions of the brain have permanently and irreversibly ceased" (Hill, 2001, p. 160).

There has always been confusion and mystery surrounding the establishing of a 'time of death'. The Catholic Church allows last rites (which are only given to the dying and not the dead) to be administered some minutes after the first signs of 'clinical death'. This is due to the historical uncertainty regarding exact time of death. Although the state of New Jersey in the United States has the same brain death criteria for pronouncing death as other American states, it permits Orthodox Jews to define and treat their 'brain dead' relatives as alive. Which paints the picture for me of a patient of, for instance, Protestant faith and a patient of Orthodox Jewish faith lying in adjacent hospital beds with identical head injuries, the one patient pronounced dead and the other not. These are not only anachronistic points of law or medicine; by what else do we discern the living from the dead? It is doctor and coroner, and church who pronounce death.

Since 1968, irreversibility has been a prerequisite for brain death determination in all the different sets of brain death tests. The common medical definition of the term 'irreversible' would be 'that which is incapable of being undone (by contemporary medical technology).' The physicians Joanne Lynn and R. D. Cranford applied this concept of irreversibility to the determination of brain death and identified four different

plausible times of death:

T1 is the time of onset of coma and apnea; T2 is the time at which the neurological physical examination shows that the relevant brain functions have ceased; T3 is the time at which the cessation of brain functions becomes irreversible; and T4 is the time at which the cessation of brain functions can be proved to be irreversible. Although any one of these times constitutes a plausible time of death, I advocate for using T4. ...Most or all of the brain damage leading to death occurs at time T1. Time T2 is when a physician first determines the loss of brain functions. Time T3 often may be unapparent at the time but can be determined in retrospect when the functions can be proved to be lost permanently at time T4.

Despite the fact that the 'moment' of brain death arguably occurs at time T3, a brain death determination must employ the time T4. Brain death is determined in retrospect in the same manner as cardiopulmonary death: by showing the irreversible cessation of the relevant vital functions. In declaring death, physicians note the time of the examination at which they certified that all vital functions have ceased, and formally declare death to have occurred at that time, despite the obvious fact that the vital functions had ceased earlier. Only in forensic cases is much attention paid to identifying the exact earlier moment when those vital functions ceased irreversibly. (Bernat, 2004, p. 162)

The first words of the 1968 Committee report are: "Our primary purpose is to define irreversible coma as a new criterion for death" (Byrne and Weaver, 2004, p. 43). What does irreversible mean? A prognosis considered irreversible in 1968 would not necessarily be considered irreversible in 2004. As I pointed out earlier in this chapter, what the 1968 Committee report described as 'diagnostic' is actually 'prognostic': that is, it requires a forecast that the 'brain dead' patient will quickly die without intensive care. Advances in intensive care make it increasingly possible to keep alive the bodies of patients who currently would be classified as brain dead. Disregarding future technology: the potential for recovery from a vegetative state cannot at present be reliably predicted by clinical or neurodiagnostic tests. Rather than a binary process (life/death), these determinations of death describe it as a syndrome, "a cluster of related attributes, with a probabilistic diagnosis" (Hughes, 2004,

p. 79). To determine brain death requires multiple criteria:

However, the very diagnosis of 'brain death' militates against any further attempt to evaluate outcome of these different critical subsets of legally deceased patients, since their true physiologic death comes when they are utilized for vital organ donation, subjects for teaching or research, or when life-support efforts are discontinued. (Byrne and Weaver, 2004, p. 44)

To seek a unitary moment defined as 'death' is to be bound by etymology to require its

irreversibility and singularity. This is culturally constructed; death can be configured

differently in other languages than it is in English:

In Nivkh (older name: Gilyak; spoken on mainland Sakhalin and opposite mainland by fewer than 1000 people)...the verb corresponding most closely to 'die' is -mu. The interesting feature of this verb is that it also corresponds to the English 'become'. There is thus no word for 'die' in Nivkh which is really equivalent to the English. What might this imply for the world-view of this culture, in contrast to ours, where, conversely, living is constant 'becoming' and dying is a ceasing to be? (Shewmon and Shewmon, 2004, p. 103)

It is not uncommon in languages other than English to conflate the verb 'to die' with

terms referring only to 'sickness'; or to indicate in referring to 'death' the passage to

another life.

