Demands of the Diagram: Creative Abduction in Artists' Research and Practices

Abstract

This article is the introductory article by the guest editor of a special issue of Journal of Visual Art Practice, under the title of 'Demands of the Diagram'. It addresses the work of the 6 contributing artists who explore different aspects of the 'diagram' at the intersection of history, philosophy, science, semiotics and art, in relation to their own and others' creative practices. The article addresses emerging themes of embodiment, evolution and ethics arising out of the discussions, situating them with reference to C S Peirce and his theory of creative abduction. In conclusion, the author calls on the work of Isabelle Stengers to argue for the diagram as a Commons, where heterogenous knowledges might co-create, helping

Keywords: Diagram, commons, semioethics, C S Peirce, creative abduction,

to make us fit to respond to the demands of our time.

Introduction

In 2016 we were reliably informed that the diagram was 'the dance of the moment' (Engelmann) – it was hot to trot, drawing academics out of their silos and onto the post-conference dance floor, discussing the capacities of the diagrammatic to work across disciplines and break through paradigmatic boundaries as a new global lingua franca.

It is now 2021 and we are in the second year of a global pandemic. Everywhere we see the 'data-driven' diagram used routinely as a tool of governance; informing, persuading, instructing, controlling. Everywhere, we hear Foucault's ghost echoing

down the corridors, warning us of the manner in which the diagram can dangerously reduce complexity and serve as the handmaiden of hegemonic power.

It is now 2021, and the handmaiden has an algorithmic black eye and lives in our pockets. But the capacity of the diagram to be in-disciplined in providing a 'transactional space for epistemological heterogeneity' [1] (Rogers 2014) has never been more cogent.

Why? Because despite how they may discipline us, diagrams are impartial tools whose instrumental purposes are always dependent on their users' ontological presuppositions. And like all semantic systems, they can be used for both critical purposes and imaginatively to world-build.

So it has been for visual artists who have turned to the diagram both before and after Deleuze writes in 'Foucault' (1988);

[...] every diagram is intersocial and constantly evolving. It never functions in order to represent a persisting world but produces a new kind of reality, a new model of truth. It is neither the subject of history, nor does it survey history. It makes history by unmaking preceding realities and significations, constituting hundreds of points of emergence or creativity, unexpected conjunctions or improbable continuums. It doubles history with a sense of continual evolution. (35)

Variously described as working object [2], abstract-machine [3], imagethought, epistemic mediator, construal system, portal and gesture, the diagram appears to

be a functional chimaera for all known and presently unknown epistemological purposes.

Difference, therefore, is inscribed in the very definition of the diagram. Indeed, in its broadest sense, any organised visual system of relations, such as in a painting, could be considered diagrammatic [4]. Since Deleuze's diagrammatic analysis of a painter's work, in Francis Bacon: The Logic of Sensation (1981), the definition of the diagram in philosophy and art history has expanded to encompass the embodied, material and processual image.

The diagram in the context of this special issue therefore may be better understood less through an identification with its functional structures - triadic, quadratic, Venn, flow, network, feedback, coxcomb, Euler, spin etc., however useful these are, but more broadly as a generative apparatus.

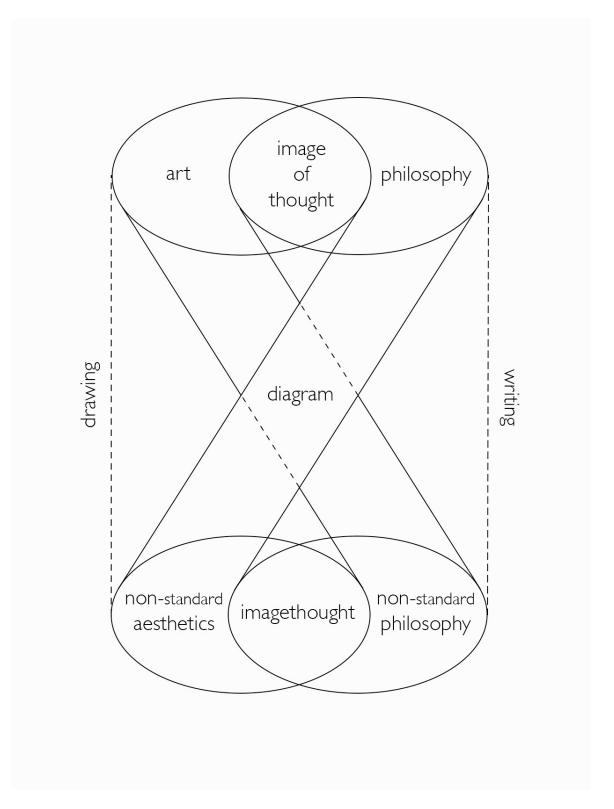
Thus, my aim in this editorial is to speculate in the overlaps and interstices of artists' diagramming, asking how they might extend the reach and communicative syntax of visual art in a post-contemporary milieu.

