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Chapter 4 Language Working in the World

‘For deeds doe die, how ever noblie donne,
And thoughts of men do as themselves decay,
But wise wordes taught in numbers for to runne,
Recorded by the Muses, live for ay.’

Edmund Spenser ¹

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Memory was greatly increased by externalising the workload to others, or to the environment. This evolutionary advantage is ‘extelligence’ Culture, nature, mind and body, language, tools and *techné* are all intertwined, processural and emergent – human cognition relies on external material objects in the environment. Lev Vygotsky introduced the concept of ‘scaffolding’: how experience with external structures (including language) alters, and informs, understanding. Writing is a supreme example of scaffolding.

4.1 Extelligence & Scaffolding

Speaking is a dual process of producing words in some order, and monitoring what we are saying (both the effects on ourselves and others). The process of speaking and conscious awareness is constantly shifting, and conversational reflexivity generates considerable information. Stewart and Cohen note that information requires resources for storage, transmission, replication and evaluation, which can be processes in either the material, or non-physical realm. It is an advantage to externalise some of the workload to others or to the environment. They refer to this evolutionary advantage as ‘extelligence’ (the title of their penultimate chapter) and suggest that larger brains had the functional purpose of facilitating the external storage and manipulation of information and examine how the information mass has

grown with technological culture.² Tim Ingold attacks such decontextualised use of the term ‘information’, as if independent, and as if culture is information ‘poured into a child.’³

The importance of external memory is that:

1. it relieves the work of internal memory (providing opportunities for other intellectual processes – expanding cognitive opportunities); and
2. external symbols can be exchanged, reflected upon and manipulated in new ways – also expanding cognitive opportunities.

‘In my proposal all three stages introduced new memory features into the human cognitive system, and one important consequence has been greatly improved voluntary access to memory representations; in effect, humans have evolved the architecture needed to support what has been called ‘explicit’ memory retrieval.’

Merlin Donald⁴

Merlin Donald highlights one element in his ‘explosive’ third stage of hominid development – memory, mother of the Muses (a set of psychosomatic mechanisms encompassing history, religious ritual, cosmology, as well as the arts of poetry, song and dance). Donald’s core claim is that this stage introduced external memory storage and retrieval, and new working memory architectures, using external memory and the invention of permanent visual symbols- i.e. ‘material culture.’ He writes, ‘The key event during this transition was the emergence of the human speech system, including a completely new cognitive capacity for constructing and decoding narrative.’⁵ Donald’s claim makes sense if culture, nature, mind-body, language, tools and *techne* are considered as intertwined, processural, and emergent - though the Muse focused on declarative memory ignoring procedural memory.⁶

Subsequent to his 1996 hypothesis, Steven Mithen has now included an element of, what I term the ‘constitutive’. Mithen writes, ‘I now see that the material culture itself was not just a product of a massive cognitive change, but also a cause of it.’⁷ He posits two main types of imagination - the primary envisions alternative courses of action - ‘A second type of imagination is quite different, and initially appears quite incompatible with an evolutionary perspective on the human mind. This is imagination about worlds that we can only inhabit in our minds ... responsible for a vast amount of literature and art.’⁸ He argues that these latter types of ideas are difficult for minds to remember and manipulate,⁹ In the essay ‘Nature’, Emerson compared civilised man who ‘is an analogist, and studies relations in all objects’ with ‘savages’ who have

only what is necessary, converse in figures.’¹⁰ Poets have long realised that objects are scaffolds of thought and feeling:

‘§13 Man in society, with all his passions and his pleasures, next becomes the object of the passions and pleasures of man; an additional class of emotions produces an augmented treasure of expressions, and language, gesture and the imitative arts become at once the representation and the medium, the pencil and the picture, the chisel and the statue, the chord and the harmony.’

Shelley

Mithen believes that the basis of our cultural intelligence is our ability to create another home for such ideas - in the physical world (carving, ritual, performance, or inscription), an externalisation process of tool use worked with art and agriculture some 50,000 years ago. These remarkable developments: ‘should not be seen simply as the manifestation of a new level of consciousness. They are as much a cause as a product. They allowed people to explore, expand, manipulate and simply play with their own knowledge in ways that other humans, even those with private and public language, were unable to do.’¹¹

Mithen offers an argument for the origins of art, discussing a human/lion ivory carving from Hohlenstein Stadel, Germany: ‘An evolved mind is unlikely to have a natural home for this being, as such entities do not exist in the natural world. As I have previously argued, a cognitively fluid mind can come up with such entities as I show here, but where then to store that entity? The only option is to extend the mind into the material world.’¹² Artefacts with human intention have great power, once begun art has never ceased.¹³ Andy Clark takes this externalisation deeper into cognition: ‘Every thought is had by a brain. But the flow of thoughts and the adaptive success of reason are now seen to depend on repeated and crucial interactions with external resources ... human reasoners are truly, distributed cognitive engines: we call on external resources to perform specific computational tasks.’¹⁴ He notes that chimpanzees distinguish identical pairs of objects from different ones, but only when trained with physical tokens (to associate the concepts of 'sameness' and 'difference') can they solve the higher-order task of sorting pairs of objects into ‘same’ and ‘different’.¹⁵ Symbols transform a difficult higher-order task into a simple first-order task of judging the sameness or difference of symbols. Language allows us to manipulate thoughts without physical tokens, though graphism extends language (as a series of ‘bootstrapping’).

Just as Herder’s *Essay on the Origin of Language* (1772) introduced the realisation that language expands thinking, Vygotsky and Luria note, ‘All the artificial tools, the entire cultural

environment, serve to 'expand our senses'.¹⁵ The invention of simple tools like tallies vastly expanded memory from natural forms of memory to cultural ones.¹⁶ Vygotsky and Luria were influenced by Engels' view that humans use tools to control nature and other humans; but in doing so behaviour is circumscribed and transformed. For example, artefacts expand and transform memory, as more complex modes of external memory become available.¹⁷

Vygotsky introduced the concept of scaffolding to express the way experience with external structures (including language) alters and informs cognitive processing and understanding.¹⁸ Organisms are constantly responsive to events, and human actions are self-transformative through the use of tools, and the tool is modified through its use, which becomes clearer from the work of Andy Clark and Vygotsky.¹⁹ Tool use is inseparable from social behaviours such as sharing, imitation and teaching and language, but Charles Bernstein undervalues the range of cognition, when he makes the Whorfian claim that: 'It is through language we experience the world, indeed through language that meaning comes into the world and into being . . . Our learning language is learning the terms by which a world gets seen.'²⁰ Our cognitive fluidity is embodied and in a dialectic with skilled practice and *techne*.

Material objects survive their creator and are versatile at carrying meanings far away in time and place; they develop as mnemonics their own relations meanings and histories, and their materiality allows for aesthetic and technical innovations. Images, icons and objects work with linguistic representations. Donald believes language requires representation and utilised a 'mimetic culture' already in place.²¹ Suddendorf argues that Donald's imitative mimesis requires *metamind*, meta-representational abilities of representations of representations, freeing representation from immediate perception and enabling representations themselves, as an object of thought.²² Words themselves may not be crucial to face-to-face communication, but accuracy is important in oral cultures.²³ Accurate memory needs mnemonic devices, dances, paintings and poetic devices, rhythm, rhyme, metre: 'poetic devices form an important set of mnemonic devices. Complex poetic techniques were developed in oral cultures and specialists in poetry have existed in a number of different cultures.'²⁴ Darren Tofts has examined the history of memory (as a prehistory of cyberculture) and how technologies affect memory: 'Literacy is also integral to memory being one of the earliest information storage systems. Oral cultures practiced an entirely different kind of memory work and writing was born of the need to extend the capacities of the human mind for remembering. This was initially represented by inventories and lists.'²⁵ Though poetry began as a means of memorising information and of giving praise (hymns), memory is inventive. If we imagine events happening, we often think they actually happened to us. Story telling is important for memory, but is being augmented by technologies of memory – writing, print, and computers.

Scaffolding takes extelligence further; tools and representations embody meaning and serve as repositories of knowledge. This effect has been described as ‘distributed cognition’; a collaboration between individual and artefact. The structure and operation of many tools incorporate solutions to previous problem; thus the skills needed to use a tool are simpler (either cognitive or motor skills) than the original operational context of the tool. Such scaffolds are memory devices, both on an individual and collective scale, working on stability, capacity and public accessibility. They are crucial for culture, at various levels, including the unconscious.²⁶

Andy Clark’s ecological approach is clear when he questions where the mind stops and the world begins and argues for ‘the presence of continuous mutually modulatory influences linking brain, body and world.’²⁷ D.E. Rumelhart also emphasises that external environments become a key ‘extension to our mind.’²⁸

‘We think of the body as separate from the world - our skin as the limit of ourselves ... Yet, the body is pierced with myriad openings. Each opening admits the world - stardust gathers in our lungs, gases exchange, viruses move through our blood vessels. We are continually linked to the world and other bodies by these strings of matter. We project our bodies into the world - we speak, we breathe, we write, we leave a trail of cells and absorb the trails of others. The body enfolds the world and the world enfolds the body - the notion of the skin as the boundary to the body falls apart. The body, as here not there, and its defining sense of the other is a mental construction - every perception of the other is a creation and every invocation a re-creation.’

Alan Dunning & Paul Woodrow²⁹

Andy Clark broadens the notion of scaffolding to encompass all kinds of external support: ‘Biologists have tended to focus solely on the individual organism as the locus of adaptive structure. They have treated the organism as if it could be understood independent of its physical world.’³⁰ The tasks humans perform best and most fluently are ‘motor control, face recognition, reading handwritten zip codes and the like;’ we use scaffolding to cope with sequential reasoning or long term planning.³¹ This concept is close to that of bricolage.

