Whitehead's symbolism as process philosophy of the sign[1] [draft of 27/12/16, all comments welcome]

>'There was certainly no recognition that I was reading not only one of Whitehead's most important books but one of the most important books of the century.'[2]

This essay begins with an extended analysis of Whitehead's terms and arguments from his *Symbolism: its Meaning and Effect*, including theories of perception and time, natural philosophy, the study of connections and differences between human and animal, theses about social order, remarks on art, and critical arguments against other philosophers, notably Hume. I then argue that Whitehead restricts the critical and creative power of signs by limiting their definition through dependencies on general theories of time, perception, nature and meaning. This restriction holds back the speculative and pragmatic potential of signs. It also hinders the explanation of the full range of signs.

Symbols and times

In his 1927 book *Symbolism: Its Meaning and Effect*, given as the Barbour-Page lectures at the University of Virginia, Alfred North Whitehead sets out his version of a philosophy of signs and symbols.[3] The argument is consistent with his wider process philosophy. It is made during the most productive period of Whitehead's philosophical writing, two years after the publication of *Science and the Modern World* and two years before the publication of *Process and Reality*. The discussion of symbols in Symbolism recurs in more dense form in *Process and Reality*, where it connects to a greater range of Whiteheadian concepts.[4]

Whitehead does not use the word sign, preferring symbolism, where the symbol is itself understood as a process of symbolic reference. This preference should not be seen as an obstacle to the idea that the book is also about signs and process, since his symbolism covers most uses of signs. Usually, a symbol is

[2] Colin Wilson 'Rediscovering *Symbolism: its Meaning and Effect* by Alfred North Whitehead' *The Georgia Review*, Volume 47, Number 4 (Winter 1993), pp 740-48, p 741
[3] Alfred North Whitehead, *Symbolism: its Meaning and Effect*, Cambridge University Press, 1928 [henceforth *Symbolism*]
[4] Alfred North Whitehead, *Process and Reality*, New York: The Free Press, 1978, pp 168-83

taken as a more direct and automatic link to what it symbolises; for example, when a signature is the symbol for the person or when the Olympic rings stand for sport on five continents.[5] However, even such symbols can be taken as less direct signs; for instance, when a signature is studied by graphology as an interpretable sign of character. Whitehead's symbolism encompasses direct symbols and indirect signs in a general process philosophy.

His argument superimposes two spectrums: the full range of natural processes, from lower to higher order ones, and the range of symbols, from the most direct to the least. The natural spectrum goes from rocks and electrons through plants, insects, animals, and up to humans. The symbol spectrum starts with ones working strictly causally, to the point where they are not full symbols at all. It ends with linguistic and artistic ones from poetry and music.

The difficulty of Whitehead's work can be understood from his title. He employs common words: 'symbolism', 'meaning' and 'effect', but the sense given to them is unusual. This makes his prose confusing, since it invites initial comprehension, only to undo it in the subsequent argument. A simple sentence can appear to be well-understood, but how it links to others can be baffling until we grasp the new definitions Whitehead is working with.

When Whitehead writes 'Symbolism: its meaning and effect' we could expect an essay on symbols, their meaning and the effect they have. We'd be completely wrong. Symbolic reference is about interactions between environment-based causal processes (causal efficacy) and immediate perception. The distinction between them depends upon a gap between perceptions of the world at a given time and the way processes unfold over time. Symbols bridge between the immediacy of perception and causal processes. When we try to find the right meaning, we attempt to close the gap between perceptions and causes.

Whitehead gives an example of symbolic reference in the simple case of crossing a road. For an absent-minded spectator the road can be many different sense-impressions: noises, shapes and colours. However, once onlookers need to cross the road, they have to connect those disparate impressions with past experiences of speed, motion and vehicles. They must exercise judgement as to when the road is clear by relating the vehicles to causal effectivity – the damage they can do.

Symbols of speed and direction connect impressions, the growl of an engine and the rate of growth of a shape, to our sense of causal effectivity, indicating where there is a safe space to cross. Part of Whitehead's argument for the truth of this model is an explanation of how we fall into error and confusion when new perceptions make it hard for us to reconnect to past causes. We experience this in modern traffic, in misjudgements caused by quiet electric vehicles.[6]

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[5] Joseph Piercy, *Symbols: a Universal Language*, London: Michael O'Mara Books, 2013
[6] See new UN regulations on warning sounds for silent cars http://www.unece.org/info/media/presscurrent-press-h/transport/2016/new-un-regulation-keeps-silent-cars-from-becoming-dangerous-cars/doc.html

Time is important to Whitehead's argument because it explains the gap between causal effectivity and some types of perception.[7] Impressions of the world as a collection of sensations arise when it is taken at an instant, like a snapshot: 'Presentational immediacy is our immediate perception of the contemporary external world... '[8] This instantaneous view is an abstraction from the continuity of processes over time.

For Whitehead, abstraction is double-edged. It is the basis for very rapid adaptation to environmental changes, since it allows reflection free from the hold of earlier but redundant patterns of behaviour. It is also the basis for error and confusion, because it separates us from the flow of past processes. The condition for inventiveness and error is not reason alone, but rather a form of perception that opens a gap for symbolism and hence for language and reflection.