Some languages have no equivalent for the English word 'death'. For example, in the Kovai language of Papua New Guinea, the verb <u>um</u> means 'to die', but the noun formed from it, <u>umong</u>, means not only 'death' but also mere 'sickness' (not necessarily fatal). There is no other obvious word for death or sickness. This may be quite common in Papua New Guinean languages. In Tok Pisin (English-based creole of Papua New Guinea) 'he dies/is dead' is rendered <u>em i dai</u>, which can also mean that he is unconscious. To indicate what we call death they add an aspectual qualifier: <u>em i dai pinis</u> (which can also mean something like 'he is already dead' and which is not available for the future tense) or <u>dai olgeta</u> ('die altogether'). These people's very language seems to reflect a world-view in which the demarcation between life and death lies more in the direction of life than we tend to think. (Shewmon and Shewmon, 2004, p. 102)

Here one has to conclude with the Wittgensteinian observation that even the broadest terms relating to human behaviour are culturally specific. Science is culturally specific. 'Facts' regarding the self can only be said to be assumptions, and their foundations are in folk psychology not in neurons.

There is a Heideggerian notion (Watts, 2001, p. 49) that we cannot know our own death; we can only ever know of the death of another. Just as Penfield's observations of automatic states required substantiation by a third party in distinguishing consciousness from unconsciousness, so death is something that can only be defined by the living. Just as Phineas Gage enacted his profound transformation of character only through third party descriptions and diagnosis, and through posthumous revision of primary sources, so the process of life turning to death is enacted within the semantic parameters of those left still breathing. Just as 'schizophrenia' is a diagnosis dependent on third party policing of the perimeter fence of good grammar, so death is declared conceptually and not by the visceral and irreversible progress of data, for others and not for the person most concerned. If death is semantically embodied, all the determinants and all the rights of recognition are with the living.

Thus far, we have illustrated two attitudes towards death. The first, the oldest, the longest held, and the most common one, is the familiar resignation to the collective destiny of the species and can be summarized by the phrase, <u>Et moriemur</u>, and we shall all die. The second, which appeared in the twelfth century, reveals the importance given throughout the entire modern period to the self, to one's own existence, and can be expressed by another phrase, <u>la mort de soi</u>, one's own death. Beginning with the eighteenth century, man in western societies tended to give death a new meaning. He exalted it, dramatized it, and thought of it as disquieting and greedy. But he already was less concerned with his own death than with <u>la mort de toi</u>, the death of the other person. (Aries, 1974, p. 55)



16. What does death constitute in a figure which can be conceived of as vivified only by the performative act of a third party? – An Automata Autopsy. (Image reproduced from Blumenthal, 2005, p. 181) In death, as in ventriloquism, the corpse is made to speak for someone else. Dummies are speaking things that seem to have a life away from the living. In a ventriloquist act the dummy seems to perform beyond the normal biological parameters, behaving *in propria persona* despite being physiologically inanimate. It is difficult to conceive of death in a being never legitimately living; ventriloquist dummies live only by the ventriloquist act. A number of fictional representations of ventriloquism use this distinguishing feature to present a corpse that walks; what does death constitute in a figure which can be conceived of as vivified only by the performative act of a third party?

In *Devil Doll* (1964) the crowd is never amazed by the act of ventriloquism per se: it is the puppet walking that draws the applause. The climax of the film, however, revolves around the voice-swapping of puppet Hugo and his ventriloquist 'The Great Vorelli'. Hugo is inhabited by the soul of a German dancer that 'The Great Vorelli' murdered on stage, after having switched his soul to the wooden body of the puppet by means of some hypnotism. At the film's denoument Hugo the dummy speaks with the voice of The Great Vorelli, and The Great Vorelli speaks with the voice of Hugo. The voice is the only sign we have that another soul-swapping has taken place.

This Great Vorelli's skill is that of any ventriloquist: that is, animating the puppet, though in this case by unorthodox means. The uncanny in the act is the animation of the puppet, and in providing the puppet's voice. These are Vorelli's skills and the skills of any ventriloquist. It is only Vorelli's uncannily great skill (apparent in the astonishment of his audience) that arouses suspicion in journalist Mark English. It is the puppet Hugo who cries for help and provides the crucial lead for English's investigation. Hugo tells the journalist where and when his soul was stolen. It is the dummy who explains the enigma of ventriloquism.

There are instances where patients remain sentient even under general anaesthetic (Channel Four, 2005). The patient is paralyzed by general anaesthetic but feels all the pain of the operation. The patient seems to 'wake up' at some point, on the operating table, but, because paralyzed by anaesthesia, is unable to indicate to the surgeon or anaesthetist that they are in pain and can feel every scalpel-cut and suture. It seems to be a rare occurrence, but even so some people claim it has happened to them during more than one operation. It says something about the pragmatic stance of good doctors that they believe in the testimony of those patients who report experience of this 'anaesthetic sentience'. There is every reason to doubt the reports: it is such a rare occurrence, maybe they dreamt it? Does it indicate the 'good faith' approach of doctor to patient, that doctors ordinarily trust the ability of the patient to know their own state of sentience? Or does it indicate the fallibility of anaesthesia, that it cannot be an exact science, that it is difficult to monitor (for what is one monitoring?)?