To do so, I propose to think along with Isabelle Stengers in considering the diagram as an "apparatus for mapping our generative interdependencies" (2020) and in order to situate it as a commons [5]. Thus, mitigating the sense of a 'global lingua franca', where communicative access tends to rely on deference to a dominant language such as English, and avoiding the associated difficulties of semantic seriality for the presentation of multi-dimensional thought. Thinking of the diagram in this way, we can envisage a common place (such as a river or a forest), where heterogeneous knowledges might congregate in order to "think, imagine and create

in a mode in which what one does matters to the others, and is a resource for the others." (Stengers 2015 86). An ideal commons, only limited by the imagination and willingness of its users to cooperate. A space where artists can participate in the so-called 'knowledge economy', not merely as visual communicators, soul doctors, critics or apologists for the aesthetic regime, but as material thinkers, fit to respond to what a (common) cause [6] demands in times of impending barbarism.

Background

As an artist interested in drawing, I came to research the diagram in relation to the speculative idea of the 'imagethought' emerging out of Francois Laruelle's non-philosophy of radical immanence [7]. The imagethought imagines a paradigmatic shift in the practice of philosophy - one not bound to and by the sentential logic of the logocentric, but open to a new way of communicating not 'about' but 'out of' experience itself (Mullarkey 2006). As the compound term suggests, the imagethought collapses the space of commentary between the thought and its representational expression as image, so countering the paradigm of Western philosophy as the image of thought. It represents a paradigmatic shift in the representation of knowledge and as such, is manifestly utopic in its ambition.



'diagrammatic abstract' from Claire Scanlon MRes. thesis. Becoming Diagrammatic, 2018.

In this practice-based research, I was concerned to investigate how diagrammatic drawing supplants the priority of sentential logic in natural language, in order to mobilise thought to move other-wise. The imagethought may also be understood as a philo-fiction [8] through which the co-evolution of ontology and epistemology can be performed.

Foreground

All the artists represented in this edition are similarly engaged in research with and into the diagram, as a creative and collaborative apparatus at the intersection of history, philosophy, science, semiotics and art.

In order of appearance, the following outlines briefly introduce each artist and their consideration of the diagram in this Special Issue:

For Dean Kenning diagrams are exploratory machines for the purposes of discovery, addressed here in the work of three key protagonists - Greimas, Châtelet and Peirce.

In our dialogue, Nikolaus Gansterer calls attention to the diagram as a generative, collaborative notation device for accessing intra and inter-subjective experience through an invitation to imagine the 'Object Yet to Become'.

Accompanied by the demon, Matthew Ritchie charts a history through the time-space-complex of onto-epistemological relations, using the four-fold diagram as a vehicle/generator for an ethics of seeing in a new theory of picture.

For Afro-futurist artist and academic Nettrice R Gaskins, diagrams in the form of the Kongo-cosmogram matrix serve as 'mental maps' with powerful talismanic properties, deeply rooted in Black narrative histories and cultural practice.

Working with cell-biologists, Gemma Anderson's hand-drawn diagramming offers a novel means to visualise the process of mitosis, enabling critical new questions to emerge.

Inspired by the eighteenth-century thinker Novalis, Michael Whittle sees diagrams as a means to unite science and art in a form of poetics he names Romantic-Objectivism.

Interstices

Diverse as these agendas appear, they have many related, intersecting and shared points of reference. First and foremost is the American Pragmatist philosopher Charles Sanders Peirce (1839-1914), whose influential semiotic theories are a touchstone for many of the discussions of the diagram in this issue and beyond.