Causal efficacy is conformation to the past: 'Thus the immediate present has to conform to what the past is for it, and the mere lapse of time is an abstraction from the more concrete relatedness of "conformation."'[9] Conformation describes the way things are shaped by a flow of processes from past to future. This is the momentum we feel when we teeter on the edge of a step. The run in the past translates into present wobble and the effort to avoid a future fall. Like Wile E. Coyote hovering over a canyon, immobility in the instant is a temporary illusion.

Whitehead's account of immediacy is biological and leads to a definition of human distinctiveness.[10] He notes how animals conform to the flow from past to future, whereas human perception involves presentational immediacy: 'A dog anticipates the conformation of the immediate future to his present activity with the same certainty as a human being. When it comes to calculations and remote inferences, the dog fails. But the dog never acts as though the immediate future were irrelevant to the present.'[11] Humans treat the immediate future as irrelevant when they deliberately act against conformation in order to attain a future goal; for instance, when we train ourselves to ignore danger for sporting achievement.[12]

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[7] Since this is a close reading of *Symbolism* I have not discussed overlapping arguments from *Process and Reality*. For a discussion of time, perception and causal efficacy in *Process and Reality*, see Judith A. Jones *Intensity: an Essay in Whiteheadian Ontology*, Nashville: Vanderbilt University Press, 1998. Jones interprets perception in Whitehead through the concept of intensity, where symbolic reference allows for a 'more refined intensity of experience.' p 152

[8] *Symbolism*, p 25

[9] *Symbolism*, p 43

[10] For a study of connections between Whitehead and contemporary neuro-biology, see Ralph Pred *Onflow: Dynamics of Consciousness and Experience*, Cambridge MA: MIT, 2005 pp 282-93

[11] *Symbolism*, pp 49-50

[12] Isabelle Stengers shows that despite Whitehead's arguments about higher order perception and symbolic reference, there are plenty of examples of animals using symbolic reference: '... that chimpanzee, observed by ethologists, who produced cries of alarm, then calmly went to flirt with a female abandoned by her felling males.' Isabelle Stengers *Thinking with Whitehead: a Free and Wild Creation of Concepts*, Trans Michael Chase, Cambridge MA: Harvard University Press, 2011, p 404

Whitehead's work on perception borrows from George Santayana's *Scepticism and Animal Faith*. Santayana rejects types of scepticism represented by Berkeley and Hume, claiming they depend on 'chimerical physics' of impressions taken as 'pellucid ideas'.[13] He argues that impressions only ground scepticism when they are shorn from substances.

Against scepticism, Santayana argues for animal faith, the belief in substances as things animals act upon with no misgivings. A hungry dog gnaws at a bone with no doubts about its existence.[14] Santayana and Whitehead are also arguing against non-empirical forms of scepticism, for example where they assume an absolute power to negate the world. Thus, Sartre' later positing of nothingness and unconditioned freedom as essential to human consciousness also runs counter to Santayana's animal faith and Whitehead's conformation.[15]

Whitehead is critical of Hume for his dependence on sense-impressions and rejection of real causal efficacy. Hume gives a primordial role to impressions, supplemented by causal inference, and this means that his philosophy fails to offer good explanations for familiar phenomena: 'Most living creatures, of daytime habits, are more nervous in the dark, in the absence of the familiar visual sense-data. But according to Hume, it is the very familiarity of the sense-data which is required for causal inference.'[16] In the absence of experience of threats in the dark there are no grounds for an inference explaining fear. Hume therefore misses the right explanation that darkness induces fear because it inhibits our sense of causal effectivity.

This is an unconvincing critique of Hume, since he might well answer that fear is not explained by inferences, but rather by the disturbance of our daytime habits by darkness.[17] Hume can appeal to habit in the same way as Santayana and Whitehead appeal to conformation. They make the mistake of overemphasising inference of causality at the expense of custom and habit in Hume's philosophy. In the discussion of symbolic reference from Process and Reality, Whitehead criticises habit in Hume as formed by the repetition of impressions and hence dependent on presentational immediacy[18] but again this is a reductively narrow reading of habit and custom in Hume.[19]

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[13] George Santayana, *Scepticism and Animal Faith: Introduction to a System of Philosophy*, London: Constable and Company, 1923, p 68.

