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The Bureaucratic Gene

Is there an Evolutionary Purpose in Dyslexia?

John Wood, who discovered he was dyslexic in his fifties, ponders whether the gift of dyslexia could help to replace bureaucracy with a more synergistic way of living.

October 2004

1
Are you a wee bit ambidextrous? Can you naturally interpret things in a visual format? Can you easily visualise objects in their 'mirror-image' state? Are you able to imagine objects from different perspectives? Do you read complex diagrams quickly and easily? Do you grasp situations in terms of their whole context? Can you easily create new ideas, possibilities, and understandings? Are you able to interpret situations in a free and poetic way? Where are these questions leading? All of them are positive symptoms of dyslexia. If you are a creative person you have probably scored highly. On the other hand, the negative symptoms may be more familiar to you.

2
Reflect upon your childhood and ask yourself whether you ever had problems with your balance, co-ordination, or hearing? Did you find it difficult to co-ordinate several tasks at once? Did you learn to dress yourself or tie shoelaces later than your friends? Did you find team sports much more difficult than solo sports? Did instructions and messages easily confuse you? Did you miss out letters, or get them mixed up when writing? Did you often need to have information repeated before you could absorb it? Did you find that you took longer than others to do your homework? Did you find it hard to plan and write essays? Did you manage your studies more effectively on some days rather than others?

3
From the dyslexic child's perspective, the way s/he has been asked to think is probably one that does not seem to make much sense. If s/he is unlucky, s/he will also learn that asking questions is not cool, because non-dyslexics seem able to follow the most tiresome rules without needing to know why. By (official) definition, dyslexics are intelligent people who have problems with some, but not all of the capabilities required for effortless learning. In some cases their problem/s are extreme, thereby causing difficulties that are hard to ignore. Many conceal the symptoms from others, and themselves. Most acquire cunning strategies that compensate for it in other ways.

4
Is dyslexia more common than we have admitted? Although there are no clear statistics about the extent of dyslexia in our society, we are becoming increasingly aware of it. Many of my current post graduate students are successful design practitioners from a variety of countries and from different cultural and professional origins. Our MA Design Futures degree calls upon them to use writing as a way to dream about the world, as they would like it to be. Putting it like this makes it sound easy but, for some, it can be more challenging than they had expected. Although they have deliberately chosen a course that requires quite a lot of reading and writing, many are uneasy about the task. Last year, about a quarter of the group was tentatively diagnosed as dyslexic. For the individuals concerned this was unexpected, disturbing, and

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sometimes quite distressing. For me, it is becoming less of a surprise, although I often fail to guess which individuals will come to realise how much extra time they have always put in to appear competent and normal.

5
Why do we take such a negative view of dyslexia? A few months ago I wanted to write a book called The Gift of Dyslexia but was told someone called Ronal D. Davis had already done it. I checked out the book and was impressed by its unpretentious, self-styled approach. Basically, Davis claims that dyslexia is a self-invoked but disabling response to a state of cognitive disorientation. Disorientation is what happens when some clever and alert individuals are taught in a way that overloads their ability to think things through properly. Many children reach this point when the teaching environment ignores their holistic alertness and demands a standardised, simplified, coded way of thinking. Where the child is bright and imaginative this pressure can produce discomfort and confusion.

6
Davis claims that many respond by learning to focus or narrow their thinking so that it produces the 'right' answer. Arguably, this is potentially destructive and alienating for the child. If he is right, there are enormous economic, social, and other benefits that we can expect, once this issue is addressed in a creative and positive way. Our current failure represents a missed opportunity by schools, universities, companies, governments, and a host of other agencies. Sadly, instead of understanding dyslexics and supporting the way they think, we more often make them feel incompetent, or worthless within the often rather unimaginative modes of thinking that are expected of them. In very many instances, characteristic learning difficulties are seen as symptoms of laziness, slowness, stupidity, or a tendency to daydream.

7
Can we cultivate the positive side of dyslexia? Many people are impressed when they hear about major original thinkers who were dyslexic. This has helped to create an aura of tragedy or wonderment around the 'sufferer'. It contributes to the general feeling that although dyslexics are mostly stupid or disabled, a Leonardo, Faraday, or Einstein miraculously managed to conquer their condition. This would be a misleading assumption. Davis's theory suggests that in such cases the dyslexia is not incidental to genius but a possible symptom of original or holistic thought. Although dyslexia is becoming increasingly visible to many educators, society has yet to learn, in any positive and creative way, from the gift of dyslexia. This situation will continue until we stop regarding it as a disability and see it (also) as a sign of special capabilities.