Box 4 Bricolage

Claude Levi-Strauss developed bricolage as a science of the concrete, using patterns of association to develop new concepts from concrete observation.³² It is a process that the biologist François Jacob adopted to describe evolution - the tinkering with what was already there by whatever means happened to be at hand. J. Balkin extends the concept further.

Balkin asserts that ‘human thinking is distinguished by its symbolic and metaphoric character and by its fundamental motivation in human values.’ He attempts to provide a mechanism of ‘memes’ for its operation.³³ In fact, it lies deeper in the mind than he thought. Balkin is offering a theory of cultural evolution, through transmission and spread of cultural information and know-how or ‘cultural software’.³⁴ It is based on tool use, technology and the notion that ‘Human culture is bricolage’ - the bricoleur keeps the tools of last job and evolve new forms and methods of larger bricolage.³⁵

‘Human culture is bricolage ... the study of human culture ... should be a bricolage about that bricolage, a meta-bricolage that makes use of insights from many different sources and approaches.’ Balkin³⁶ He makes four claims for cultural bricolage:

1. Bricolage is cumulative: The Apollo program relied not just on the space program but centuries of theory, technology and politics;
2. It involves unintended uses: We use what tools are to hand, not always for their original purpose. We take over concepts for other purposes;
3. It is economical or recursive: a small number of tools are used in many situations, (what Pierre Bourdieu calls ‘the economy of logic’); and
4. It has unintended consequences.³⁷

Humans change their environment through energy extraction, shelter, medicine, gene therapy etc; cultural evolution is now of greater import with increasingly faster cumulative bricolage.³⁸

Andy Clark supplies a cognitive version of bricolage,³⁹ and notes such bricolage techniques are pervasive. Clark notes, ‘I have files, jottings, fragments, stored on paper, in files, drafts, papers, noted, annotated - a whole series of external props, to manipulate and juxtapose ideas and data that would quickly baffle the un-augmented brain.’⁴⁰

Diederick Raven also takes scaffolding further than inscription, to thought itself: ‘Central to my argument is the assumption that any kind of thinking is a practice of manipulation and interaction with external resources. Logical thinking is no exception; it is the manipulation of and interaction with external conceptual resources - external because the meaning of concepts is, after all, a public affair. Whereas Bourdieu argues that “practice has a logic”, my argument hinges on the reverse: logic is a practice.’⁴¹ Clark prefers the notion of language as a bootstrap:

‘[T]he role of language is to guide and shape our own behaviour, it is a tool for structuring and controlling action, not merely a medium of information transfer between agents.’⁴² The pioneer Bartlett anticipated this creative model, according to W.J. Clancey, in line with Edelman’s hypothesis that the articulation process of “building a scene” is reflective at a higher-order because of re-entrant links between Broca and Wernicke’s areas and perceptual categorization [the ‘semantic bootstrap’].’ Clancey quotes Edelman, in terms of linguistic representations expressing and reflecting on our experience itself: ‘This is why we write things down or “talk through” an experience to clarify meanings and implications for future action. Protracted, conscious experience -as in writing a paragraph - is not merely an awareness of elements placed in “working memory,” but an active process of re-coordinating and re-comprehending (re-perceiving) what we are doing . . .’⁴³

Vygotsky argued learning awakens internal developmental processes from interacting with the environment of both people and objects. A sense of self develops from the learning and practice of manual skills as much as language use.⁴⁴ What is clear is that interaction with the environment is necessary for normal development, particularly of language.⁴⁵ Popper and Eccles have shown that damage to Broca’s and Wernicke’s area leads to profound transformation in the sense of self; an interior monologue and ongoing narratives are vital to consciousness.⁴⁶ G. H. Mead argues for scaffolding when he claims that language requires group interaction, leading ‘to the development of self-conscious mental states’ of individuals.⁴⁷ Scaffolding has far reaching implications; the fact we hear our own voice enables the self to become an object to the self (William James, John Dewey, Richard Rorty, Jerome Bruner⁴⁸); Hendriks-Jansen uses the term ‘scaffolding’ in his argument that language has both innate and developmental inputs,⁴⁹ the term is used in learning theory.⁵⁰

Donald Norman claims language is the tool for thought that allows us to continue to invent ever more useful cognitive artefacts that in turn support even more invention, (cumulative bricolage) leading to better quality thinking, making us more intelligent.⁵¹ The use of external representations (writing, mathematical notation, drawing, and models): allow a group to share the same representation, affording group thought; expansion of the working memory affords more complex representations and time and space for reflection: ‘Reflection is a critical, essential ingredient for the development of new ideas. Some technological media support reflection, but many do not.’⁵²

Edwin Hutchins argues that human reasoning is situated, distributed, and heavily context-dependent. The environment is both prop and affordance. He posits a plausible model of distributed everyday cognition, as activities distributed across individual and artefacts.⁵³

Embodiment is culturally constructed to some extent, but reliant on the dynamic flow between mind and evolved physiology. N. Katherine Hayles argues that the body is a culturally constructed abstraction,⁵⁴ and, more recently, has characterized embodiment as ‘experienced from the inside, from the feelings, emotions, and sensations that constitute the vibrant living textures of our lives - all the more vibrant because we are only occasionally conscious of their humming vitality.’⁵⁵ She has reworked her notion of the ‘posthuman’ to emphasise denial of the Cartesian split, and the premise that mind and body, like the rest of the world, preexist our experiences of them.⁵⁶ Agency and consciousness are distributed, the latter an, ‘epiphenomenon, a late evolutionary add-on whose principal function is to narrate just-so stories that often have little to do with what is actually happening.’⁵⁷ Locating cognition in the brain and experimenting in artificial conditions is mistaken, since, as Hayles puts it: ‘[C]ognition is a systemic activity distributed throughout the environment and actuated by a variety of actors, only some of which are human ... The extended-mind model indicates how cultural perceptions change in relation to the development of information-rich environments.’⁵⁸ According to Tofts, the posthuman era began not with electronics, but with the invention of writing.

Andy Clark in one of his most recent books, *Natural-born Cyborgs*, takes the notion of scaffolding and externalist thought to its logical conclusion, arguing we are natural cyborgs: ‘not in the merely superficial sense of combining flesh and wires, but in the more profound sense of being human-technology symbiots: thinking and reasoning systems whose minds and selves are spread across biological brain and non-biological circuitry.’⁵⁹ The performance artist Stelarc uses the term for bio-engineering (conjoining metal and silicon with blood and flesh), and Donna Haraway as a way of overcoming dualism (especially culture/nature).⁶⁰ We are Haraway's cyborgs part human, part machine - infiltrated and impaled by various complex technological systems (Clark would agree with Haraway that technology is natural, and expands what we know). The danger is forgetting that *techne* is part of our nature, whereas technology is not - thus taking technology, extelligence and scaffolding beyond our touch and embodied skill, which is at the heart of how an organism dwells in the world.⁶¹ (See Chapter 7.2)

In *New Atlantis* (1624), Francis Bacon forecasts a technological utopia where a scientific priesthood organised research, including on life.⁶² Bacon had no techniques available, but now machines work with organic lifeforms. A cyborg is a cybernetic organism, a hybrid of machine and organism, marker of the *techne*/technology divide. In her famous ‘A Cyborg Manifesto’, Donna Haraway argues that we hominids have been cyborgs for a very long time.⁶³ She uses the term as a metaphor - cyborgs are markers of the inability to distinguish culture from nature, or vice versa: ‘In short, the certainty of what counts as nature - a source of insight and promise of innocence - is undermined, probably fatally.’⁶⁴

We have a close relationship to tools and objects in the world as *bricoleurs*, yet objects do possess functional fixity; people are not good at using familiar objects in creative ways. This relates to affordance; the way, Vygotsky notes, children find things dictate behaviour, ‘a door demands to be opened and closed . . . certain brain damage patients lose the ability to act independently of what they see;’ that shows us how our independence of action is gained through a long process of development.⁶⁵ Carolyn Steedman has emphasised the power of material objects for affect, memory, and constituting subjectivities.⁶⁶ These objects, our tools and scaffolding, generally lead to Clifford Geertz’s notion of culture as patterns of meanings embodied in the practices and artefacts which people use to communicate, perpetuate, and develop their knowledge about life - using highly contextual meanings.⁶⁷

Poetry, through the form of poems, offers scaffolding for thinking about the world. An oral poet’s ability to preserve and recall information was being replaced, in Plato’s epoch, by writing technology that was ‘exhaustive’ and ‘economical’.⁶⁸ Previously, Phoenicians used drastic economy in their script that resulted in ‘drastic ambiguity’. Havelock argues that Plato’s sophisticated thought and metaphysical structures, required internalised written text. Words on the page allow for a degree of reflection and abstraction not known to pre-literate societies.⁶⁹ This is one of the reasons (now defunct) Plato exiled poets from the city - because their thought was oral (traditional, conservative, and repetitive), compared to ‘writing thought’ (decontextualised, abstract, and novel).