[14] *Scepticism and Animal Faith*, 233

[15] '… *nothing* makes value exist, other than the freedom that at the same time makes me exist…' Jean-Paul Sartre, *L'être et le néant*, Paris: Gallimard, 1943, p 133

[16] *Symbolism*, p 50

[17] For an extended discussion of Whitehead's criticism of Hume around presentational immediacy see Jeffrey A. Bell 'Scientism and the modern world' in Gaskill and Nocek (eds.) *The Lure of Whitehead*, Minneapolis: University of Minnesota Press, 2014, pp 65-91, esp. 73-4. Leemon B. McHenry also has a clear account of the differences between Hume and Whitehead with an interesting discussion of differences between their examples. Leemon B. McHenry, *The Event Universe: the Revisionary Metaphysics of Alfred North Whitehead*, Edinburgh University Press, 2015, pp 116-19

[18] *Process and Reality*, pp 174-5

[19] See John Christian Laursen 'David Hume on custom and habit and living with skepticism' *Daimon, Revista Internacional de Filosofía*, No. 52, 2011, pp 87-99

Whitehead's argument also takes aim at Russell's sense-data as presentational immediacy: '… the superficial product of complexity, of subtlety; it halts at the present, and indulges in a manageable self-enjoyment derived from the immediacy of the show of things.'[20] For Whitehead, positivism based on atomic substances, or sense-data, or 'unanalysable elementary experiences'[21] must fail as an account of experience because it misses a more fundamental kind of experience that cannot be accounted for in atomic units.[22]

Sense-data abstract from causal efficacy and hence break with conformation: '… the experience dominating the primitive living organisms, which have a sense for the fate from which they have emerged, and for the fate towards which they go… '[23] The reason higher animals become detached from the flow of time is that they have immediate perception. Their error is to take this perception as reason to ignore causal efficacy.

Symbols are a way of reconnecting to fate. There has to be a mechanism for returning the instant to its conforming flows in order to reconnect to a causal environment. Symbols are the way of doing this. For example, when presented with a still photograph, we seek to reconstitute the portrayed scene by tracing back from signs in the picture to their past. But what does Whitehead mean by fate? How should we behave towards it?

Symbols in nature and history

To give a complete account of action in relation to natural processes, Whitehead divides it according to instinct, reflex and symbol.[24] When an action is symbolically conditioned it responds creatively to symbols. This response is an action directed to the future based on the interpretation of symbols.

Again, words are employed in unusual senses here. For Whitehead, a rock acts according to instinct, meaning through causal effectivity alone ('pure' instinctive action). Additionally, animals and humans act from reflex, 'a relapse towards a more complex type of instinct on the part of organisms which enjoy, or have enjoyed, symbolically conditioned action.'[25] Symbolically conditioned action introduces

[20] *Symbolism*, p 52
[21] Rudolf Carnap, *The Logical Structure of the World: Pseudoproblems in Philosophy*, London: Routledge, Kegan and Paul, 1967, p 110
[22] 'In fact Whitehead's process thinking was to lead to a completely new theory of perception, in which Russell's cut and clear sense-data are non-fundamental results of a complex perception process, involving causal efficacy, presentational immediacy and symbolic reference.' Ronny Desmet 'The serpent in Russell's paradise' in Bart van Kerkhove (ed.), *New Perspectives on Mathematical Practices: Essays in Philosophy and History of Mathematics* New Jersey: World Scientific, 2009, pp 207-21, p 217
[23] *Symbolism*, p 52
[24] 'The doctrine of symbolism developed in his lectures enables us to distinguish between pure instinctive action, reflex action, and symbolically conditioned action.' *Symbolism*, p 92
[25] *Symbolism*, p 93

novelty; in humans this is conscious. In animals it can be an individual variation, for example, one due to a mutation. These novel forms become ingrained behaviour for groups or individuals. They then change into reflexes.

Evolution in a changing environment can be seen as symbolically conditioned, because new environmental conditions break with conformation and demand novel adaptation. If that's right, then abstraction in symbolism does not apply simply to humans. Instead, it is a way of describing a mismatch between conformation to past processes and present events. There is an ambiguity in Whitehead's work since immediate perception is reserved for higher grade organisms, but abstraction can be understood as a more general mismatch between past and present conditions.

A solution to this ambiguity might be to distinguish between conscious and unconscious symbolic reference, but this solution wold not be consistent with the account given in Process and Reality, where higher grade organisms with presentational immediacy are 'relatively few, in comparison with the whole number of organisms in our immediate environment.'[26]

At an individual level, symbols operate between causal effectivity and new conditions. Causal effectivity is a group condition, whereas symbolic action is an individual variation, but groups and individual are interdependent: 'Thus the community as an environment is responsible for the survival of the separate individuals which compose it; and these separate individuals are responsible for their contributions to the environment.'[27]

The difference between humans and animals is the ability to address symbols consciously and act consciously according to them. When presented with the stills from the Joe Frazier and Mohamed Ali fight, the 'Rumble in the Jungle', we can interpret them back to the boxing moves and ring craft that led to them. The image is a mass of sense-impressions, but it can be reconnected to process by tracing back from sense-impressions to causal effectivity: don't want into an Ali straight punch.

Perception and symbols are not restricted to immobile images. They depend on abstraction from the flow of time, rather than mere immediacy. The process of abstraction pulls sections of time from an overall flow. Symbolic reference reconnects them. This is a biological process not limited to human perception and reflection. A graft between plants can be understood as the moment when each plant stock encounters new symbols from different timelines. The ensuing plant is a way of making sense of that encounter. The grafting becomes a 'reflex', in Whitehead's sense, if the grafting leads to genetic modifications and a viable new hybrid.