8
Is dyslexia a cultural, genetic, emotional, intellectual or somatic condition? Opinions vary. Interestingly, it seems to be virtually unknown in countries where there is a pictographic, rather than an alphabetical language. This may be misleading, however, as it was also virtually 'unknown' in the UK until the last few decades. What this means is open to interpretation. What seems clear is that we require a variety of cognitive capabilities to enable us to read and to write. These include short-term memory, the ability to order and to re-order sequences of codes, and the many attendant processes that are required to match what we hear with what we see. The different experiences, aspirations, and cultural backgrounds of each individual means that everyone learns and develops in their own way.

9
Everyone is unique and learns to learn in his or her own way. If particular cognitive skills are poor, others may become highly developed in compensation. Eventually, the survivor will find his or her own preferred

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way to cope. If he or she eventually catches up with, or overtakes non-dyslexic colleagues the initial difficulty will probably become hidden. This is not a trouble-free scenario. In many cases, there is also a strong emotional discomfort that may later become masked, deflected, or even denied by the sufferer. In September of 2003, for the first time, the UK Government extended its Disabilities Act to apply to Universities. For me, this was a useful wake-up call. Having taught artists and designers for more than three decades it is only in the last five years or so that I had begun to reflect upon the implications of dyslexia.

10
So why don't we just assume that everyone is dyslexic? As a result of the Disabilities Act I have revised our handbook of methodologies that offers students advice on thinking and writing. I tell new applicants that we will assume everyone to be dyslexic; and hope that this will make life easier for all. How can we be positive about what, as we have said, is classified as a disability? Actually, this is easy. Let us start with three propositions. First, dyslexics are very bright. Second, everyone thinks differently. Third, dyslexia is a gift, which may have painful side effects for some of its owners. Although the last claim may be a little over-optimistic, the first two are difficult to disprove.

11
Suppose we take a more dyslexia-friendly starting point when designing the way we invite children to learn. How would this begin to transform society and our collective potential for survival? What would a dyslexia-oriented learning culture look like? We might start by acknowledging that it is possible to 'think' using some kind of image-based or sensory imagination, before resorting to a rule-based logic of codes. We may even come to the conclusion that this could be a primary mode of ethical thought and discourse. Once we begin to encourage a more alert, situated, holistic learning environment – rather like the best primary school classrooms – it would be clear that this mode of thought is too fast for alphabetical notation, with its arbitrary spelling rules and other idiosyncrasies of 'correct' English.

12
Crudely, this illustrates why dyslexics usually take longer to read, or to express themselves using text. If someone is imaginative s/he may envision many possible realities that are nested within one another. Logically speaking, some may appear to be mutually contradictory because they are contingent and entangled with their context. A dyslexic approach might therefore emphasise the relationality of words and acknowledge their highly indexical nature. This would frame language as a system of thought that – as Wittgenstein put it – "…is part of the human organism, and no less complicated than it." It would always acknowledge that the fixity of words on a page is a special case. Although books are extremely useful, learning and living are dynamic processes. We live and learn in a self-reflexive continuum of ceaseless becoming.

13
What are the origins of the bureaucratic gene? Is there a causal relationship between the reductive nature of writing and the ongoing reduction in the number of species? This article is obviously too short to answer these questions. However, alphabetical script was introduced by early civilisations that required dependable systems of planning and transactional reckoning in order to build huge megalithic structures or to manage mono-cultural cereal farming on a very large scale. This way of thinking probably informed the development of a rule-based legal system in which the invention of 'category' was used to demarcate particular claims to territory, property, kin and tribe. It is probably from this basis that we have derived the modern techniques of bureaucracy and accountancy. Unfortunately, the mechanical paradigms

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behind their logic make them highly inefficient. This is an ecological reason why we should re-invent them using a wiser and more organic approach.