For C S Peirce, the generative potential of diagrams lay in their visual, spatial and analogical properties, enabling a mode of inferential reasoning he called abduction - a kind of informed guesswork. Risky, fallible yet creative, abduction is the method of reasoning most often used in circumstances where evidence is lacking, for instance in a context of discovery. In Peirce's triadic schema, abduction triangulates with the other two forms of inferential reasoning- deduction and induction, which, in a context of justification, such as in formal logic, follow a logic of similarity to maintain consistency between propositional terms. In contrast abduction follows a logic of alterity in seeking answers from beyond the terms of the proposition at hand. (Petrilli 2005 8)

Thus, working in the opposite direction to deduction, which moves from cause to effect, abduction is involved in many everyday forms of inferential reasoning such as medical diagnosis and detective work, where there is a movement from effect to cause i.e. symptom to disease, victim to criminal.

However, as artists we are interested not only in the explanatory capacity of informed guesswork, but in the role of abduction as the only form of inferential reasoning to contribute something new to the world - a type of creative abduction where the explanatory hypothesis has yet to be invented, and for which we may need to expand our diagrammatic grammar in order to give form to emergent concepts, as in the case with paradigm changes (Fischer 2001 6).

In this issue, Dean Kenning introduces the theory of the 'exploratory' diagram through three key protagonists; Greimas, Peirce and Châtelet. In each case, he observes in detail how the embodied and creative aspects of diagrammatic problem-solving can lead to startling discoveries. As he notes from his own experience, diagrammatic exploration is often a slow, open-minded and iterative process that can be highly idiosyncratic, as it was for Peirce, whose Existential Graphs involved the invention of a novel graphic notation system to establish the rules governing the logic procedure. These included scrolls, dotted lines, ovals, moustaches, toothbrush lines, colour spots and brush marks [9]. The procedure of reason could then be said to take place through a highly material, if not to say aesthetic practice that could be observed in the process of being worked on.

Embodied 'thinking through doing' or praxis is now well recognised in practice-led research methodologies and theorised by cognitive science as artists' know-how. However, it is also key to understanding how the diagram works as a tool for ampliative thinking in the context of scientific discovery [10]. A good example here is Gemma Anderson's collaboration with cell biologists, where

despite the availability and sophistication of data-driven digital modelling tools, the re-introduction of a slow, hand-drawn diagramming process extended knowledge not only by increasing the repertoire of available representations but also by providing opportunities for new questions to emerge [11].

In his discussion of Peirce, Kenning reminds us that the conventions of the diagram usually 'prescind' the graphic from the semiotic, as they do in writing. For this reason, we are taught to 'read' diagrams rather than look at them as pictures.

However, it is also the case that as a semioasographic form, the diagram can be both read as sign-system and seen as affective image.

For C S Peirce this mutual co-construction provides a philosophical method, which offers "the junction which demands the thinker be abducted by a logical activity that does not adhere to binaries" (Sdrolia, 2018. 56).

Described by Peirce as an 'edge-tool', the diagram, operates quite literally in the cut of its vectors. For instance, just as the grapheme can be experienced as both sign/symbol and material mark/index, establishing the inter-dependence and porosity between all (Peircean) semiotic registers in any process of interpretation, the line in the diagonal axis of the logic square can act as both connecting vector and transversal borderline: movement and cut.

Indeed, if the viewer / diagrammer were able to focus equally on the action of drawing as they focus on the (geometric) problem to be solved, they might achieve what the diagram affords through the analogical function of iconicity— an affective synthesis in which the action of thought can be grasped simultaneously as structure and operation.

As Peirce himself observed, diagrammatic drawing decelerates thinking, allowing us to observe its unfolding as if we were watching ourselves over our own shoulder thinking in drawing.

Since his extensive research project Drawing a Hypothesis (2011), Nikolaus Gansterer has been developing his diagrammatics as a set of performative and collaborative 'sympoetic' notation techniques. In our email conversation conducted over the months of lockdown, we discussed how the text-image matrix of his ongoing 'Objects Yet to Become' series make manifest an interstitial third space: between difficult to access "inner" forms and their articulation, in the limbo between words and images, and ultimately between the diagrammatic instruction and its recipient. Working with the analogy of a Zen Koan as a meditation technique in which binary thinking is challenged, he describes the reflexive awareness that diagramming can produce in consciousness as a "two-fold" situation.