In a case of human abstraction, historians take evidence from a limited period, such as many different accounts and statistics about D-day. They then suggest flows between the period and its wider context. In so doing, they conform shorter time to longer by assigning meanings to the symbols of D-day. This is

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[26] *Process and Reality*, p 172
[27] Ibid

done by reflecting upon the facts about the invasion and connecting them to earlier processes, such as the earlier build-up of troops and material.

Abstraction explains why Whitehead's book has great range, since it has wide applicability. He addresses history, philosophy, perception, biology, physics, logic, politics, language and the arts. The political and social motivation can be understood through a longstanding concern for history, as embodied in the present and transformed for the future. Whitehead is interested in symbolic reference because it teaches us about the dangers of being caught in the moment, or of seeking to break with the past, when both depend on conformation.

This explains the ambivalent place given to Burke in *Symbolism*. The Whig politician understands the importance of conformation but overemphasises it to the detriment of creative renewal: 'Burke was well ahead of his time in drawing attention to the importance of precedence as a political force. Unfortunately, in the excitement of the moment, Burke construed the importance of precedence as implying the negation of progressive reform.'[28] Burke's mistake is to assume that fidelity to the past can somehow forestall change without bringing on even greater violence.

Whitehead's message is less conservative, because he balances conformation with ideas of necessary decay and renewal. The past has a tendency to exhaust itself and the present reinvigorates it. This balance of decay and renewal provides an answer to the question of fate and how to act upon it. Fate is to depend on a necessarily decaying past that our actions in the present can give new life to.

Whitehead's belief in conformation is a rejection of the idea of an absolute revolutionary break with the past. The destruction of the bonds of conformation brings chaos that can only be remedied by a violent return to order.[29] The desire for an absolute break destroys revolutions. In an elegant nod to his audience, Whitehead refers to Virginia and its revolutionary movements throughout his symbolism talks. Revolutions must carefully choose which threads of time to undo and which to knit with: 'Those revolutions which escape a reign of terror have left intact the fundamental efficient symbolism of society.'[30]

The necessity of decay and renewal allows for an understanding of 'causal efficacy'. Whitehead uses the term quite differently from strict determinism, since he allows for novelty and perspective. Causal effectivity determines us, but not completely: 'The bonds of causal efficacy arise from without us. They disclose the character of the world from which we issue, an inescapable condition round which we shape ourselves.'[31] We can shape ourselves because, though causal efficacy is necessary, it is not sufficient for determining our relation to the future.

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[28] *Symbolism*, pp 85-6
[29] *Symbolism*, p 90
[30] Ibid
[31] *Symbolism*, pp 69-9

Furthermore, this shaping introduces perspectives into the world, where perspective should not be defined as a passive view, but rather as active interactions. Each shaping of the world has focal processes which involve all others but cannot be reduced to them. Decay and renewal follow from the resulting looseness within effects and conformation, since novelty and differences in perspective necessarily transform existing structures in ways that go beyond determined patterns.

This leeway resolves a possible contradiction in Whitehead's argument and shows his opposition to mechanistic explanation. It could be objected that his account of the gap between perception and causal efficacy does not make sense, since perception must itself arise from efficacy. The answer is that it does, but this efficacy does not fully determine subsequent events.

Innovative action is an important part of all living processes. To ascribe it to free will is to misinterpret Whitehead. He is using 'we' in the above passage as a way of explaining how novelty can occur through humans in relation to symbols, but this should not be read as 'free human subjects' but rather in the sense of self-production as emergence within a society, like the emergence of different styles of writing in the same writing class, without any of the writers consciously deciding to write differently.

Novelty is a spontaneous coming together of wider processes: 'An actual occasion arises as the bringing together into one real context diverse perceptions, diverse feelings, diverse purposes, and other diverse activities arising out of those primary perceptions. Here activity is another name for self-production.'[32] We can talk about self-production of animals, plants and humans, because they bring together diverse factors of conformation into new occasions of self-production.

Perception in higher animals makes their action different in relation to time. The gap between the instant of perception and the past working as causal efficacy contributes to renewal in relation to a distant future.[33] The past sets boundaries for higher organisms, but because they can abstract from and react to those boundaries in novel ways, they can also take control of their future and aim to separate it from the past.[34]

This separation is an opportunity and a risk. We must take a pragmatic approach to the challenge of breaking with the past while respecting its hold upon us. Decay and creation are necessary, but creation can increase or decrease perishing. This means we need to be pragmatic about breaks and continuity

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[32] *Symbolism*, p 9
[33] *Symbolism*, p 70
[34] See Ronny Desmet's illuminating discussion of Whitehead and Pessoa on sensation for a defence of Whitehead's symbolism as coming between determinism and absolute freedom: 'For Whitehead, things are not completely determined by causal efficacy but are also self-determined, and human freedom and moral responsibility arise because, even though we cannot decide what causally affects us, we can, to a certain extent, decide how it affects us.' Ronny Desmet, 'The Anti-Whitehead: Alberto Caeiro (Fernando Pessoa)' in Chromatikon VIII, *Annales de la philosophie en procès*, M. Weber and R Desmet (eds), Louvain-la-Neuve, Chromatika, 2012, pp 135-156, p 150

because '… the symbolic elements in life have a tendency to run wild, like the vegetation in a tropical forest.'[35]