13/14
At an organisational level, the obduracy of alphabetical text serves to distract us from this truth. Indeed, written decrees, charters and regulations are de rigeur for any large-scale management system, whether it is a trading organisation or an imperial state. For thousands of years, alphabetical writing has proved invaluable for managing very large building projects, and for administering very large empires. It is only when we subscribe to the mindset of bureaucracy and accountancy that we admire the unfailing certainty of written laws. This why we may secretly admire clever corporations for conducting their business *just* within the boundaries of legality. In a sense, bureaucracy is still the most pervasive technology of obedience. When fewer parts of the system are permitted to respond to local conditions we all toe the party line. This clumsy logic is the stuff of programming languages. It is the means by which online companies generate profits whilst avoid being accountable for their actions. In the increasingly litigious, waspish, 'error-trapping' language of public life we often hear politicians using rhetoric in a similar mechanical way. When this happens we may be reminded of the symbolic logic of Aristotle. We will return to this thought.

15
All these developments are unthinkable without some form of alphabetical logic. Once we had invented paper and printing presses was hard to return to the complexities of an oral legal system. Making decisions using only speaking, listening, and memory are far more contingent, provisional, and context-dependent than writing. It is the legacy of alphabetical writing that informed the digital computer, with its binary logic of 'in' and 'out'. Indeed, digital computers combine the dullness of single-point temporality (clocks) with the categorical certainty of the printed word (books). In his 1964 book about books, Borges embellishes St. Augustine's historic description of someone found reading silently to himself. Today we take this ability for granted. Indeed, it has become one of the key skills of our individualistic consumer society. This is where we might usefully reflect upon deeper issues concerning our place in the scheme of things.

16
What does it mean, in evolutionary terms, to be able to follow a serial text without deviating from its internal logic? Let us answer this question by reflecting on the traditional skills of literacy. Imagine what it would be like to be abandoned deep in a rain forest without sophisticated technology or a team of supporting experts. In such a four-dimensional situation, what would be required to ensure a prolonged period of survival? Presumably, the ability to scan alphabetical characters from left to right would be of rather limited use. Indeed, it seems more likely that some converse skills would be more useful. Where reading tends to emphasise static relations, hierarchies of meaning, un-situated values, serial temporalities, linear causality, and a largely internalised order of meaning, the ecological domain is holistic, dynamic, opportunistic, and polymorphic. If we wanted to improve our personal chances of survival in such a vastly complex ecosystem, what skills and aptitudes would be called for? Surely, the ability to visualise and process many simultaneous events operating at many levels would be an important one. Doesn't this resemble the kind of holistic thinking that is associated with many dyslexics? If so, dyslexia may a good starting point for the designers of education curricula.

17
To be fair, our awareness of dyslexia is growing. On the other hand it is rare that its positive attributes are sought or utilised. Many dyslexics are adept in visualising events in three, four or more dimensions. Often,

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they conceive problems and solutions in a vivid, holistic way that enables them to organise, invent and communicate using contingent, provisional, or other creative modes of thought. If Davis is right, it is the education system's failure to value holistic alertness that causes some dyslexia. What is the deep purpose of education? In my opinion, the primary responsible task of educators is to help people become more wisely integrated and adapted to their local habitat and beyond. Indeed, our level of sensitivity to the relations between our desires and the state of the biosphere may either save us from, or ensure our collective extinction.

18
From what I have seen, most of the education system does not fulfil its deepest ecological responsibilities. Most of these abilities are undervalued within an education system that recycles muddled assumptions dredged up from custom and practice. Virtually indefensible and under-theorised ideas such as 'academic rigour' and 'transferable skills' are still being used to drive the development of academic curricula, even though – arguably – holistic awareness, creative resourcefulness and the ability to adapt to new situations are more important to us. In some cases the decision to perpetuate superficial teaching methods is driven by organisational expediencies, rather than by the preferred pedagogy of the teachers themselves. This is why we put up with a 'tick-box' mentality, and why we still encourage the memorising of arbitrary factual data rather than the cultivation of wise judgement and personal enfranchisement. This is reflected in a superficial approach to individual performance without a clear sense of context or rationale for this.