4.2 Material Tools – Writing

‘Writing was aimed at God’s eye more often than communicating info to fellow human beings’

M T Clanchy⁷⁰

Joseph Catalano notes that, ‘Prior to the discovery of the Rosetta Stone, these hieroglyphs were understood to speak directly to the mind. That is to say, there was supposed to exist some mysterious but nevertheless natural connection between these majestic looking marks and meaning. On the contrary, I am insisting on the full conventionality of written marks. My case is that existing by convention is not opposed to existing as meaningful.’⁷¹ Catalano underscores that with the extraordinary invention of writing, ‘We intended to represent the spoken word; but we made roses, dreams and lives exist as marks on a page. If this seems mysterious, it is a mystery that is present in every artefact . . .’⁷² He suggests pictograms became letters gradually

by abstracting conventional aspects of artefacts from their materiality. This involves a history in which use of artefacts is preceded by a reading of their use, in terms of human intentions from which, ‘partly by vision, partly by social need, and partly by accident, this readability becomes itself an artefact, and writing (and also, I think, speech) appears as a new form of language.’⁷³

Leroi-Gourhan argued that the mouth spoke only if the hand had developed as a tool to grasp, taking over tasks formerly performed by the mouth. He thought that speech (meaningful vocal utterances) is complemented by gesture, which combined with tools constitute techniques. Thus technical expressions (movement, objects, form, rhythm, texture, colour) are as meaningful as speech.⁷⁴ He hypothesised the origin (he dated to 35,000 years ago) of ‘graphism’ as the new mode of representational possibilities, of which writing is the most powerful form of cultural memory. He claimed that ‘tools and language are neurologically linked,’⁷⁵ for which William Calvin has provided evidence.⁷⁶ Most of the knowledge involved in toolmaking is nonverbal, spatial, kinaesthetic, tactile, and experiential, skills and practice. But the parallel and serial motor sequencing, underlying our capacity for vocalisation and hand coordination, is not sufficient for either language or tool-making.⁷⁷ Nonetheless, Susan Greenfield shows that the neurological circuits underlying the capacities of speech and tool-use emerge from a common substrate identified with Broca’s area through the establishment of separate and parallel connections to anterior areas of the prefrontal cortex.⁷⁸ Walter Ong believed that the immediacy and embeddedness of speech within contexts of social interaction applies to manual gestures. Through calligraphy, the gestures of a skilled hand are inscribed (though Leroi-Gourhan claims all is graphism).

As we speak we gesture with our entire bodies (not just hands); such gestures form languages among the deaf (Chapter 6.1). Following in the footsteps of Mauss and Leroi-Gourhan, Connerton observes that: ‘Any bodily practice, swimming or typing or dancing, requires for its proper execution a whole chain of interconnected acts,’ what Leroi-Gourhan called a ‘*chaîne opératoire*’.⁷⁹ Ong compares speech dissipating into thin air with inscriptions persisting, their iterability not bound to particular contexts of interaction between writer and reader. (Appendix 16) Successful communication depends on it being adjustable to the complexities of social and cultural life, including lying, joking and poetry. Such flexibility allows our communicative systems to be responsive to the changes in our environment. We can invent words when the need arises. This looseness opens the possibilities of taking poetry seriously, whereas previously ‘literary’ phenomena were viewed as parasitic on ‘normal’ language.⁸⁰ (Chapter 8.4)

‘Writing opens up within itself a pocket, an enclosure, a space separated from the space around us. This is partly because the act of writing is gestureless; my face is

impassive, and only one of my arms moves, not in an expressive but functional way. Again, an exception has to be made for poetry ... the gestures become incorporated into the very words themselves ... in the dance of words.'

John Vernon⁸¹

The earliest pictographs (c 3,800 BC in Egypt and the Middle East) developed towards ideographs (abstracted symbols no longer a clear pictorial representation of external reality) as seen in early Minoan seals and tablets. The shape evolved, and meaning extended (e.g. in Sumerian, a foot came to mean 'go', 'stand' etc). The revolution in writing was the realisation that picture elements could be identified with sounds in a language. Word signs and the alphabet are visual images of speech and need to be translated back into speech. This was obvious in the Middle Ages when writing was always read aloud (even in silent reading we vocalise mentally and motor cortex activates so that a whisper of spoken word remains). A visual presence is important in distinctions between speech and writing; aural and visual sensory modalities; and gesture and inscription (a trace of that movement left on material surface). Sight-reading music processes many different cognitive processes, most obviously motor and higher cognitive skills. It has been found that the eye-hand span (how far the eye reads ahead of the hand) is much smaller than musicians think, about 2 - 4 beats.⁸² A picture theory of writing existed in early views of ancient Egyptian hieroglyphics. Ernest Fenollosa suggested that the Chinese script derives from a shorthand picture of the world, creating original creative poetry with far more vigour and vividness than any 'phonetic tongue'.⁸³ Pound, under the influence of plastic arts, had already begun thinking that poems could be constructed, collage-like, from textual fragments - in what he called the ideogrammic method.⁸⁴ Pound wanted to glimpse 'reality' by presenting 'a complex instantaneously'.⁸⁵ Derrida described the work of Fenollosa, Pound and Mallarmé as a revolutionary breakthrough in Western literature and poetic writing (due to the undecideability of a meaning of a word - its iterability).⁸⁶ But Fenollosa and Pound ignored the phonological aspect of Chinese.⁸⁷

Derrida's phonocentrism also used a simplified notion that Chinese is not phonological (that the material inscription sustains the meaning of a word, is 'irreducible').⁸⁸ Austin thought signatures are performatives that need a presence in the present, whereas, for Derrida, signatures are writing and to function must be iterable (his term for the power of written marks to function (be readable) in absence of receiver and sender).⁸⁹ They must be detachable from the signatory's intentions; otherwise they wouldn't be recognisable. Derrida is sympathetic to Austin's concern with the complexities of meaning. Meaning is not simply a given, transferred uncorrupted easily between locations and across mediums. Derrida in 'Signature Event Context' argues that since every linguistic expression can be used in odd contexts, none is ever completely successful.⁹⁰

He thinks the difficulty lies at the basic level of locutionary act: ‘Iterable spoken marks can function without a listener eg. when overheard, or even a sender (we can speak carelessly).’ This is why Derrida insists that speaking is a form of writing; linguistic sights and sounds are iterable. The iterability of significant marks allow them to be used as identifiable signs [we have to recognise them] but it also means they vary according to context.⁹¹ He famously denies that writing derives from speech, rather it is the inscription of difference between speech and writing, concepts and words, writing is *Difference* (the *Pharmakon*, neither harmful poison, nor quick remedy); it supplements (both adds to other writings, and takes the place of what it recounts) – in this lies a play of *differences*, and the undecidable.

He insists speech is like writing, a supplement not in mystical contact with the world. Derrida provoked with lines like, ‘*There is nothing outside of the text ... there has never been anything but writing; there have never been anything but supplements; substitutive significations which could only come forth in a chain of differential references.*’ He went on to state, ‘the absolute present, Nature’ has ‘always already escaped [and] never existed.’⁹²

For Saussure sound is attached to parole but is a mere vehicle for meaning.⁹³ Barthes understood writing as an iterable interplay of codes that refuse authorship: ‘Writing is the destruction of every voice, of every point of origin. Writing is that neutral, composite, oblique space where our subject slips away, the negative where all identity is lost, starting with the very identity of the body writing.’⁹⁴ Derrida sees the fact of iterability as suggesting that writing fulfils all the properties of language, that is signification. He hopes that his Grammatology (science of writing) will expose the logocentric biases of Western thought. However, as Ellen Spolsky writes, ‘The functioning of human language depends on both its iterability and its instability. The combination makes words simultaneously vulnerable to and usable for new meanings ... The trouble, then, isn't the claim that representational systems such as language provide no access to a ‘real world,’ but only the absoluteness of that claim, and, further, the interpretation of that claim as tragic.’⁹⁵ It is this characteristic that distinguishes natural language from artificial computer language.⁹⁶

For Merleau Ponty, writing carries ‘speaking speech’ (*parole parlante*) the direct articulation of sense through words and gestures and non-verbal communication; we want to communicate through ‘spoken speech’ (*parole parlee*) in our lives, used for letters, poems, shopping lists, etc. which is attached to ‘speaking speech’. Expression is not meaning but an orientation to the world writing is expression, productive and transformative and tied to speech. Language covers speech and writing, but also signs, and all graphic representations: the materiality of language surrounds us.⁹⁷ The alphabet’s phonetic representation can translate into speech but only

linearly, losing the power of the ideograph, as Leroi-Gourhan underlines, 'The invention of writing, through the device of linearity, completely subordinated graphic to phonetic representation ... An image possesses a dimensional freedom which writing must always lack.'⁹⁸ Which leads to Derrida's claim that writing is not the representation of speech, and has origins as early as speech. 'Phonocentrism' is Derrida's term for the belief (Plato's belief) that writing represents speech using Leroi-Gourhan's belief that the linear mode of writing results in 'constriction of thought'.⁹⁹

Derrida's examination of the nature of speech and writing shows that utterances are irreducibly polysemic; they give rise to many possible interpretations - not one literal meaning. This factor ('dissemination') is related to the factor of iterability: utterances are repeatable, but their repetition embraces alteration; in other words, the repetition of an utterance will be both the same - and different. This factor can be seen to account for citationality: every utterance can be cited in different contexts, which modify it. And there is no criterion for selecting one context as the only one. Christopher Norris warns that to claim Derrida supports out-and-out hermeneutic license is a misreading.¹⁰⁰ However, Derrida's approach fails to illuminate the difference writing makes, because he fails to take seriously the material differences between speech and writing: the materiality of graphism and voice, performativity, embodiment and *techné*.