The biological rather than mechanical metaphors for causal efficacy are indicative of Whitehead's organic natural philosophy: 'The life of humanity can easily be overwhelmed by its symbolic accessories. A continuous process of pruning, and of adaptation... '[36] The pragmatic approach is about cautious evolution: 'The successful adaptation of old symbols to changes of social structure is the final mark of wisdom...'[37]

The best way of thinking about Whitehead's pragmatic and ethical approach is as a form of ecology.[38] Intervene cautiously through innovation in a changing environment, by caring for as many of the shared dependencies of that environment as you can. In debates around meaning and cognition, Whitehead can therefore be situated on the side of embodiment rather than symbolic calculation. His drift away from the aims and principles of *Principia Mathematica* and his rethinking of atomism lead to an account of symbols far removed from computation, though his philosophical method differs from the experimental practice of contemporary arguments for embodied cognition and symbols.[39]

Repudiation of determinism and mechanical models extends to relativism in its physical sense such that conformation, perishing and causal efficacy are relative to the processes we begin with, as defined by organic communities.[40] No community of processes is homogeneous, since each community is relative to its individuals, even if the individuals are themselves influenced by the community: 'Universality of truth arises from the universality of relativity, whereby every particular actual thing lays upon the universe the obligation of conforming to it.'[41]

The process of conformation is therefore relative and universal. Every process depends on communities and every community is in process with every other.[42] Communities and individuals are defined by their geographical location and unity. This applies to rocks as much as to human communities: 'Societies of

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[35] *Symbolism*, p 72

[36] Ibid

[37] Ibid

[38] Lynne Belaief argues that Whitehead's philosophy must run counter to individualism and self-interest as grounds for ethics because of a prior dependence on the well-being of others. Lynne Belaief *Toward a Whiteheadian Ethics* Lanham MD: University Press of America, 1984, p 96

[39] For a detailed account of debates around computational and embodied theories of meaning see Manuel de Vega, Arthur M Glenberg and Arthur C Graesser, *Symbols and Embodiment: Debates on Meaning and Cognition*, Oxford University Press, 2008

[40] *Symbolism*, p 93

[41] *Symbolism*, p 45

[42] This is a rejection of classical atomism, as the externality of relations between atomic simples, but as Pierfrancesco Basile has shown, Whitehead's philosophy can be seen as an atomism of internal relations. Pierfrancesco Basile *Leibniz, Whitehead and the Metaphysics of Causation*, Basingstoke: Palgrave Macmillan, 2009, p 15

the higher animals, of insects, of molecules, all possess geographical unity. A rock is nothing else than a society of molecules, indulging in every species of activity open to molecules.'[43]

The idea of geographical unity links back to Whitehead's work in geometry and to his denial of simple location in favour of relative processes in *Science and the Modern World* and *Process and Reality*.[44] Though each community has geographical unity, this is only in relation to processes relating it to every other location. Whitehead's denial of simple location implies that symbols are themselves distributed and interactive. Their meaning comes from action in the present and how each act brings wider processes into play.

Signs, untethered

Against Whitehead, I define the process sign as the undetermined selection of a set of elements against a substratum, transformed by the selection. Anything can be taken as an element. Everything belongs to the substratum and is wholly transformed. The transformation is mapped by a series of competing diagrams. They speculate on the form of the transformation by mapping it.

Undetermined selection and open speculation are designed to make signs and their reach as broad as possible. This rejects Whitehead's requirements for a coherent, logical and necessary general system.[45] Signs are challenges to each of those requirements as they arise within given systems. Where Whitehead subsumes symbols to a general system, I claim that all signs are potential counterfactuals and this potential can be mapped by series of diagrams showing the disruption wrought by the sign as process.

A position that denies either the selection of a sign or a proposed diagram, on the basis of a more general theory, is a stipulation over the sign. This opposition between signs and stipulations is the opportunity for wider conflicts around the sign, where the speculative sign and counter-positions meet in competitions whose rules are as yet to be determined, regulated neither by the realm of the sign nor the stipulation. In contrast to Whitehead's general system that includes symbols within a complete organic philosophy, each process sign is defined as a challenge to, but also as threatened by, theories about its elements and proposed diagrams.

My process sign is defined minimally to allow for all signs as creative and critical processes. Each sign is always a transforming selection that is mapped speculatively. It is the suggestion of a process running

[43] *Symbolism*, p 76

[44] 'In a certain sense, everything is everywhere at all times. For every location involves an aspect of itself in every other location.' Alfred North Whitehead, *Science and the Modern World*, Harmondsworth: Penguin, 1938, p 111

[45] 'Speculative philosophy can be defined as the endeavour to frame a coherent, logical, necessary system of general ideas in terms of which every element of our experience can be interpreted.' Alfred North Whitehead, *Adventures of Ideas*, Harmondsworth: Penguin, 1933, p 257.

through all things as determined by the selection of some, rather than a claim to an objective and stable general theory of how things are.