19
A symptom of this loss of ecological purpose is the anxiety surrounding plagiarism. Arguably, plagiarism would be unthinkable, unnecessary and unworkable if the learning criteria and assessment methods were to be more student-centred (e.g. author-reflexive) and situated. Instead there is a concern for league-tables and attainment targets. If we explore the way that creative individuals read and write we may find many anomalies. Everyone thinks and learns slightly differently. Yet an anomalous aspect of State education in the UK is the standardisation of curricula in the name of 'fairness'. Where this happens, the deeper purpose of reading is overlooked because the logic of writing is used mainly to ensure the transparency and internal consistency of assessment.

20
Arguably, alphabetic writing's capacity to be internally consistent may also have encouraged the rise of solipsism. Where the logic of written truth can make things seem neat and tidy; the world we experience is usually messy. Where writing can make relations seem fixed, reality is seldom so unchanging. In a rainforest the relations between things are always being monitored, adjusted, addressed, and revised. Where writing tends to focus on issues within its own terms of reference, the 'real' world is constantly producing and 're-writing' connections between everything and everything else. Where most writing focuses the reader's attention inward, the 'real' world makes its inhabitants pay attention to one another, all the time. In short, whilst it has certainly brought vast benefits to humanity, the reading culture has also encouraged the illusion of self-dependence that probably inspired virtual worlds such as the cinema, TV, VR, Walkman, etc.

21
In my opinion, one of the 'abuses of literacy' is the over-dependence on categorical thought. Since Aristotle's ingenious work several thousand years ago we have come to depend on it in very many ways. Because the logic of categories is separate from the unfolding world that it describes, it can alienate us conceptually from the natural world on which we depend. Could a better understanding of dyslexia help

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us to review the way we live, and bring us into closer harmony with Nature? If we wish to co-sustain ourselves in a less clumsy way, perhaps we must learn to read and write more imaginatively.

22
Many dyslexics are unusually aware of, and curious about what is around them. In such cases this could offer a good starting point from which to engage them. Whilst the complex natural ecosystem exists in at least four dimensions the world of textual 'facts' is considerably simpler. Just as conventional perspective drawing usually depicts a scene from one particular viewpoint in space and time, bureaucratic writing tends to highlight selected aspects of a scene and puts them in a pre-determined schematic order.

23
In comparison with the situated act of looking, writing often restrains the viewer from imagining things in different configurations. Indeed, the very ability to be able to imagine pictures, scenes, and shapes from any angle is one that is advantageous in the (at least) four-dimensional world that we inhabit. Alphabetical writing may be particularly frustrating in this respect because, unlike pictographic writing, it depends on the same, small set of arbitrary codes to represent different qualities and shades of meaning. Reading in a particular sequence of characters therefore becomes an important part of this process. I once met a dyslexic student who told me she was irritated by finding so much emphasis on the ability to differentiate between the letter 'b' and the letter 'd'. Surely, she said, it is merely the same shape viewed from a different angle.

24
How might we teach writing in a more enlightened, ethical, and helpful way? One of my observations is that the purpose of authoring is both auto-didactic and rhetorical. As such, these requirements are likely to impede one another, yet I have yet to find a student who knows how to separate them. This is probably because our bureaucratic culture values persuasion and self-image so highly that we seek to convince our readers that we are right, even when we are unsure of what we are writing. I presume that this rhetorical bias is ingrained within the essay genres we teach in schools. If so, perhaps the form and style of writing could be made more subordinate to its outcome. In my own teaching this entails a great deal of emphasis on imagining, nominating, empathising with, and writing to a particular reader-as-problem-holder.

25
One of the problems with alphabetical, semi-permanent recording medium is that it tends to emphasise the hierarchical aspects of things and to ossify it as a general truth. It is often claimed that after the Greeks abandoned their pictographic writing system in favour of a twenty-two letter Phoenician alphabet, their language system and truth-values began to emphasise distinctions, boundaries and facts, rather than synthesis, integration, and flow. Significantly, this change took place a few hundred years before we saw the emergence of the early superstars of western philosophical thought. Where Socrates, for example, developed a basis for theorising the individual self, Plato bravely struggled to put 'movement' back into his static world of ideal 'forms'. Before long, Aristotle had created a rational framework for such pivotal concepts as persuasive action, design, and logic of axioms.