It is through this "two-fold" situation that the diagrammer may take up the point of view of the 'act of thought', which is performed differently in the spatial structure of the diagram than in the sequential form of natural language, but which can similarly invoke the 'middle voice' that "gives some other agent the power to affect it; to make it flower, or sing, feel, hesitate, think..." (Stengers 2020).

In referring us to Donna Haraway's theory of 'sympoesis', Gansterer reminds us that the human being is also a sign and can develop through dialogic relations with other signs in the human and non-human worlds in order to open us up to "address an affective other".

The idea that signs always align themselves towards the other installs what Susan Petrilli and Augusto Ponzio would call a semioethics at the heart of any sign system (including the non-human).

Considered as a semio-ethical sign-system, the diagram introduces responsiveness to the other, "both the other from self and the other of self" (Petrilli, Ponzio, 2005. 21). This sense of othering or an 'other' working through the procedure of diagramming is given shape here in Ritchie's evocation of the demon, which haunts the history of human thought throughout the processual form of his 25 - diagram sequence.

The demon in the diagram might also be understood as the sense of alterity produced in the diagrammer/thinker as an instability of self-consciousness in experiencing their own thought process - Descartes' evil demon-doubt perhaps, which when coupled with a daemon-curiosity drives the reasoning process on.

In being guided by the ambiguous figure of the demon, who we "meet at the crossroads between knowledge and guesswork", and whose purpose, like many spirit guides, seems at turns both helpful and mischievous, Ritchie nevertheless reiterates the need for an ontic protagonist to undertake his Herculean epistemic task. In the figure of the demon, he cogently reminds us that "making the body legible also allows its visual and ethical relations to become legible". Journeying through the time-space-complex, via the continuum of the fourfold diagram he demonstrates the power of diagrammatic reasoning to help us abduct our way out

of epistemic cul-de-sacs and redundant ontologies that continue to haunt our psycho-social cognitive-apparatus.

Further, while thought may be imminent to the diagram, the diagram itself can function outside of internal cognitive processes and across social systems as a form of distributed consciousness.

Nettrice R Gaskins describes the Kongo-cosmogram metaphorically as a portal or 'crossroads', resonating with its medieval spiritual function, though there is a literal grounding to this metaphor - a portal is a threshold to another world, but the structure and function of any cosmogram as a world-picture is to bring geographically and historically distant space/time into an immediate relational proximity for the beholder. As Bruno Latour says, the map is an 'immutable mobile' that creates "avenues through space" (Latour 1986), allowing the far to become near. And so, to follow Gaskins' reference to Du Bois, the near can then become great. Thus, the Kongo cosmogram as a 'black-annotated' [12] cosmogram recasts a sudden and yet ongoing traumatic break with an ancestral past as a stable order of continuity, reverberating down through the generations like a call and response song. A revalidated past is then inscribed into contemporary culture in stone, paint, music and sound by diasporic artists in the febrile, unstable and often violent contexts of the US. This world-picture may then be experienced by others as a form of contemporary art or architecture but can also be inhabited and adapted for use as map, plan and score by the community for whom it seeks to nurture and support. The performative aspect of the diagram, now a feature of the amplified and algorithmic Kongo cosmogram, reminds us that art can be a space of genesis and transfiguration - leading us towards speculative futures of new social constructions and bio-technically evolved human v2. - An evolution intimated by the last iteration of Ritchie's demon-diagram and evoked by the all too human audience member/participant, transformed by their costume and VR headset into the protagonist of his installation Demon in the Diagram (2019).

The 'score', is also a commonly shared descriptor of the diagram for many of the artists here, whether it be understood in choreo-graphic terms as instructions for movement or dance as in Gansterer's Object Yet to Become series, or as Anderson's metaphor for the marking of time in the performance of a biological process. In this mode, the sense of thought as embodied movement in space is underscored, as Kenning also indicates in his discussion of the gesture in Châtelet, who was led by his diagramming to the startling discovery of the circuit of electromagnetism as "the irruption of a fierce laterality."

Along with Gansterer, whose research method involved a "stripping bare" of the diagram to reveal its "inherent relationality", Michael Whittle and Gemma

Anderson also argue for the purely visual and aesthetic agency of the diagrammatic image.