When you paint a red hammer and sickle on the bonnet of a gaudy Bentley, a new sign is selected where the luxury car enters into this set {gold Mulsanne Speed, dripping red hammer and sickle}. It can enter into many others, since the selection is undetermined. The new sign is a process reverberating through everything, though often to very low degrees. There can be many different maps of the salient transformations. We could focus on the tingle of satisfaction as the spray paint hits the buffed bodywork. Or we might consider the argument at the insurance office about the pay-out.

Different observable effects around a new sign are a good starting point for thinking about the extension of the process of selection, but they do not limit it. Diagrams speculate about the nature of extensions, from crime, to differing degrees of emotion among the injured plutocrat and amused bystanders, to the effect of acrylic paint on modern waxes. They enter into conflict with opposing stipulations, such as theories claiming that it is impossible to feel joy when a thing of beauty is disfigured, or that there is only an objective result to mixing two chemical compounds.

Whitehead's description of symbolic reference as connecting perception to causal efficacy in crossing a road could be named in this way: {aesthetic road impressions, physical movements of motorised traffic, symbolic reference}. This set would then be accompanied by diverse diagrams expressing the changing relations in and around these elements and, in principle, an infinite number of other transformations.

When the process sign is independent of a general theory, a wide range of different versions of its place in wider processes can be given. This allows for a faithful description of Whitehead's argument, but also critical alternatives, creative responses and speculative theoretical oppositions. Not limited to pictorial representation, diagrams are modes of expression of processes.

An image-based diagram might overlap neighbourhoods designated by 'impressions' and 'movements' to express that Whitehead's argument depends on an illusory separation of causal efficacy and sense-data. A chart-based mapping might show a trend towards human dependence on digital technologies in relation to Whitehead's definition of sense data and traditional sense of the human body. The aim would be to communicate the inadequacy of his model for contemporary developments in robot-human interdependencies.

These suggested signs are not tethered to a theory of relative times and spaces, or of causal efficacy. Furthermore, the norms provided by those constraints can no longer be applied to signs to judge them. Instead of depending on the concept of error to distinguish between good and bad signs – as Whitehead

does – process signs enter into broader speculative debate whose rules are always to be negotiated pragmatically.[46]

Whitehead's account leads to core and peripheral signs, because his definition subsumes signs under organic viability, thus dividing signs into which contribute to ecological viability and which fail it.[47]In my view, this gets the order of sign and general theory the wrong way round, because the lack of determination and multiple effects of signs generate new problems that general theories must respond to. The definition of process signs must allow for the challenge presented by signs to any general theory.

The development of experimental poetry is a good way of understanding this reversal. Poetry can be defined and judged; for example, according to ideas of rhyme and rhythm. These ideas regulate the production of poetic signs through norms in teaching, criticism and publishing. Yet each time such judgements gain sway they are supplanted by a proliferation of new forms, from digital and automatic poetry, to ungrammatical prose pieces, to pictographic poetry. The signs have far outgrown earlier theories. As pragmatic speculations those theories still retain some force, but as claims to general regulation or accurate description they are defunct.

By defining the sign as the result of an undetermined selection, and by refusing to tie signs to a particular science of perception or metaphysical definition of causation, a much larger range of signs can be taken into account, such as signs that deny a given process of conformation by appealing to a different kind of efficacy, or signs whose occurrence is independent of immediate perception. This also allows for signs that are anomalous from the point of view of a dominant science or world view. Such signs are essential for the progress of science and for sceptical challenges in philosophy.

The problem with Whitehead's general definition of symbolism is that it ties signs to overly specific accounts of perception and causality. This has two negative effects and one fundamental flaw: the variety of signs is limited, their critical and creative power is restricted, and the definition of the sign is vulnerable to the criticism that the grounding account of perception is implausible and self-contradictory.

We do not have to decide finally one way or another about the real existence of immediate perception to see that it is questionable even on Whitehead's own terms. For example, in his study of perception, colour and the sciences, Evan Thompson defends an ecological view of perception that runs counter to immediacy because it defines perception as essentially relational, where world and perceiver evolve together over time in many different ways: 'The look of an object is constituted by the interaction of the object and the perceiving-acting subject, and so is essentially relational...'[48]

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[46] Against this criticism of the role of error in Whitehead's philosophy, Murray Code points to the educational value of an 'artful use of symbols' in the avoidance of error. Murray Code *Process, Reality, and the Power of Symbols: Thinking with A. N. Whitehead*, Basingstoke: Palgrave Macmillan, p 55

[47] See James Williams, *A Process Philosophy of Signs*, Edinburgh University Press, pp 144-52

[48] Evan Thompson, *Colour Vision: a Study in Cognitive Science and the Philosophy of Perception*, London: Routledge, 1995, p 299. For a further argument for an enacted account of perception, 'an activity of learning about the world'

Thompson's point is consistent with Whitehead's ideas on causal efficacy and organic ecology, but inconsistent with perceptual immediacy because even perceptions reported to be immediate depend on changes over time in the relations between object and subject – world and animal – and on the actions of the subject. Perception is evolutionary and enacted on this view. For Thompson, immediacy is an historical supposition out of step with contemporary cognitive and biological sciences, and phenomenology. It is a mistake to take it as a general ground for the process of symbolism.[49]