Pain has long been a signifier of consciousness, or of the 'undeniable' qualia which guarantee the verisimilitude of epistemological experience. In 1963 Paul Feyerabend wrote in *Materialism and the Mind-Body Problem* (an essay credited with first defining the concept of 'folk psychology' in philosophical terms), that:

When I am in pain, there is no doubt, no possibility of a mistake. This certainly is not simply a psychological affair, it is not due to the fact that I am too strongly convinced to be persuaded of the opposite. It is much more related to a logical certainty: there is no possibility whatever of criticizing the statement. I might not show any physiological symptoms – but I never meant to include them into my assertion. I might not even show pain behaviour – but this is not part of the content of my statement either. Now if the difference between essence and appearance were applicable in the case of pains, then such certainty could not be obtained. It *can* be obtained as has just been

demonstrated. Hence, the difference does not apply and the postulation of a common object for mental processes and impressions of physiological processes cannot be carried out. (Feyerabend, 1963, p. 56)

It is not so simple and straightforward a rule as ontological incorrigibility that bestows on pains the rights to epistemological presence. It is enlightening that the 'fail safe' to prevent against 'anaesthetic sentience' is to wake up the patient during surgery to ask them whether or not they are in pain despite the effects of the anaesthetic (Channel Four, 2005). In his essay, Feyerabend goes on to say that, concerning the certainty of statements regarding mental processes, " it is their *lack of content* which is the source of their certainty" (1963, p. 56). Hence the potency of hypnotism as anaesthetic during surgery: it is only the patient who needs to be convinced regarding their lack of pain (Hilgard and Hilgard, 1975).

During brain surgery, for instance surgery to deal with severe epilepsy (BBC One, 2005) or Parkinson's disease, the patient is only locally anaesthetized (the matter of the brain seems to have no pain receptors). The reason for only locally anaesthetizing the patient is to enable the surgeon to speak to the patient during surgery. Brain function is only broadly localized, and the virtually indistinguishable matter of the brain proper requires the patient's assistance to monitor their faculty-impairment during surgery. There is a contrast of intent, however, when compared with the practice of waking up patients to guard against 'anaesthetic sentience'. In the locally anaesthetized brain surgery, patient vocal report is a marker of faculty, not of feeling. In contrast to the experiential qualities reported by those experiencing 'anaesthetic sentience' (pain, primarily), the vocal report of patients undergoing brain surgery is an indicator not of suffering but of underlying judgment. A brain surgery patient might begin to slur their speech, or present as amnesiac in any number of distinct ways (forgetful as to the meaning of images, or words or context), but also may be unaware of qualitative change. The surgeon uses vocal report, in this instance, as marker of somatic change, of tissue damage, of cognitive fallibility: the symptoms are trusted because they contrast with the report of the patient and are considered as objective markers, with surgeon as primary assessor of their meaning. The patient's speech is indicative of something, though not necessarily what they are talking about.

The laws regarding persons missing at sea, or missing in war, or just missing require those persons to be declared dead, for practical reasons. If there is some evidence that those missing persons are not certainly dead (they have, for instance, been shipwrecked, or taken hostage, or are in are hiding), then the declaration of their death follows a waiting period of years, or requires strong evidence that they have perished. But, as J. J. Hughes points out:

The deadness of the missing person is also partly determined by our decision to mount a search mission or not, which is also true with the therapeutic situation of the 'do not resuscitate' order. The person in arrest with a DNR is much deader than the person in arrest subject to resuscitation. The non-heart-beating donor controversy has also made explicit what was implicit with DNRs; the intention to resuscitate a heart/breathing-arrested person partly determines when in the dying process a person is declared dead. (Hughes, 2004, p. 83)

Alan D. Shewmon (a neurologist) has pointed out a number of instances where people break the rule of semantic given, act beyond medical consensus and indicate the illdefined terms which bestow life. Here there is animation where there should not be, and agency where there should not be power to act.

I read with incredulity about this boy with hydranencephaly who was described as conscious, adaptively interactive with the environment and quite sociable. I knew for a 'fact' that, due to the total absence of cerebral cortex (in the presence of an intact brain stem), hydranencephalic children are necessarily in a permanent vegetative state...As

the articles mentioned the adoptive mother's name and city, I was able to track her down through telephone information. After an introductory conversation, she verified all the claims and even more. For example, Andrew could scoot around the house on his back by pushing with his legs, without bumping into furniture; during the summer he would scoot through open doors onto the sun porch. He was obviously not only conscious but had at least rudimentary vision and voluntary motor functions...I was in a state of shock, amazed that a medical 'fact' so certain as the necessity of the cortex for consciousness was evidently not true in all cases...Why did such outcomes not occur more often in cases of hydranencephaly? Most likely, I suspected, because the prognosis of vegetative state universally told to parents tends to become a self-fulfilling prophecy. [This child was] given constant, loving nurturing, in contrast to most hydranencephalics, who are typically placed in a corner and only intermittently and perfunctorily attended to. Even neurologically normal infants, if neglected and emotionally deprived, will fail to develop, especially in the areas of social relatedness. (Shewmon, 1997, p. 58)