Walter Ong expands on Eric Havelock's notion that alphabet writing is a necessary but not sufficient condition for the development of abstract thinking and discursive reasoning.¹⁰¹ Ong argues that Plato could only talk of such abstract terms as the Form of Goodness in a society where literacy was emerging, despite Plato's argument in the *Phaedrus* against writing. Words on the page allow for a type of reflection and abstraction not known to pre-literate societies. It is not that one is superior to the other but they are certainly different.

The alphabet and then writing providing extra scaffolding – the extent of cognitive implications for literacy is heatedly argued.

Appendix 5 Oral/Literate debate

Haraway is critical of the oral/literate debate: 'Writing has a special significance for all colonized groups. Writing has been crucial to the Western myth of the distinction between oral and written cultures, primitive and civilized mentalities, and more recently to the erosion of that distinction in 'postmodernist' theories attacking the phallo-centrism of the West, with its worship of the monotheistic, phallic, authoritative, and singular work, the unique and perfect

name.¹⁰² David Antin is also dubious, and more interested in techniques of remembering.¹⁰³
(See Appendix 29 for a discussion of Antin's poetics)

‘writing is a form of fossilized talking which gets put inside of a can
called a book and i respect that can its a means of preservation or maybe
we should say in a frozen food container called a book but on the other hand if you
dont know how to handle that frozen food container that icy block will never turn back
into talking
and if it will never turn back into talking it will never be of use to you again
so lets not call it a novel.’

David Antin¹⁰⁴

A poem is a tool for thinking and feeling and speech, it is speech and not speech. Foucault thought the Enlightenment had ‘autonomised’ language as a sign-system – breaking the magical ties between ‘words and things’.¹⁰⁵ Foucault wrote on the instability of referencing in image and text in ‘Ceci n'est pas un pipe’ (‘This is Not a Pipe’ - the Magritte painting) and made an attempt to distinguish resemblance and similitude.¹⁰⁶ This is what artists have wrestled with, as W.J.T. Mitchell points out that Malevich, ‘didn’t say it was a ‘picture of a red and a black square’ or a representation of these figures. He saw it as a direct presentation of the figures.’¹⁰⁷ Poetry took much longer to trust the reader/listener to work.

Tim Ingold does not take the nature of the artefact seriously enough in his phenomenological account of skilled practice as forming culture. He discounts Berger and Luckmann’s constructivism, but they do point out that objects are representational and fill ‘the reality of everyday life’; we are constantly working with them and giving them meanings through the subjective intentions of others. Cognitive artefacts that probably improve the quality of thought include language, and memory storage systems such as paper and pencil and computers (such change has not been conclusively demonstrated).

(For the implications of *techne* and technology for language, see Chapters 7.3; 16.3.) What is of importance is not any cognitive divide, but material constraints on cognitive work (as seen with extelligence and scaffolding).

Chapter 4

¹ Edmund Spenser, 'The Ruines of Time', (c1590) L400-03 from Alexander B. Grosart's *The Complete Works in Verse and Prose of Edmund Spenser* [1882] prepared by Richard Bear at the University of Oregon. <http://darkwing.uoregon.edu/~rbear/ruines.html>. [DL Sept 2000]

² Ian Stewart and Jack Cohen, *Figments of Reality: The Evolution of the Curious Mind*, Cambridge: Cambridge UP, 1997, p27. 'The transition from brains to minds can be traced back to the time when animals came up with non-genetic routes to protect their offspring.' p27. I'd argue the transition from evolution to history came later with poetry. Boisot refers to a similar concept as the 'principle of least action'. M. Boisot, *Information Space*, London: Routledge, 1995.

³ Tim Ingold, 'Transmission of Representations' in *The Debated Mind: Evolutionary Psychology Versus Ethnography*, Harvey Whitehouse, Ed., Berg, 2001, p148.

⁴ Merlin Donald sums up: 'The first transition introduced two fundamentally new cognitive features: a supramodal, motor-modelling capacity called mimesis, which created representations that had the critical property of voluntary retrievability. The second transition added two more features: a capacity for lexical invention, and a high-speed phonological apparatus, the latter being a specialised mimetic subsystem. The third transition introduced external memory storage and retrieval, and a new working memory architecture.' Donald distinguishes two types of external memory systems, the mythic: before Greeks external formalisms were mythic or narrative; and theoretic: the key innovation was writing – The Greeks began to record jotting, speculation, evidence – before whole learnt histories, narratives. Donald says these were 'much more than a symbolic invention, like the alphabet, or a specific external memory medium, such as improved paper or printing' in 'the process of externally encoded cognitive change and discovery.' Merlin Donald, *Origins of the Modern Mind: Three Stages in the Evolution of Culture and Cognition*, Cambridge, Mass.: Harvard UP, 1991, p343.

⁵ Merlin Donald, 1991, p16. He calls objects which embody memories and which combine in many different ways with the brain's distributed, context-ridden 'engrams', 'exograms'.

⁶ Memory is now categorised into two types: declarative memory (available to consciousness includes memory for such things as daily episodes, words and their meanings, and history) and procedural memory (generally not available to conscious awareness, including, motor skills, associations, puzzle solving skills etc.). I would suggest that a rich poetics utilises all of these processes to varying degrees.

⁷ '[T]he material culture itself was not just a product of a massive cognitive change, but also a cause of it. An evolved psychology cannot be so easily escaped as I had imagined and the clever trick that humans learnt was to disembodify their minds into the material world around them: a linguistic utterance might be considered as a disembodied thought. But such utterances last just for a few seconds.' Steven Mithen, 'Handaxes and Ice Age Carvings: Hard Evidence for the Evolution of Consciousness', Cog Net, http://cognet.mit.edu/posters/poster.tcl?publication_id=6371. [DL 2.7.2000] The archaeologist S. Mithen, having examined stone tools as old as 1.4 million years ago finds evidence for conscious motor activity. S. Mithen, 'Handaxes: some hard evidence regarding the evolution of the mind and consciousness' in Section 6: 'Evolution and the Function of Consciousness', *Towards a Science of Consciousness, The Third Tucson Discussions and Debates*, Eds., S. Hameroff, A. Kaszniak, and D. Chalmers, MIT Press, 2000. Elsewhere he writes, 'The material objects, social structures, ritualistic performances, acts of story-telling, and complex tools of modern humans are not, therefore, simply products or representations of our inner thoughts. They play an essential role in formulating, manipulating and sharing those thoughts. In this regard, the brain of modern humans may not, in itself, have any greater powers of imagination than that of the Neanderthals. It simply exploits the world outside of the skull to augment its powers of creative thought.' Steven Mithen, 'The Evolution of Imagination: An Archaeological Perspective', *SubStance* Vol 30:1&2, 2001, p50.

⁸ 'This [primary] type of imagination appears as a pre-requisite for any complex living being--one that must rapidly adapt its behaviour to a changing world... Evaluating the costs and benefits of the different courses of actions requires imagination--sometimes conscious, frequently unconscious... .' Steven Mithen, 2001, p29. Andy Clark writes, 'I am John's brain... John is congenitally blind to the bulk of my daily activities. . . What filters into his conscious awareness is somewhat akin to what gets onto the screen display of a personal computer. In both cases, what is displayed is just as specially tailored summary of the results of certain episodes of internal activity.' Epilogue: A Brain speaks', 1997, p223.

⁹ Mithen says especially compared to gossip, 'because it engages with a part of our evolved psychology--the ideas in gossip are exactly the types of ideas our minds have evolved to deal with.' Mithen 2001, p49.

¹⁰ '[N]either can man be understood without these objects, not these objects without man... Because of this radical correspondence between visible things and human thoughts, savages, who have only what is necessary, converse in figures.' quoted Colin Falck, *Myth, Truth and Literature: Towards a True Post-Modernism*, Cambridge UP, 2nd edition, 1994.p120, and Owen Barfield, *Poetic Diction*, p92. Though we know there is no difference, Levi Strauss in *The Savage Mind* (1966) dismantles Levy-Bruhl's pre-logic/logic mentality dichotomy.

¹¹ Steven Mithen, 'Handaxes and Ice Age Carvings' *ibid*.

¹² Dispense with a reliance on brain stuff and get into rocks and painting, ivory and carving. So artefacts such as this figure, and indeed the cave paintings of the last ice age, functioned as anchors for ideas that have no natural home within the mind; for ideas that take us beyond those that natural selection could enable us to possess. Randall White in his introduction to Leroi-Gourhan's *Gesture and Speech* complains that this art from southern Germany is ignored in the argument. Randall White, 'Leroi Gourhan's position that the earliest graphism took abstract or rhythmic forms. He paid no attention to the remarkable animal sculptures in ivory from south German sites that are as old as, or even older than, the Cha telperronian objects from Arcysur-Cure." André Leroi-Gourhan, *Gesture and Speech* (Le geste et la parole, 1965) intro Randall White, trans. Anna Bostock Berger, MIT Press, 1993, pxxi. Since then (early 2002), engraved ochre found in the Blombos Cave, South Africa has been dated as 77,000 years old and recently decorated ostrich eggshell from 65,000c years ago has been found in the Cape area; Of these finds, Christopher Henshilwood suggests, 'Abstract or depictional images... provide evidence for cognitive abilities considered integral to modern human behaviour.' Christopher Henshilwood et al., *Field School*, South Africa, Science, February 2002.