The second flaw follows from the first. Whitehead distinguishes between truthful signs and those in error according to whether they serve to reconnect immediate perception to causal efficacy. The pragmatic and ethical aspects of symbolism follow from this connection to efficacy. This imposes a direction for signs and a view of how they should work. Even if some signs are important because they interrupt the flow of causal efficacy, and even if others matter because they work in ways that do not depend on presentational immediacy, their divergence from efficacy must be recuperated by a return to it.[50]

Whitehead's definition imposes a value of convergence on signs, but counterfactual signs introduce division and divergence into process, with no necessary goal of a return to synthetic flow. His account gives value to an anomalous sign through its participation in interpretations that reunite the sign to a wider sense of efficacy. What this misses is that the sign works as a counter-process independent of whether synthetic meanings can sew it back into a wider fabric.

Even if we accept that there is a trend in understanding and explanation towards incorporating symbols and signs in syntheses, this does not show that they are necessarily consistent with a general synthetic view such as Whitehead's causal efficacy. On the contrary, since signs are frequently effective challenges to our synthetic or dominant views, it seems that the deep problem is in explaining how they depart from trends, rather than fit consistently into greater generality.[51]

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that chimes with Whitehead's rejection of sense-data without causal efficacy, see Alva Noë Action in Perception, Cambridge MA: MIT Press, 2004, p 166

[49] In his inventive reinterpretation of Whitehead, Mark B. Hansen shows how it is possible to avoid the limitation of perception in Whitehead's work by expanding the concept of sense-data to a much broader idea of 'datasense' that includes a 'production of sensibility by data-gathering operations'. This production is not caught in the instant or tied to specific impressions. Mark B. Hansen *Feed-Forward: on the Future of Twenty-First-Century Media*, The University of Chicago Press, p 149

[50] I am criticising Whitehead for a narrowing of the potential of signs, but it is important to point out that this does not imply that his symbolism lacks critical and creative applications. In his work on Whitehead and sociology Michael Halewood points out that the turn to causal efficacy and conformation to the body, understood as manifold, allows for a critical stance with respect to overly determined symbolic use in language: 'Whitehead's account may enable social theory to avoid having to prioritise language, to avoid the current position where it seems impossible to puncture its shifting meanings and associations in order to get to the real body.' Michael Halewood, *A. N. Whitehead and Social Theory*, London: Anthem Press, 2011, p 121

[51] Steven Shaviro gives an answer to this criticism of the synthetic nature of Whitehead's philosophy by emphasizing its speculative nature as an 'urgent necessity' in response to new circumstances. Steven Shaviro, *Without Criteria: Kant, Whitehead, Deleuze, and Aesthetics*, Cambridge MA: MIT Press, 2009, p 145

The third critical point is about perception and the philosophy of time. Here, the problem is not about immediacy of perception as opposed to the flow of time, but rather how immediate perception is implausible when considered as a claim about perception of time and hence about perception in general. We do not perceive time as immediate, but rather as complex types of flow. This means that perception cannot take on a general role in symbolism, because presentational immediacy is a particular and contingent account of the experience of time.

In an article about time and perception, Robin le Poidevin draws attention to different ways immediacy in perception raises difficulties for the philosophy of time. It commits us to representational presentism; it denies the experience of the passage of time and of the arrow of time; it comes up against persistent illusions in the experience of time such as the filling in of time, time delays and dilation, and the contraction and unity of time.[52]

These points draw out a contradiction in Whitehead's argument. On the one hand, conformation and causal effectivity are posited on ideas of flow consistent with process philosophy. On the other hand, symbolism depends on a gap between presentational immediacy and causal effectivity. Instead of rejecting the idea of immediacy, as an error connected to particular beliefs, Whitehead maintains a contradiction as the basis for his account.

As le Poidevin's shows, there are good reasons for rejection given the implausibility of representations stuck in an eternal present, given our common experience of the passage of time, our sense that time flows from the past to the future, given illusions such as running out of time, different speeds at which time passes in boredom and excitement, and given the way time appears to contract into the present and to have unity. Instead of taking immediacy as a step to explaining symbolism in general, Whitehead should have rejected it, just as he rejected classical atomism and mechanism.

Sets and signs

In conclusion, I want to consider an objection to my argument along the lines that Whitehead's account is not necessarily tied to specific accounts of perception and causal effectivity. This point would rely on his most pure definition of symbolism and the idea that it must be distinguished from his discussion of symbolic reference as dependent on presentational immediacy and causal effectivity.

Whitehead's pure formal model for symbolic reference underpins wider remarks about nature and culture: '… we must start from a formal definition of symbolism: The human mind is functioning symbolically when some components of its experience elicit consciousness, beliefs, emotions, and

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[52] Robin le Poidevin, 'Perception and Time' in Mohan Matthen (ed.) The Oxford Handbook of Philosophy of Perception, Oxford University Press, 2015, pp 459-75

usages, respecting other components of its experience.'[53] Symbols, as an aspect of experience, draw out things like beliefs and actions in relation to meanings.