Shewmon has written of cases such as the above where accepted tenets regarding agency and volition are contested by the abilities of certain individuals to confound medical assumption. The cases of the children reported above not only provide evidence to contradict truisms of diagnosis but also the domain specificity of functional anatomy. Because these children almost entirely lack cerebral cortex, and 'consciousness' is axiomatically home to medically attributed 'consciousness', the exhibited agency and motility of the children refutes and disproves consensually explicit medical dogma. By the considered pattern of orthodoxy regarding physiologically localized presence for 'consciousness', the children described above should not be able to exhibit the skills that they do.

Shewmon goes further, finding evidence to confound the principles by which death is considered manifest. Shewmon has provided evidence of a person whose continued existence beyond the parameters ascribed to death is organically holisitic and metabolically intact, but who confounds the assumptions by which death is ordinarily pronounced. Examples of prolonged somatic survival with brain death have been well documented. In a paper presented at Cambridge, Shewmon described a child who had suffered massive brain damage due to meningitis. He showed a flat EEG, no spontaneous respiration, and fulfilled all clinical criteria for brain death. The child has survived in this state for 14 years. Further tests confirmed this extraordinary diagnosis: evoked potentials showed no cortical or brain stem responses; magnetic resonance showed no intercranial blood flow...It was illuminating to see the reaction to this evidence by a physician responding for the official view. He stated quite calmly that this case must be one of misdiagnosis. This was even after a slide had been shown of the MRI scan showing 'the entire brain, including the brain stem, had been replaced by ghost like tissues and disorganized proteinaceous fluids'. The child was evidently brain dead though his body survived 14 years (and still does at the time of writing). This case is the most extreme, but it is only one of many documented cases of prolonged somatic survival with brain death. (Jones, 2000, p. 98)

I quote all these confusing documents concerning the determination of death not to enter an argument with 'Pro-life' regarding related topics of stem-cell research or abortion, or organ donation, or euthanasia. I quote these learned articles in my attempt to illustrate how nebulous or contentious definitions of death are to those whose duty it is to define it. To these anaesthetists, cardiologists and neurosurgeons death does not form a simple binary with life. Death is a cluster of factors that form a 'syndrome'. If enough of those factors are present in a patient then a doctor can pronounce the patient dead; but some of the factors concerning death are open to debate and subject to the discernment of those observing. As I have indicated in my discussion of automatic states, some events look one way to an observer but feel very differently to the person observed.

This thesis has argued that consciousness does not constitute a natural kind of use to science. If one can't adequately define consciousness, what does one look for in a diagnosis of unconsciousness? If even the grand distinctions in consciousness such as between 'life' and 'death' are difficult to make and, even in medicine, riddled with indecision, what point a nicer definition of its aggregates?

Between life and death is a borderland rather than a borderline. It is still arguable when death occurs even if one is clear regarding the currently employed clinical definitions. I.C.U. (Intensive Care Unit) technology means that life is sustainable beyond cardio-respiratory failure. Is brain death what we would want to call death? Or do people revive from brain death? What is it that we want to have happened for a verdict of death to be given by those responsible for giving it? A loss of personhood legal or epistemological or spiritual or medical, or something else?

Anaesthetists won't agree on what constitutes consciousness in a patient. They have acceptable levels of pain and arousal. Consciousness to an observing anaesthetist is an ascending scale. Every stimulus registers, but only some stimuli register above a level of awareness that one would be explicitly conscious of. Is it just that we want it not to hurt? We may look to death to give us clear definitions of the way we live.

The lexical history of the terms referring to consciousness and unconsciousness begins relatively recently. I have quoted Kathleen Wilkes to demonstrate that the terms may not refer to anything that it is useful to discuss, or that is inescapably important, and the late appearance of the terms in the history of the English language indicate the same. Julian Jaynes's work illustrates that consciousness refers to something vague; something that has been marginal in human behaviour now elevated to a central position (in philosophy, psychology and bio-ethics).

If our death is indistinct this is no more than the ablative of our blurry definition of consciousness in life. I don't just mean this linguistically (though the lexical and performative histories of the terms tell this same story); I mean to indicate how barely there we may be said to be. If we can be said to be 'there' at all it is in such a confusing

multiplicity that any attempt at definition is bound to fail. Our 'personalities' may be said to be 'ours' as much as is a ventriloquist dummy's, and accrete to us in much the same way.

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