¹³ 'Another way of describing an artefact, or a thing, is to say that it is a practical abstraction, and thus, in general, repeatable. That is to say, repeatability follows from the act of taking matter out of its natural setting and placing it within a context of human intentions: insofar as the matter is ordered to a human end, a similarly formed matter can function almost, if not equally, well.' Joseph Catalano, *Thinking Matter: Consciousness from Aristotle to Putnam and Sartre*, Routledge, 2000, p54. Ellen Dissanayake has tried to find out why, 'The strange thing is In every human society of which we know - prehistoric, ancient, or modern - whether hunter-gatherer, pastoral, agricultural, or industrial, at least some form of art is displayed, and not only displayed but highly regarded and willingly engaged in.' Dissanayake, *Homo Aestheticus: Where Art Comes From and Why*, Seattle, U of Washington P, 1995, p34. She offers a functional account for art. For an ethologist to consider that a species' trait has evolved, it needs to satisfy a number of criteria: (a) it has survival value. It feels good so the animal will want to do it. (b) is a biological need. A significant amount of time and energy is spent doing it. (c) can be considered 'a behaviour'. That is, it is universally prevalent.' p33. She argues Art fits these criteria. From her stance that making art is a biologically innate need as fundamental as the need for food or shelter, she has since added emotional and cognitive strands to her argument.

¹⁴ Andy Clark, 1997, p68-9. Andy Clark gives an example of scaffolding: 'Asked to multiply 7222 X 9422, most of us resort to pen and paper (or a calculator)... We use the external medium paper to store the results of these simple problems, and by an interrelated series of simple pattern completions coupled with external storage we finally arrive at a solution.' Andy Clark, 1997, p61.

¹⁵ Andy Clark, *Natural-Born Cybogs: Why Minds and Technologies Are Made to Merge*, OUP, 2003.

¹⁶ All the artificial tools, the entire cultural environment, serve to 'expand our senses' (Viner, 1909). Modern cultural man can allow himself the luxury of having the worst natural abilities, which he amplifies with artificial devices thus coping with the external world better than the primitive man who used his natural abilities directly. The latter broke a tree by beating it on a stone, modern man takes an axe or a frame-saw and does this work quicker, better, and with less energy wasted.' Lev Vygotsky and A. R. Luria, *Studies on the History of Behaviour: Ape, Primitive, and Child*, Erlbaum, 1993, 169-70, 177. Language is seen as extension of mental life, and at the social core of human nature by thinkers as diverse as Bergson, Gehlen or McLuhan.

¹⁷ Culture is the way cognitive achievements, such as tool use but also representational techniques and devices and institutional and social practices are transmitted down the generations. (A Lamarkian system piggy-backing on a Darwinian one, though Vygotsky suggests that cultural evolution has succeeded biological evolution).

¹⁸ He used the notion of zone of proximal development (ZPD) to show how external help at crucial developmental moments gave children experiences of successful action, which a child alone could not produce - eg. a child's first steps. 'When a child is 'talked through' a tricky challenge by a more experienced agent, the child can often succeed at a task that would otherwise prove impossible. (Think of

tying your shoelaces.) Later, when the adult is absent, the child can conduct a similar dialogue, but this time with herself.' Clark, 1997, p195

¹⁹ Andy Clark follows Vygotsy and Luria's position here: 'Consider a familiar tool or artifact, say a pair of scissors. Such an artefact typically exhibits a kind of double adaptation – a two-way fit, both top the user and to the task. On the one hand, the shape of the scissors is remarkably well fitted to the form and manipulative capacities of the human hand. On the other hand (so to speak), the artifact, when it is in use, confers on the agent some characteristic powers or capacities which humans do not naturally possess . . . ' Clark, 1997, p193.

²⁰ Charles Bernstein, 'Thought's Measure' from *Content's Dream: Essays 1975/1984* (Los Angeles: Sun & Moon Press, 1986; rpt Sun & Moon Classics, 1994, p61-2.

²¹ 'Speech provided humans with a rapid, efficient means of constructing and transmitting verbal symbols; but what good would such an ability have done if there was not even the most rudimentary form of representation already in place? There had to be some sort of semantic foundation for speech to have proven useful, and mimetic culture would have provided it.' Donald, 2001, p199.

²² Suddendorf 'The rise of the metamind', chap 12 of *The descent of mind: Psychological perspectives on hominid evolution*, Ed. Michael C. Corballis & Stephen E.G. Lea, OUP, 1999. See also Cosmides, L., & Tooby, J. 'Consider the source: The evolution of adaptations for decoupling and metarepresentation', in D. Sperber, Ed., *Metarepresentations: A multidisciplinary perspective*. Vancouver studies in cognitive science, OUP, 2000. Evidence also from autism suggesting that meta-representational abilities are required for the appreciation of metaphor. F. Happe, 'Communicative competence and theory of mind in autism: A test of relevance theory', *Cognition*, 48, 101-119, 1993; 'Understanding minds and metaphors: Insights from the study of figurative language in autism', *Metaphor & Symbol*, 10, 275-295, 1995. There are alternative views. Simon Baron-Cohen proposes metamind does arrive late with hominids and thus may be the key to the cultural explosion that coincides with the emergence of Homo sapiens (and not language). Simon Baron-Cohen proposes (chapter 13, The evolution of theory of mind) in *The descent of mind: Psychological perspectives on hominid evolution*, Ed. Michael C. Corballis & Stephen E.G. Lea, OUP, 1999. Considered generally as a specific human ability, Mithen (1996) claims great apes have this capability and thus this skill evolved at least six millions years ago

²³ Lyndsay Farrall discusses knowledge and its preservation in oral culture and notes that accurate preservation needs accurate transmission. *Unwritten Knowledge: Case Study of the Navigators of Micronesia*, Deakin University, (1979) 1984, p41.

²⁴ Farrall, p46. See also Ruth Finnegan, 'Literacy vs non literacy: the great divide', in *Modes of thought*, Ed., Robin Horgan & Ruth Finnegan, Faber, 1973, p120.

²⁵ Darren Tofts & Murray McKeich, *Memory Trade: A Prehistory of Cyberculture*, G + B Arts International, 1998, p40.

²⁶ Christopher Bollas, 'Certain objects, like psychic 'keys,' open doors to unconsciously intense—and rich—experience in which we articulate the self that we are through the elaborating character of our response.' Christopher Bollas, *On Being a Character: Psychoanalysis and Self Experience*, Hill and Wang, 1992, p17. Another approach is what Gregory McCulloch calls 'Phenomenological Externalism' - our experience of the world, not internal, experience is not introspective, we not only have access to external world but depend on it for normal development and everyday living. McCulloch wants to remove the gap between mind and world and deflate the Cartesian 'ontological Real Distinction.' Gregory McCulloch, *Life of the Mind: An Essay on Phenomenological Externalism*, Routledge, 2003, p2.

²⁷ Andy Clark, 1997, p163.

²⁸ Rumelhart, D. E., Smolensky, P., McClelland, J. L., & Hinton, G. E. 'Schemata and sequential thought processes in PDP models', in D. E. Rumelhart, J. L. McClelland, and the PDP Research Group, Eds., *Parallel distributed processing: Explorations in the microstructure of cognition*, Volume 2. Cambridge, MIT Press, 1986, p46. Quoted by Andy Clark, 1997, p61.

²⁹ Alan Dunning & Paul Woodrow, 'Einstein's Brain', <http://www.ucalgary.ca/~einbrain/EBessay.htm> [DL 2.5.2003]

³⁰ Andy Clark, 1997, p46.

³¹ Andy Clark, 1997, p60.

³² Turkle argues Levi-Strauss developed the concept of 'bricolage', 'to contrast the analytic methodology of Western science with the associative science of the concrete practiced in many non-Western societies.' Sherry Turkle, *Life on the Screen: Identity in the Age of the Internet*, Simon and Schuster, 1995, p51.

³³ J.M. Balkin, *Cultural Software*, Yale UP, 1998, p4.

³⁴ Culture and cultural software are tools used to make other tools. Three kinds of cultural tools - difficult to separate in practice: technology - make tools from materials; institution - make tools from human sociability; and cultural know how or software - makes tools from human understanding.

³⁵ J M Balkin, 1998, pxi. Balkin uses the notion of bricolage within an evolutionary frame. Levi Strauss compared it to an odd job person who fixes a problem with whatever tool is lying to hand. Balkin suggests the bricoleur keeps the tools he has been using they evolve new forms and methods of larger bricolage. He also posits memes as the other source of the development of 'cultural software'.

³⁶ J M Balkin, 1998, pxi.

³⁷ J M Balkin, 1998, p32-4. Part of which is the self-augmentation that Ellul posits, which in turn may change the nature of bricolage from human agents to a mechanical force.

³⁸ This thesis examines cultural bricolage in Chapter 6.

³⁹ 'Soft assembly out of multiple, largely independent components yields a characteristic mix of robustness and variability. The solutions that emerge are tailored to the idiosyncrasies of context, yet they satisfy some general goal. This mix, pervasive throughout development, persists in mature problem solving and cation. Individual variability... [is] as powerful clue to the nature of underlying processes of soft assembly.' Andy Clark, 1997, p44.

⁴⁰ Andy Clark, 1997, p207. Luria tells of an unusual case where S (his 'memory man' subject) wrote things down to forget 'First, S wrote the things down physically on paper and not in his mind. That was the whole point of this method of forgetting, for he said: "Writing something down means I'll know I won't have to remember it." Second, he did not remember the numbers "as burned up," but rather he still remembered the numbers on the paper, which was burned up.' A. Luria, *The Mind of a Mnemonist: A Little Book about a Vast Memory*, transl Lynn Solotaroff, Cambridge, MA and London: Harvard UP, 1968, p71.