26
Many writers have pointed out that these new ways of thinking relied heavily on linear, often disconnected ideas of cause and effect. Some have shown how the power of alphabetical logic underpinned modern scientific methodology. This was not a trivial or local development because scientific inquiry has become almost inseparable from technological innovation. Together they have become part of a routine system of political and cultural leverage. In seeking a less explanatory, more coherent and

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relational understanding of how things work, I sometimes encourage students to use a three dimensional form that provides a non-linear structure within which ideas can be located and interrelated. This also helps many of our dyslexic students who are easily confused by the sheer quantity of words in a 5, 10 or 15 thousand word essay.

27
Just as academic writing tends to encourage an alienation from the author's experience and responsibility, so in classical science the observer is routinely distanced from the events that he or she sometimes she observes. Again, this idea can be traced back to the foundational thinking of Socrates and Aristotle. It became more analytical with the intellectual devices of mediaeval thinkers such as Duns Scotus and William of Ockham, and was endorsed by the technical innovation of Gutenberg and others. In the Enlightenment period, the forthright and intrusive minds of Bacon, Descartes, Locke, Leibniz, and Newton further extended it further. Later figures such as Diderot and Dr. Johnson took this detachment still further with their invention of the encyclopaedia and the dictionary.

28
In both cases we find alphabetically arranged books containing normative 'facts' deliberately isolated from their contexts. Today this seems utterly reasonable to us, yet it would almost certainly have alarmed Plato, who was wary of the alphabetical book's innate tendency to separate the speaker from the listener. Ironically, Plato's alphabetically inspired idealism also contributed to the development of the virtual realm in which 'types' of form are regarded as identical, rather than similar. This tendency is a crucial part of the heresy of alphabetical text. As computers seem to tell us, whenever a letter is erased from the screen, another will replace it just as well. In practical terms there is no difference. However, this is only makes sense in an idealised Platonic world in which we ignore the way everything changes over time.

29
What has alphabetical writing to do with digital thinking? For one thing, the dualistic tendencies of alphabetical logic can be noted in the instrumentalist bureaucracy of modern governance. Conceptually, emotionally, ecologically, and spiritually this has been rather destructive. In short, it has had the effect of breaking up the world into separate conceptual parts when we know that they are really connected together. The 'print-oriented' logic is the basic argument behind the digital revolution. Indeed Immanuel Kant's exaggeration of the importance of 'distinction' paved the way for the mechanistic, code-oriented innovations of Charles Babbage, George Boole, Claude Shannon, and George Spencer Brown.

30
When electronics technology became advanced enough to vindicate a positivistic approach, digital dogmatists such as Marvin Minsky were the ones who shouted loudest. This led everyone away from research into analogue systems and towards a digital approach. In the struggle between beauty and pragmatism it is clear who won the first round. Where binary logic might have looked like a travesty of how the world flows, it nevertheless offered certainty and power to its research sponsors in the military world. We all know the rest. Welcome to a boy's world of 'surgical strikes', 'cost-benefit analysis' and 'capitalism without friction'.

31
Just as the digital world turned alphabetical writing into keyboard codes based on '0's and '1's, so late twentieth century tabloid journalism pushed up the contrast on the grey-tones of the analogue world. In a fairly conspicuous way, qualities have given way to quantities. If we explore the genres of www we may note that the hierarchical, twentieth century syntax of the popular press is often dumbed-down to create

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'user-friendly' web pages. Subtle journalistic aphorisms have increasingly tended to replaced by oppositely polarised adjectives such as 'fantastic' or 'crap'. Much of this language is traditionally associated with male values. Most of us are acquainted with the nerdish chauvinism of 'Wired' magazine and 'Red Herring', just as we may accept the lad-ish hedonism of 'Loaded' and 'GQ'.

32
Despite one or two signs of an imminent softening in the alphabetical world-view the science establishment still holds to old assumptions of 'rigour' and 'objectivity'. Remarkably, despite the general acceptance of a quantum reality, and by the epistemological revelations of Heisenberg and Gödel in the early twentieth century, the scientific and academic establishments have yet to respond by changing their methodological assumptions. Indeed, these assumptions have become so deeply assimilated and ingrained into our view of 'reality' that we may find it hard to appreciate the writings of some of the pre-Socratic thinkers such as Heraclitus, who emphasised the holistic, mercurial, contingent, and relational nature of things and meanings.