Where my definition of the process sign uses the idea of a set as something selected without determination against a substratum, Whitehead's pure definition uses the idea of two sets in relation to one another: 'The former set of components are the "symbols," and the latter set constitute the "meaning" of the symbols.'[54] My argument against this definition turns on the extra conditions it implies for the construction of signs and symbols.

Whitehead's insistence that some components are 'respecting other components' reflects a deep problem for his general model. The responses to symbols must connect to wider experience for there to be consistent experience and organic process. However, the two are also disconnected since many symbols will draw out responses at odds with other experiences; for example, when a new belief is inconsistent with older theories, or when a new usage clashes with past ones.

In my view, Whitehead is using the idea of respecting in a strong technical sense as 'consistent with'. The problem is therefore how to establish this consistency in the many situations where it is lost, lacking or broken. It is a deep problem, because it extends to his theory about causal effectivity and exposes a contradiction at the heart of his general theory where it seeks novelty and consistency.

If an organic process breaks with others to such an extent that they do not share causal efficacy and spatial location, in the sense of a space of shared processes taken from relative locations, then his organic philosophy also fails as unifying process philosophy and he is left with many different fragmentary processes. At the level of signs and their creative and critical potential I welcome this pluralism and openness, but it is a threat to the unifying aims of Whitehead's general theory.

The role of meaning in symbolic reference is to bridge between the symbol and what it elicits or draws out, and wider experience or, more accurately, experience of causal efficacy. This solves the problem since meaning acts as a buffer or transformer between only apparently out-kilter processes: we reinterpret an outdated order, adopt new belief systems, shift paradigms, we explain away illusions and species adapt to new environments.

Meaning should not be seen simply as solely for humans. It is rather that meaning is the reestablishment of conformation and causal efficacy in a new way after an induced break. Thus meaning can be understood as a successful adaptation to changing circumstances or as a system coping unconsciously or automatically with a shock. The point is 'meaning' contributes to the emergence of a relatively stable series of conforming processes in a changing environment.

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[53] *Symbolism*, p 9
[54] Ibid

This imposes tight restrictions on meaning itself, because it cannot be mere dislocation or disjunctive process, where broken or contradictory states simply persist. This seems odd, since in some very standard cases that's exactly how meaning functions, for example, at the moment of formulation of counter-hypotheses, or in imaginatively aberrant scenarios, or on the cusp of adaptation to environmental change, or when in the grip of an illusion, or when formulating counterfactuals, or when undergoing a chance mutation. In each of these cases, later reunification or synthesis is moot.

Against this restriction through meaning, it could be claimed that Whitehead's formal definition of symbolism is *simply* a relation between any two sets thereby avoids the limitations implied by his other more practical definitions. Though it is important not to confuse Whitehead's use of sets with mathematical set theory defined broadly, or with the foundational aims of Russell and Whitehead's *Principia Mathematica*.

Formal is a relative term for Whitehead. When referring to sets in *Symbolism*, Whitehead is giving readers a more formal way of understanding symbolic reference than interpretation, but a much less formal way of grounding his claims than set theory. That's why I use the term model, in its explanatory rather than axiomatic usage.

Whitehead's appeal to sets in *Symbolism* and, for example, *Science and the Modern World*, is therefore different from Alain Badiou's use of set theory in *Being and Event* or category theory on *Logics of Worlds*. For Whitehead, sets provide a model that explains and expresses a deeper philosophy. For Badiou, set theory determines a philosophical ontology that cannot depart from the proofs of the theory.

For Whitehead, the ontological commitments of set theory are too limited for a satisfactory account of real processes. Whitehead requires more conceptual flexibility than the set theory will allow, while Badiou requires the certainty that it affords. Methodologically, this difference is between pragmatism guided by experimental models and strict rationalism directed by mathematical proofs.

Whitehead's model is of two sets put into relation with one another:

> When in an act of human experience there is a symbolic reference, there are in the first place two sets of components with some objective relationship between them, and this relationship will vary greatly in different instances. In the second place the total constitution of the percipient has to effect the symbolic reference from one set of components, the symbols, to the other set of components, the meaning. In the third place, the question, as to which set of components form the symbols and which set the meaning, also depends on the peculiar constitution of that act of experience.[55]

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[55] Symbolism, pp 14-15

This definition of symbolic reference in human experience refers to sets to guarantee breadth and openness and to characterise reference as a putting into relation. All that is required are two sets of components that are connected. What the components are, their relations within the sets and how they come to be in such sets is left open.

However, three characteristics of the relation show that this formal definition is still vulnerable to my earlier critical points. First, Whitehead insists that there has to be an objective relationship between the two sets. Second, the sets are defined in terms of symbols and meaning. Third, the sets are put into relation in an act of experience.

This means that Whitehead's account of symbols and signs is restricted even in its most pure version. His symbolic reference depends on objective relations, an account of meaning and a theory of perception. Against this tethering of signs to wider theories, my claim is that the process sign should be defined to account for the disruptive and counterfactual potential of signs, where objectivity is challenged, meaning undone and experience transformed.

James Williams, Edinburgh, December 2016