⁴¹ Diederick Raven, 'The Enculturation of Logical Practice', *Configurations* 4:3, 1996, p383.

⁴² Andy Clark, 1997, p195.

⁴³ 'If only the organism could hit upon a way of turning round upon its own 'schemata' and making them the objects of its reactions... It would be the case that the organism would say, if it were able to express itself: "This and this and this must have occurred, in order that my present state should be what it is". And, in fact, I believe this is precisely and accurately just what does happen in by far the greatest number of instances of remembering.' Bartlett, 1932, p202. W.J. Clancey quotes him in terms of linguistic representations expressing and reflecting on our experience itself. He writes, 'This is why we write things down or 'talk through' an experience to clarify meanings and implications for future action. Protracted, conscious experience -as in writing a paragraph - is not merely an awareness of elements placed in 'working memory,' but an active one. W.J. Clancey, 'The biology of consciousness: Comparative review of Israel Rosenfield, *The Strange, Familiar, and Forgotten: An anatomy of Consciousness* and Gerald M. Edelman, *Bright Air, Brilliant Fire: On the Matter of the Mind*.' *Artificial Intelligence* 60, 1991, 313-356. <http://cogprints.soton.ac.uk/documents/disk0/00/00/03/35/cog00000335-00/123.htm>. [DL 3.4.1999]

⁴⁴ Learning is social but social speech is internalised, 'Instead of appealing to the adult [for help], children appeal to themselves; language thus takes on an intra-personal function in addition to its interpersonal use... The history of the process of the internalisation of social speech is also the history of the socialization of children's practical intellect'. L. Vygotsky, *Mind in Society: The Development of Higher Psychological Processes*, Cambridge, MA: Harvard UP, 1978, p27. Rom Harré & Grant Gillett note that, 'According to Vygotsky, the learning of manual skills is just as much a necessary condition for acquiring as sense of self as the learning of verbal skills.' Rom Harre & Grant Gillett, *The Discursive Mind*, Sage Publications, 1994, p111. Volosinov similarly argues, 'the processes that basically define the content of the psyche occur not inside but outside the individual organism, although they involve its participation.' *Marxism and the Philosophy of Language*. Trans. by L. Matejka and I.R. Titunik. Cambridge, Mass.: Harvard UP, 1973, p25. He also considered the determining factor of a child's psychological development to be social development, especially language development that goes in hand with concept development. 'Cognitive skills and patterns of thinking are not primarily determined by innate factors, but are the products of the activities practiced in the social institutions of the culture in which the individual grows up. A child realises that everything has a name; each new object, event, or relation presents the child with a problem situation - to name the object. He demands new words from adults. The early word-meanings thus acquired will be the embryos of concept formation.' A problem must arise that cannot be solved otherwise than through the formation of new concepts.' L. Vygotsky, 1962, p55. Jerome Bruner sums it up, 'language, used first as a communication tool, finally shapes the minds of those who adapt to its use.' introduction to *Collected Works of L.I. Vygotsky*, 1987, p3.

⁴⁵ William Calvin relates Oliver Sacks's description of an eleven-year-old deaf boy, reared without sign language for his first ten years: 'Joseph saw, distinguished, categorized, used; he had no problems with *perceptual* categorization or generalization, but he could not, it seemed, go much beyond this, hold abstract ideas in mind, reflect, play, plan. He seemed completely literal — unable to juggle images or hypotheses or possibilities, unable to enter an imaginative or figurative realm.... He seemed, like an

animal, or an infant, to be stuck in the present, to be confined to literal and immediate perception, though made aware of this by a consciousness that no infant could have.' William Calvin, *How Brains Think: Evolving Intelligences, Then and Now*, Basic Books, 1996, p64. Oliver Sacks, *Seeing voices*, Picador, 1991, p40-44. In 1800, a 12-year-old boy was discovered living wild in the woods near Aveyron. He had been out there, alone, living rough for five, perhaps seven years. Whoever had abandoned him had cut the child's throat and left him to die. There was still a neat clean scar a few inches long across the boy's neck. He was brought to Paris, and seen a genuine child of nature, that Rousseau wanted us to return to. The boy was no noble savage. Without language and unresponsive – he appeared autistic endlessly rocking. After Sicard, a great educator for deaf-mutes declared him retarded, a surgeon, Jean-Marc Gaspard Itard, intervened, and tried to educate and socialise the boy. He was named Victor and learnt to read, say a few words and to obey simple commands, but he never properly spoke. He died in 1828. He is portrayed in 'L'enfant sauvage' by François Truffaut (1969). This started a new movement in education. His student SÃcguin emphasised socialisation and productive activities which led to Montessori's emphasis on self-education in a socially active and stimulating environment. Vygotsky used the term, 'enabling theory-method'; a method that is 'simultaneously prerequisite and product, tool and the result of the study.' As a tool, it will lead us 'to concentrate not on the product of development but on the very process by which the higher forms are established... it will give prominence to distinctions our ordinary forms of language easily make us overlook; and as a product, it will itself be 'a qualitatively new form [or practice] that appears in the process of development.' L.S. Vygotsky, *Mind in Society: the Development of Higher Psychological Processes*, M. Cole, V. John-Steiner, S. Scribner, and E. Soubberman, Eds., Cambridge, MA: Harvard UP, 1978, p8, 64, 65.

⁴⁶ Ingold urges caution, 'The resort to neurophysiological evidence entails a certain risk of circularity, since neuro-physiologists, too, use metaphors to describe processes in the brain, and these metaphors tend to be drawn from the language of cultural representation. You cannot, the, turn this around to claim that these representations have an independent basis in neurophysiology.' Tim Ingold, Ed., 1996, p181.

⁴⁷ George Herbert Mead, *Mind, Self and Society*, Chicago UP, 1934 p175-95. Mead proposes a new type of mimesis - Language is significant vocal gestures that elicit the same response and meaning in the speaker as it does in the second individual.

⁴⁸ Bruner has a 'distributed' view of Self in his practice oriented cultural psychology, which sees ourselves in terms of dialogical relations to others in our environment.' Bruner seeks 'to attend to the practices in which 'the meanings of Self' are achieved and put to use.' J. S. Bruner, *Acts of Meaning*, Cambridge, MA: Harvard UP, 1990, p116.

⁴⁹ The language of others enable the child to make the leap to language and 'it is only with the onset of language that the child's mind becomes truly representational. 'The alternative (to Chomsky's view) I have sketched proposes that language competence does have a partial explanation in natural selection, in that we have certain species-typical activity patterns adapted for language acquisition but that the actual development of the competence can come about only through performance and requires the prior existence of a public language that can serve as scaffolding.' H. Hendriks-Jansen, *Catching Ourselves in the Act: Situated Activity, Interactive Emergence, Evolution, and Human Thought*, MIT Press, 1996.

⁵⁰ Scaffolding is where a facilitator creates a scaffold for students to achieve a task, then the next task is set and scaffolded but with students beginning to learn on their own, and adapt the scaffolds to various situations. It is a theory of cumulative bricolage. See A. N. Applebee & J.A. Langer, 'Instructional Scaffolding: Reading and Writing and Natural Language Activities', *Language Arts* 660, 1983, p168–175.

⁵¹ But there's no evidence that information technology leads to better 'thinking' and he fails to give weight to the embodied experiential underpinning of thought. He claims, 'Technology has made us smart, smart in the sense of being better able to think, to reason, to make judgments.' Donald A Norman, *Things That Make Us Smart*, Addison-Wesley, 1993, p250. Norman stresses the mind's representational capacity, its ability to form mental models that enable us to understand and explain complex events.

In his earlier, *The Psychology of Everyday Things* (POET) (1986), Basic Books, 1998, Norman demonstrates that machine-orientated design and ignorance of how humans interact with artefacts often leads to an inefficient, sometimes dangerous, human - machine interactions. He uses the term affordance (see to describe the relationship between the person and the environment. A table affords support such as sitting. See James Gibson, *The Ecological Approach to Visual Perception*, Boston: Houghton-Mifflin, 1979. And William Gaver, 'Affordances for Interaction: The Social is Material for Design', *Ecological Psychology* 8, 1996, p111-29.

⁵² Don Norman, post SIGCHI Bulletin, October 1994, Vol 26:4. p78-79. is.twi.tudelft.nl/hci/Discussion-Norman/msg00010.html. [DL 5.11.2000]

⁵³ Edwin Hutchins, *Cognition in the Wild*, Cambridge, Mass.: MIT Press, 1995.

⁵⁴ N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature and Informatics*, Chicago: U of Chicago P, 1999.

⁵⁵ N. Katherine Hayles, 'Flesh and Metal: Reconfiguring the Mindbody in Virtual Environments', *Configurations* 10.2, 2002, p297-8. Here she refers to Antonio Damasio's work.

⁵⁶ 'I argued that a range of developments in such fields as cognitive science, artificial life, evolutionary psychology, and robotics were bringing about a shift in what it means to be human. The new formation differs so significantly from the liberal humanist subject it could appropriately be called posthuman.' Hayles, 2002, p319.

⁵⁷ The quote begins: 'Among the qualities of the liberal humanist subject displaced by technoscientific articulations of the posthuman are autonomy, free will, rationality, individual agency, and the identification of consciousness as the seat of identity. The posthuman, whether understood as a biological organism or a cyborg seamlessly joined with intelligent machines, is seen as a construction that participates in distributed cognition dispersed throughout the body and the environment.' Hayles, 2002, p319.