33
Heraclitus (535-475 BC) lived just before Greek writing changed from a pictographic to a simplified alphabetical form, in 480 BC. Perhaps the best known of his sayings is:

> We step, and yet do not step into the same waters.

Here is another quotation:

> When you have listened not to me but to the Meaning, it is wise within the same Meaning to say: All is one. (Heraclitus: FRAGMENT 50)

(N.B. here, the difficult Greek word 'λογοξ' has been translated into 'meaning'. It is sometimes translated as 'discourse', or 'spirit'.) In terms of relational thinking this is an important text, because it carries grammatical relations that exist in situated story telling, but are seldom encountered in writing. It raises issues concerning ethical relations. Here is my own, slightly optimistic interpretation of the same text:

> When you have listened not just to my account, but also to the λογοξ, it is wise within this shareable account to say: All is one

34
Using tetrahedral logic to represent the fragment by Heraclitus
In order to help designers to think in a similarly self-reflexive and dynamic way we have tried a number of methods. Ironically, one successful approach uses a static polygon. This is the tetrahedron. It is one of Plato's famous solids and has a number of unique features. To begin with, the tetrahedron has an optimally memorable number of components; i.e. four. It is probably best to imagine this triangular pyramid as four equally sized spheres that are packed together tightly so that each touches each of the other three. If you imagine the centres of the four spheres they can be visualised as the nodes of a tetrahedron. This means that each node can 'see' each of the other nodes directly, without anything getting in its way.

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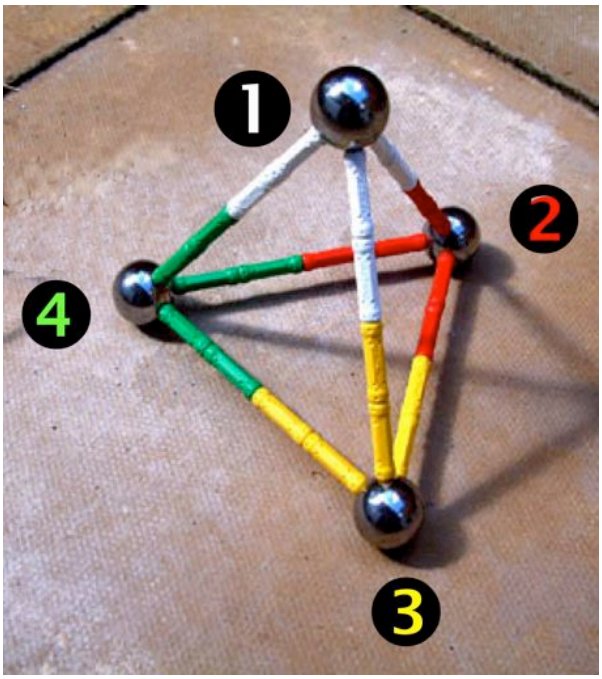

Fig. *: the 4 nodes of a tetrahedron

The tetrahedron affords parallel, self-reflexive, relational representations. It provides an almost ideal basic format for representing a manageable set of relations. As such it can be used to map situations that are more down-to-earth than other genres that use more lengthy, linear, narrative, or academic forms. This is because a designer's predicament can be expressed as a parallel, simultaneous set of relations. It has been chosen because it is difficult – although not impossible — to theorise more than four interdependent perspectives in a discussion. Unless we are attempting to stretch the imagination beyond four parts, the tetrahedron is a convenient system.

With four interdependent parts we have an optimal structure, mnemonically speaking. According to the engineer and inventor Richard Buckminster Fuller, the mind may be tetrahedral. Is it a coincidence that there are (only) four codes in the DNA? Systems with the quality 'four' are certainly familiar to many human societies. The idea of North, East, South and West or Earth, Wind, Air and Fire are handy examples. They are certainly easy systems to conceive and to remember. Using a tetrahedron as a primitive conceptual 'map' we can assign four interrelated players, values, or perspectives to a system that can be oriented in any position without compromising its integrity.