Having trained as a bio-chemist, Whittle takes up the call from the eighteenth-century thinker Novalis to raise science to the power of art. Working post-facto with a range of explanatory diagrams from a matrix of scientific contexts, he seeks to 'subjectify' their data-driven objectivity to build visual poetic hybrids with the power of propositional statements.

His hybrid sci-art drawings thus propose an equally hybrid theory of knowledge, deploying a process of abductive synthesis to recast the unintentional 'wild surrealism' of the classical Encyclopedic image. In this manner, his work Clouds, Glands, Tributaries (2007), takes the rigorous structure of a visual haiku, in which informational content drawn from meteorology, biology and geology is (e)raised to the power of poetics. The resulting diagrammatic haiku becomes affective in its metaphoric correlation of floods (of tears) becoming rivers. This invokes the seasonal 'affective resonance' also discussed in the conversation between myself and Nikolaus Gansterer as the evocative yet maligned 'pathetic fallacy' that haunts human culture in the wake of Romanticism.

Perhaps the impulse to denude the diagram of its attachment to the linguistic is symptomatic of the age-old, polarised relationship between words and pictures. The diagram is a veritable theatre for the workings of this marriage. Sometimes the couple develops co-dependence, in recognition of their shared origins in the grapheme and shared function in the sign (Mitchell WJT 1994 83) [13]. Sometimes, when thinking is embodied, words are simply no longer needed.

Gemma Anderson's final iteration of the mitosis score also undergoes a deannotation process to give the diagram/image full communicative primacy - in this case, the drawing process as 'score' has become sufficient to the task of description dispensing with explanatory annotation.

Aligning with Whittle's labyrinthine installation, Anderson's aesthetically subtle diagrammatic interpretations of mitosis draw on the metaphor of the labyrinth with their titular reference to Jorge Luis Borges short story The Garden of Forking Paths, resonant for Anderson "of the many possible developmental pathways a cell can take through the multi-dimensional energy landscape and the many possible futures that a dividing cell may have."

It is interesting to note that while denuding the diagram/image of its annotation, both Whittle and Anderson observe the visual artists' customary allegiance to the literary and poetic by maintaining the relationship through the function of the parergon.

Conclusion

For C S Peirce, knowledge understood as creative invention was not just an epistemic process but an ethical one. Like many thinkers of his time, his Pragmatism was founded on his Christian beliefs. Thus, his intertwined semiotic and evolutionary theories bear the hallmark of a trinitarian ontology, in which the principle of creative love, or 'Agapasm', was given primacy. In this respect, he

diverged from Darwin in that he considered the other drivers of evolution - contingency and necessity or 'Tychism' and 'Anacasm' respectively - to be degenerate forms of Agapasm. (Petrilli 2005)

So, what does it mean to cite Peirce's evolutionary love in the age of the 'Anthropocene', where God has long ceded the future of the earth to response-able humans? And why talk of artists diagramming in this context?

Perhaps to argue, as Chryssa Sdrolia has, for "the possibility of Peirce's diagrammatic love being understood as an experimental ethics of sign formation which in turn may be said to converse with a politics that is fit for semiotic pluralisma "cosmopolitics" as Isabelle Stengers puts it [...]" (2018. 55).

There are manifold contemporary diagrams urging us to consider our perilous existential position. In particular, Earth-science diagrams, help us to visualise our limited habitat as a thin 'earthly' crust (Arènes 2019) on the Copernican globe of the capitalist imaginary. Meanwhile, we collectively surrender to data-driven, technoscientific solutions in seeking ways to immunise ourselves from Covid-19 so as to return to our 'normal' yet unsustainable ways of living. If it is the case that 8% of the human genome is made up of sterile ancestral retrovirus [14], like Covid-19, it may be another urgent reminder that the lines drawn between earthlings are not so clear cut.

As we have seen, the diagram can be a generative apparatus providing opportunities for ampliative thinking through epistemological heterogeneity, challenging linear and binary modes of thought and fostering the middle voice by allowing us to be affected through some 'other' agency. And if we agree on the

diagram as a 'commons', where we might come together to think, imagine and create, might it also help make us fit to respond to the urgent demands of our time? If so, what can we artists do?