⁵⁸ Hayles continues 'Instead of the Cartesian subject who begins by cutting himself off from his environment and visualizing his thinking presence as the one thing he cannot doubt, the human who inhabits the information-rich environments of contemporary technological societies knows that the dynamic and fluctuating boundaries of her embodied cognitions develop in relation to other cognizing agents embedded throughout the environment, among which the most powerful are intelligent machines. In these views the impact of information technologies on the mindbody is always understood as a two-way relation, a feedback loop between biologically evolved capabilities and a richly engineered technological environment. Such feedback loops may be reaching new levels of intensity as our environments become smarter and more information-rich, but the basic dynamic is as old as humans.' N. Katherine Hayles, 2002, p303.

⁵⁹ Andy Clark, 'Natural Born Cyborgs?' *The Edge: Third Culture*, 12.29.2000, p4. See also Andy Clark, *Natural-Born Cyborgs: Why Minds and Technologies Are Made to Merge*, OUPress, 2003.

⁶⁰ Donna Haraway, 'Technological decontextualization is ordinary experience for hundreds of millions if not billions of human beings, as well as other organisms. I suggest that this is not a denaturing so much as a particular production of nature.' 'The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others', in Lawrence Grossberg, Cary Nelson, Paula A. Treichler, Eds., *Cultural Studies*, New York; Routledge, 1992, p297. 'So my cyborg myth is about transgressed boundaries, potent fusions, and dangerous possibilities which progressive people might explore as one part of needed political work. . . . the need for unity of people trying to resist world-wide intensification of domination has never been more acute.' Donna Haraway, 'A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century' in *Simians, Cyborgs and Women: The Reinvention of Nature*, New York; Routledge, 1991, p154. 'The dichotomies between mind and body, animal and human, organism and machine, public and private, nature and culture, men and women, primitive and civilized are all in question ideologically... The cyborg is a kind of disassembled and reassembled, postmodern collective and personal self.' p163 'One of my premises is that most American socialists and feminists see deepened dualisms of mind and body, animal and machine, idealism and materialism in the social practices, symbolic formulations, and physical artefacts associated with 'high technology' and scientific culture.' p154. (Technological issues are addressed in Chapter 7.) Carl Jung and Claude Levi-Strauss both used the pervasiveness of our seeing black/white dichotomies, but it requires explanation. Laughlin and d'Aquili suggest the 'tendency to order reality into pairs that are usually subjectively experienced as opposites' is based in the self-other dichotomy. Charles Laughlin & Eugene d'Aquili, *Biogenetic Structuralism*, Columbia UP, 1974, p115. Robert Storey thinks that humans are predisposed and, 'may be said to be an organism of natural divisions.' *Mimesis and the Human Animal: On the Biogenetic Foundations of Literary Representation*. Evanston: Northwestern UP, 1996. p79. Donna Haraway: 'To recapitulate, certain dualisms have been persistent in Western traditions; they have all been systemic to the logics and practices of domination of women, people of colour, nature, workers, animals - in short, domination of all constituted as others, whose task is to mirror the self. Chief among these troubling dualisms are self/other, mind/body, culture/nature, male/female, civilized/primitive, reality/appearance, whole/part, agent/resource, maker/made, active/passive, right/wrong, truth/illusion, total/partial, God/man.' 'A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century' in *Simians, Cyborgs and Women: The Reinvention of Nature*, New York; Routledge, 1991, p177.

⁶¹ Susan Greenfield has expressed concern at the pace of biogenetic-technological-digital progress in terms of human consciousness keeping up with the speed and amount of information. Mark Hansen doubts our body/mind copes, 'the prostheses we adopt to cognise and intervene in the technologically driven material complexification of the universe only seem to expand our experiential alienation . . . [and

fail to mediate] technologically generated alterations of the life-world into forms that fit the human measure.' Mark Hansen, *Embodying Technesis: Technology Beyond Writing*. Foreword by N. Katherine Hayles, Ann Arbor: U of Michigan P, 2000, p71.

⁶² 'There were parks with enclosures of animals, kept for experiment . . . by art likewise we make them greater or taller than their kind is, and contrariwise dwarf them and stay their growth; we make them more fruitful and bearing than their kind is... we make them differ in colour, shape, activity, many ways.' Quoted by Rupert Sheldrake, *The Rebirth of Nature*, Park St Press, 1994, p42.

⁶³ Haraway, began as a biologist, became interested in the history of biology, then in literary theory and philosophy, and today is known for her work in feminist technological, scientific studies.

⁶⁴ Donna Haraway, 1991, p153-4. Haraway writes, 'Cyborg imagery can suggest a way out of the maze of dualisms in which we have explained our bodies and our tools to ourselves. This is a dream not of a common language, but of a powerful infidel heteroglossia . . . Though both are bound in the spiral dance, I would rather be a cyborg than a goddess.' Haraway, 1991, p181.

⁶⁵ Vygotsky, 1976, p544-5.

⁶⁶ Carolyn Steedman, *Landscape for a Good Woman*, Virago, 1986. She points out that gender and class always mediate the material worlds and personal subjectivities.

⁶⁷ Believing, with Max Weber, that man is an animal suspended in webs of significance he himself has spun, I take culture to be those webs, and the analysis of it to be therefore not an experimental science in search of law but an interpretive one in search of meaning. Clifford Geertz, *The Interpretation of Cultures*, New York: Basic Books, 1973, p5.

⁶⁸ 'The Greeks 'did not add vowels' (a common misconception ..) but invented the (pure) consonant. In so doing they for the first time provided our species with a visual representation of linguistic noise that was both economical and exhaustive.' Eric A. Havelock, *The Muse Learns to Write - Reflections on Orality and Literacy from Antiquity to the Present*, Yale U P 1986, p60.

⁶⁹ Havelock identified concreteness with orality and abstract with literate. The literate could stand outside and see from different points of view whereas oral person is committed to a position on matters.

⁷⁰ M T Clanchy, 'The Memory of the Written Record', (1973) Blackwell, 1993, p279.

⁷¹ Joseph S. Catalano, 'Crafting Marks Into Meanings', *Philosophy and Literature* 20.1, 1996, p58.

⁷² Joseph S. Catalano, 'The Script Rose', *Philosophy and Literature*, 19.1, 1995, p86.

⁷³ Joseph Catalano, 1996, p58.

⁷⁴ He supposed there to be material and technical constituents of consciousness since humans (uniquely) specialise in externalising what they learn. The paradox is that we externalise what we learn, our brains become increasingly empty and so he suggested Aristotle's *tabula rasa* is 'an evolutionary achievement of erasure'. Leroi-Gourhan, 2002, p228. He excludes brain size as a defining characteristic to focus on hand/face interdependence and the externalisation of what is learnt. He never defines humans whether by the invention of writing or figuration, or any biological' criteria. He dissolves the distinction between nature (anatomy, biology) and culture (writing, figuration) (as Ingold does).

⁷⁵ Leroi-Gourhan, 2002, p114.

⁷⁶ William Calvin, 'The unitary hypothesis: A common neural circuitry for novel manipulations, language, plan-ahead, and throwing?', in K. R. Gibson and T. Ingold, *ibid*, p230-250. Cambridge: Cambridge UP, 1993; And W. Calvin, *The Throwing Madonna: Essays on the Brain*. New York: McGraw Hill, 1983.

⁷⁷ See P. Lieberman, *The Biology and Evolution of Language*. Cambridge: Harvard UP, 1984. Lieberman. He suggests we have evolved rules for sequential control of complex intentional acts such as tool use and speaking - rules generalised across cognitive domains to control tool use and language sequencing utilising a syntax at deep levels. It's also a possibility that the evolution of language and its lateralisation into the two hemispheres evolves from bimanual coordination required for object manipulation.

⁷⁸ Susan Greenfield, *The Human Brain*, Phoenix, 1997.

⁷⁹ 'The impact of writing on social memory is much written about and evidently vast. The transition from an oral culture to a literate culture is a transition from incorporating practices to inscribing practices.' P. Connerton, *How Societies Remember*, Cambridge: Cambridge UP, 1989, p75. But our culture is still oral.

⁸⁰ J.L. Austin, *How to Do Things with Words*, OUP, 1965. Connerton understands collective memory as social memory, essentially performative and embedded in everyday life

⁸¹ John Vernon, *Poetry and the Body*, U of Illinois P. 1979, p29.

⁸² Thomas C. Gunter, Björn-Helmer Schmidt, Mireille Besson, 'Let's face the music: A behavioral and electrophysiological exploration of score reading', *Psycholinguistics* V40:4, July 2003, p272.

⁸³ Ernest Fenollosa, *The Chinese Written Characters as a Medium for Poetry*, Ed., Ezra Pound, City Lights Books, 1936 (1919). He argued that Chinese written character 'speaks at once with the vividness of painting' combining both visual and temporal elements. Fenollosa, 1936, p9. The Chinese ideographic

method, in Fenollosa's and Pound's view, relies in its juxtapositions on a close observation of natural processes. They believe that this is the way Chinese characters are formed: the juxtaposed parts of 'materials' form the images that imply 'immaterial' relationships. By putting the ideas of things together the Chinese written language can point to concepts and universals. Theo Hermans: 'Clearly, the main interest of Fenollosa's essay lies in the applicability of his conception of the nature of the ideogram to the writing of poetry.' Theo Hermans, *The Structure of Modernist Poetry*, Croom Helm, 1982, p105.