Mapping Fragment 50 onto a tetrahedron
The tetrahedron can be used to map the relations implicit in the above quotation from Heraclitus. This proposition can be parsed into four dynamically interpenetrating parts:

1) nominative co-subject (i.e. the text's author/speaker)
2) significant proposition or event in question (i.e. the publication/speech itself)
3) dative co-subject (i.e. the text's reader/listener)
4) discursive and all-pervasive context (i.e. λογοξ)

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1) Nominative co-subject (author/speaker)
• The 'me'(1.1) i.e. this mortal human being (who has listened and who has reflected on many things)
• The 'me' of 'I' (1.2) i.e. the living person you are listening to, and who now speaks
• The 'I' of 'me' (1.3) i.e. the speaking voice that is part of this mortal being
• The 'me and I' (1.4) i.e. this person/thinker who is moved to say "All is one"
• The 'me and I' (1.5) i.e. this person/thinker who claims, after being attentive to the λογοξ, that the proposition "All is one" is a wise conclusion
• The 'me and I' (1.6) i.e. this person/thinker who advises you not to trust his words without reflecting upon his proposition for yourself
2) Dative co-subject (the reader/listener)
• The 'you' (2.1) i.e. mortal human being who has listened and reflected on things
• The 'you' (2.2) i.e. the human, mortal 'you' (2.1) who, at this moment listens to me
• The 'you' (2.2) who listens to what I am saying, rather than to my performance as a speaker
• The 'you' (2.3) (including the integrity, awareness, honesty, and astuteness of your listener/thinker-identity, and your readiness to listen to, and to reflect wisely upon my words) before you may, or may not, have reflected wisely upon a shareable significance of what I say
• The 'you' (2.4) who, after fulfilling the above conditions, chooses to agree that 'All is one'
3) Significant proposition or event in question
• The proposition that this mortal human being makes in saying: All is one
• The proposition: 'All is one'
• "All is one"
• The integrity of what I say in terms of my astuteness, honesty and awareness
• The coherence, in-and-of-itself, of these words
• The coherence, in and of itself, of what my words propose
4) Discursive and active context (λογοξ)
• The context (i.e. language entangled by world, and vice versa) of this (shared) proposition and how it is part of the λογοξ
• The totality of one
• The unity of everything that is the case
• The meaning of this discourse as truth in and of itself
• The connoted + denoted (i.e. shareable) significance of the whole utterance as a proposition

Fig. * The 4 Grammatical Elements

INTERPLAY BETWEEN 1 and 2
the utterance from me (my mouth) that now reaches you (your ears)
INTERPLAY BETWEEN 1 and 3
how what I say resonates with that to which I (implicitly) relate it i.e. the harmony between my perspective/experience and that of which I claim

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INTERPLAY BETWEEN 1 and 4
the rhetorical plausibility between me and the subject of which I speak
INTERPLAY BETWEEN 2 and 3
the meaning of this discourse for you ('logos 2') assuming you have listened wisely and reflected upon what I am saying
INTERPLAY BETWEEN 2 and 4
the pertinence/relevance of what I say for other things that are unsaid
INTERPLAY BETWEEN 3 and 4
the λογοξ ('real world') that is implied/reveals itself in my words

Fig. * The Six relations formed by the four grammatical elements

A practical tool for practitioners
Practising artists and designers can also use this system as a reflexive mapping technique. It is useful because it contains enough rudimentary relations to represent a generalised predicament. As such, it may offer the basis for a new mode of design ethics. We can, for example, assign one node to:

1) the author (e.g. designer)
2) the topic (e.g. the product, idea, system, outcome etc.)
3) the reader (e.g. recipient of the design, etc.)
4) the context (e.g. the biosphere)

Having assigned them, we can start at any of the four nodes and look for their relationships to the other three.

The six basic relations in any four-fold system
As in the previous version, this very simple process merely reminds us to explore the six links implicit in any group of four things. In another configuration it may be helpful to assign two nodes to the self. By taking one as a personal self and a second as a professional self it serves to remind the creator that by learning to practice as a professional s/he may have suppressed personal desires for the world. By exploring the personal self first it is then more productive to move to the professional role, in order to rehearse what entrepreneurial actions may be possible.