We can work alongside the scientists, as do Anderson and Whittle. We can sensitise ourselves to others, including the non-human, through diagrammatic practices of attention and notation, as Gansterer proposes. We can act in solidarity with Gaskins and those artists she speaks for in claiming back the Kongo cosmogram as a cultural and spiritual space for celebration and healing in our communities. As Kenning imagines, we can embody the diagram to find some undiscovered lateral dimension of reality. And we can follow Ritchie's demon to use the diagram as a path-finder towards a new ethics of seeing.

We may not share Peirce's religious beliefs or teleological certainty, but maybe we should stand with his 'sensible heart' in working with some cosmic, ancestral or 'daemonic' demand of the diagram; to make art a vital collective labour of response-able imagination.

Notes

[1] Kenneth Rogers in conversation with Matthew Ritchie and Frederik Stjernfelt "Temptation of the Diagram" Lectures. CU arts school of Arts. YouTube. April 2014. Web. 25 October 2017. https://youtu.be/L34QVtcybmc

- [2] In The Culture of Diagram (2010) Marrinan and Bender outline the progressive understanding of the diagram as a 'working object', through their in-depth analysis of Diderot and D'Alembert Encyclopedie.
- [3] Citing Deleuze as the pre-eminent proponent of the 'diagrammatic turn' in Continental philosophy, Jacob Zdebik describes the way Deleuzian non-philosophy proposes a paradigmatic shift from the concept of diagram as representation or schema (after Kant) to one of 'abstract machine', in which it is argued the gap between discursive (concepts) and non-discursive (forces) is bridged.
- [4] For the most part, with a few notable exceptions, what is discussed and demonstrated in this special issue, conforms to the formal characteristics and functionality of the 'iconic 'conventional diagram, as a 'skeletonised' structure of points and lines.
- [5] As a free (unpaid) thinker, I am all too aware of the contradictions of making this proposition in the 'enclosure' of this academic journal, around which the publishers are obliged to construct a paywall.
- [6] The 'cause' for Stengers, in her essay 'The earth will not let itself be watched' in Critical Zones; the science and politics of landing on earth (2020) edited by Bruno Latour and Peter Weibel, is manifestly how we may generate a 'common sense' to become 'sensitive to the dynamics of interdependence' in the context of climate catastrophe 235
- [7] Mullarkey, Post-continental Philosophy, 153.

- [8] The 'philo-fiction' is a new theoretical genre proposed by Francois Laruelle. Through this new genre, all modes of thinking (artistic, scientific, philosophical and non-human) are equalised into a fictional space/time, where they are viewed (non-philosophically) as 'clones' of the Real.
- [9] Peirce also theorised the role of the inscription support, attributing the highly evocative, if obscure term- 'phemic sheet', which roughly translates as a 'tongue' or 'speaking' sheet, relating through its Greek etymology to divination.
- [10] Lorenzo Magnani refers to this type of 'hands-on' reasoning in scientific discovery as 'manipulative abduction' and diagrams as 'epistemic mediators'.
- [11] This also raises the question; might the affective and material processes of slow, diagrammatic thinking provide a check to the threat of epistemicide in algorithmic culture?
- [12] Holly Graham, citing black theorist Christina Sharpe's strategies of 'Black annotation' and 'Black redaction' for creating 'wake work' in reconstructing and decolonising representations of black history. In Be/Holden- A duty of care. In On Care 2020 Rebecca Jagoe & Sharon Kivland (ed) MA Bibliotheque. Hastings. Great Britain.
- [13] Mitchell's broad agenda to open up the 'image/text problematic' is set against the backdrop of European post-structuralist analysis, most notably in the work of Foucault (1926-84), Derrida (1930-2004) and Lyotard (1924-1998). However, his work does not address the diagrammatic specifically as an operation of the image/text problematic.

[14] As discussed by Susan Mazur and virologist Luis Perez Villareal who believes we need to find better means to co-exist in the 'virosphere'. Blog article 2015

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I would like to thank Adam Gibbons for acting as my 'critical friend'. His contribution has been invaluable in providing keen eyes and high standards in the editorial process.

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I dedicate this work to my mother Margaret Scanlon, who at 92 years of age is still curious about everything I do, if incredulous that I now do it without payment.