⁸⁴ In 1914 in his essay 'Vorticism', he discusses a *hokku (haiku)*: The footsteps of the cat upon the snow: (are like) plum-blossoms. Pound explains: 'The words 'are like' would not occur in original, but I add them for clarity. The 'one image poem' is a form of super-position,' that is to say, it is one idea set on top of another.' He then discusses 'In a Station of the Metro' in which he removes the words 'is like':

'The apparition of these faces in the crowd: Petals, on a wet, black bough.'

⁸⁵ Ezra Pound, 'A Retrospect', *Literary Essays of Ezra Pound*, London: Faber, 1954, p4.

⁸⁶ 'This is the meaning of the work of Fenollosa whose influence upon Ezra Pound and his poetics is well known: this irreducibly graphic poetics was, with that of Mallarmé, the first break in the most entrenched Western tradition. The fascination that the Chinese ideogram exercised on Pound's writing may thus be given all its historical significance' Jacques Derrida, *Of Grammatology*, tr. Gayatri C. Spivak, Johns Hopkins U.P., 1974, p92. (Pound was working on this before Fenollosa's widow sent him the papers of her deceased husband - due to the influence of the plastic arts). Vorticism emphasised dynamic form, the poem is a construct that has planes of meaning which coincides with the energy given to the ideograph by Fenollosa and Pound. The ideograph does have energy, but for a different reason to iconicity, it is graphological. Michael Sullivan explains, 'Not only is a man's writing a clue to his temperament, his moral worth, and his learning, but the uniquely ideographic nature of the Chinese script has charged each individual character with a richness of content and association the full range of which even the most scholarly can scarcely fathom.' *The Arts of China*. 3rd ed. Berkeley: U of California P, 1984, p185.

⁸⁷ See George Kennedy, 'Fenollosa, Pound and the Chinese Character', *Yale Literary Magazine*, 126 (1958), p24-36; Hugh Kenner, *The Pound Era*, U of California P, 1971, p228.

⁸⁸ By irreducibility, Fenollosa and Pound mean that the meaning of a word should depend upon the very physical presence of the word, as seen in Chinese characters. Fenollosa observed that, 'true' (or 'sincere') in Chinese is formed by two characters, 'man' and 'word', that is, 'man standing by his words'. Ernest Fenollosa, 1936, p41.

⁸⁹ Iterability is a property of signs. If one makes a sign, one can make the sign again at another time, in another place, in another context. We can communicate because we can use words (signs) and combinations of words over and over again. If we had to create new signs to express our thoughts each time, communication would be impossible. Thus, iterability, or the property of being able to be repeated in many different contexts, is essential to any form of communication. Derrida points out that 'iter' comes from the Sanskrit term for 'other', though speech act theory avoids the metaphysics of etymology that later Heidegger and Derrida. Derrida first uses the concept of Iterability in *Limited Inc.* p7

⁹⁰ Derrida 'Signature Event Context' 1971 in *On the Name - Selections*, Thomas Dutoit Ed., Stanford UP, 1995. The starts of the seventies -wow! The year Geoffrey Hill's *Mercian Hymns* was published, the book that got me into writing poetry. Pound's *Canto's* has been abandoned two years earlier.

⁹¹ This doesn't worry me, there are a whole load of negotiations before we get down to language (ethnoscience, conversational analysis, ethnomethodology, phenomenological approaches generally). I'm grateful to Gordon Bearn for his illuminations on this matter in 'Derrida Dry', *Diacritics* 25 Fall, 1995.

⁹² Jacques Derrida, *Of Grammatology* trans. Spivak, Reprint, 1998, Johns Hopkins UP, p158-59.

⁹³ Saussure had thought linguistic meaning mapped differences on planes of sound to plane of ideas, he distinguished langue the language system, a communal unconscious structure, outside any one person (made imaginable by writing Harris and Ong would say) from parole speaking.

⁹⁴ Roland Barthes, 'The Death of the Author' (1968) in *Image / Music / Text*, trans. Stephen Heath, Hill and Wang, 1977, p142.

⁹⁵ Ellen Spolsky, 'Iconotropisms: The Early Modern Imagery Debates in a Cognitive Perspective', <http://www2.bc.edu/~richarad/lcb/wip/es.html> DL 28.2.99. She notes, But the effect of the work of the deconstructionists in describing phenomena such as metaphor and irony, has been to make it impossible to maintain the traditional distinctions such as between literary and ordinary language, or literal and figural meaning.

⁹⁶ George Steiner remarks. 'The difference between an artificial language such as Fortran, programmed by information and computer theorists, and natural language is one of vital ambiguities, or potentiality and undecideability.' George Steiner, *After Babel Aspects of Language and Translation*, OUP, 1992.

⁹⁷ Joseph Tabbi, 'Before film and the gramophone, a reader capable of forgetting the materiality of print on a page could reasonably be expected to imagine these other registers in the privacy and solitude of

reading, and to find enjoyment in doing so. Now, with the Imaginary made explicit and public and externalised on screens, there's no need for such a detour through print. So as readers we can focus again on what's there before our eyes: namely, printed words.' Writing Under Constraint An Interview with Joseph Tabbi by Anthony Enns, <http://www.uiowa.edu/~iareview/tirweb/feature/tabbi/index.html#> [DL 25.3.2003]

⁹⁸ Leroi-Gourhan, 2002, p195.

⁹⁹ Derrida, *On Grammatology*, 1974, John Hopkins UP, p83-93. Vygotsky notes that writing and speech have very different development. 'Our investigation has shown that the development of writing does not repeat the development of speaking.' *Thought and Language*, (1934) MIT Press, 1962, p180.

¹⁰⁰ '[T]he issue has been obscured by a failure to grasp Derrida's point when he identifies those problematic factors in language (catachreses, slippages between 'literal' and 'figural' sense, subliminal metaphors mistaken for determinate concepts) whose effect - as in Husserl - is to complicate the passage from what the text manifestly means to say to what it actually says when read with an eye to its latent or covert signifying structures. This 'free-play' has nothing whatsoever to do with that notion of an out-and-out hermeneutic license which would finally come down to a series of slogans like 'all reading is misreading,' 'all interpretation is misinterpretation,' etc.' Christopher Norris, *What's Wrong with Postmodernism?* p151.

¹⁰¹ Walter J. Ong, *Orality and Literacy: The Technologizing of the Word*, Ed. Terence Hawkes, Methuen, 1982, p67. Ong develops a notion of 4 stages of psycho-cultural evolution: primary orality; manuscript or chirographic; print or typographic; secondary orality.

¹⁰² Donna Haraway, 1991, p175

¹⁰³ He distinguishes, 'the oral way 'the 'oral' conceived as embracing all the ways of organising behaviour relying upon the wide range of mental and physical procedures (including body learning) we can call remembering... But memorization of texts, the mode of the rhapsode who recited a poem that had a completely accomplished verbal form, is very different from remembering. Memorizing isn't remembering, and recording isn't remembering. But I don't want to be pious about the oral. The literal recording has distinct advantages. I am also quite unsatisfied by the distinctions between the 'oral' and 'literate' laid out by Ong and Havelock, brilliant as their pioneering work in this area has been.' Charles Bernstein, An Interview with David Antin, *The Review of Contemporary Fiction*, Vol. XXI, no. 1, http://www.centerforbookculture.org/interviews/interview_antin.html. (cited as CB Int). What Antin calls the 'literal' ranges from the ancient "art of memory," whose invention is usually attributed to the sixth-century Greek poet Simonides to writing, making marks, the 'spatialization of memory.' These involve techniques, mostly using techne and tools. He states: 'I am also quite unsatisfied by the distinctions between the 'oral' and 'literate' laid out by Ong and Havelock, brilliant as their pioneering work in this area has been. The two fundamentally different ways of proceeding still seem to me the ones I laid out twenty-five years ago in 'the sociology of art': the differences between an 'oral' and a 'literate' culture - the 'oral' conceived as embracing all the ways of organising behaviour relying upon the wide range of mental and physical procedures (including body learning) we can call remembering; and the 'literal,' which includes the whole range of procedures laying access to some form of 'recording' or spatialization of memory, including drawing and mark-making of any sort, and perhaps also nonspatialized but ritualised repetitional, recitational memorising.' C Bernstein interview, *ibid*.

¹⁰⁴ David Antin, 'is this the right place?' *talking at the boundaries*, New Directions, 1976, p45-46.

¹⁰⁵ Michel Foucault, *The order of things: An Archaeology of the Human Sciences*, (1966) New York, Vintage Books, 1973. For discussions of the relationship between words and what they signify, see Roger Brown, *Words and Things*, Harvard UP, 1970; and Willard Quine, *Word and Object*, Wiley and Sons, 1960.

¹⁰⁶ 'Between text and figure, we must admit a whole series of crisscrossings, or rather between one and the other attacks are launched and arrows fly against the enemy target, campaigns designed to undermine and destroy, wounds and blows from the lance, a battle... images falling into the midst of words, verbal flashes crisscrossing drawings... discourse cutting into the form of things.' It is 'a subtle and unstable dependency, at once insistent and unsure.' Michel Foucault, *This is Not a Pipe*, trans. James Harkness, Berkeley: U of California P, 1983, p26. He finds a reciprocal borrowing between the text which flows rounded like drawing, and the image which becomes abstract like an ideogram. Resemblance suggests words corresponding to the world, while similitude refers to relations between texts, relative to interpretation - 'Resemblance presupposes a primary reference that prescribes and classes.' p44.

¹⁰⁷ W.J.T.Mitchell, 'Ut Pictura Poesis: Abstract Painting and the Repression of Language', *Critical Inquiry* 15: 348-371, 1989, p357.