VALUES THAT CAN BE SELF-MAPPED IN HOLISTIC RELATION TO EACH OTHER
1a. SELF-KNOWLEDGE (INWARD) How much have you shown that you know yourself, your strengths and your weaknesses? (Preferably in a self-reflexive way: i.e. knowing how much you know within this particular context)
1b. READER-SYMPATHY (OUTWARD) How well have you shown that you can be effective on behalf of the named reader/s? (Reflect upon how much you have understood your reader/s' mission, standpoint, way of thinking, and value system)
2a. CURIOSITY MANAGEMENT (INWARD) How well have you shown your reader/s that you can arouse, stimulate, develop, broaden, deepen, and moderate your own sense of curiosity and understanding for things?
2b. COMMUNICATION (OUTWARD) How well have you shown your reader/s that you can organise and present relevant and helpful knowledge to others in a way that engages, informs, inspires, and supports them?

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3a. STUDENTSHIP (INWARD) How well have you indicated to your reader/s that you were receptive to a range of knowledge and insights of others whilst attending this course?
3b. RESEARCH SKILLS (OUTWARD) How well have you shown reader/s how imaginative, creative, sceptical, and well organised your are, by your inclusion of relevant notes, documentation, and other information?
4a. PROFESSIONAL FOCUS (inward) How much have you shown your reader/s what you are currently doing to clarify, focus, and prepare yourself for an effective future role in the professional world?
4b. ETHICAL AWARENESS (outward) Have fully have you shown your reader/s that you are in touch with the environment (i.e. intellectually, emotionally, and/or actively) in such a way that you could help sustain the ecological world that sustains you?

Fig. * Four inward-facing and four outward-facing consequences of learning

The above chart shows four inward and four outward-facing qualities that we use on the MA Design Futures programme. For the 'western' mind, the first is, perhaps, the most important. Indeed, a self-reflexive awareness is one of the fundamental factors of western thinking since Socrates. By acknowledging one's own strengths and weaknesses in a balanced and honest way, we have the basis upon which to affirm our relations with the other three nodes – e.g. the proposition, the specific reader, and the background context. If we decide to follow the western approach, we would probably start with the author as origin of the idea. Using this logic, we might say that it is by gratifying his or her creative ego that an artist becomes capable of empathising with the needs of another.

If we accept that it is rare for 'real' artists to want to satisfy a client's brief, this theory also represents a boundary between art and design. Guided by her own experience, the designer seeks to empathise with the concerns and predilections of the reader (e.g. client). As such s/he seeks to perceive the world from the client's standpoint. It is by adopting the designer's role that we see how the roles of both client (reader) and designer (author) are co-creative aspects of a space that is also co-created by the relevant idea (e.g. design, or proposition) and its larger context. This kind of nested thinking is easy for many – although not all – dyslexics. Significantly, it is probably easier to do it than to talk or write about it.

If we can imagine that the domain of creativity is beyond number and text, why would we need to write at all? This is a question I ask my dyslexic students, many of who are very keen to improve their writing skills. Arguably, one of the key purposes of writing is self-teaching, guided by intuition and the imagination. Maybe imagination exists as a kind of vernier scale that crystallises things at the point where waves interfere with one another. If the world exists as a set of wave relations, then we live in a world of qualities, rather than quantities. Where theories can be developed quietly in libraries, artists and designers must more often make judgements that have to work in 'real-time'. One of the issues that Heraclitus reminds us about is that of the epistemological entanglement of speaker and listener. With writing it usually has to be simulated for the pleasure of the reader.

Unfortunately, the print culture has taught us how to write to the unknown reader and to read the impersonal author. Where speaking and listening used to be a delicate, relational event, alphabetical writing tended to encourage the dominance of data. In the world of business-English (c.f. Microsoft WORD) a fact is a fact, is a fact. In the digital domain, information presented in this form has become a

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commodity that can be traded without fear of 'data loss'. However, what Heraclitus reminds us is that, just as we cannot put our foot in the same river twice, so we change things by asking a question. Hence, we can never ask the 'same' question again. This is similar to how works of art are created.

The work of Heraclitus may also remind us that professional designers must use situated judgement that calls for multi-dimensional maps of understanding. This is where dyslexic wisdom may come in useful. If we can develop writing that will seek to map the dynamic world self-reflexively, it might bring us a little closer to utopia. The diagram * below is an example of a more relational, situated approach to writing. The circle is a conceptual map of eight factors, each of which is intended to be joined to each of the others to make a total of twenty-eight possible relations. In joining the dots together using written notes and comments, the author is thereby encouraged to reflect upon her/his predicament in a highly situated, creative, opportunistic and responsible way.