Interfacing the Somatic & Semiotic:
A Weird Touchscreen Unflattening

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Abstract

My thesis investigates the role of touchscreen interfaces, specifically the Apple iPad and Procreate app, as a becoming-legacy medium. Specifically, to prepare it for service as an ethical benchmark, toward addressing emerging issues around techno-capitalist power and control. This being as human/computer interfaces affectively 'become the body' - I ask how these interfaces shape metacognition, the ability to think about one's own thinking, allowing minds to self-regulate by organising sensory stimuli into 'theory of mind'. Applying these terms, iPad/Procreate is framed as part of a developing history of 'apparatuses', imposing how meaning making works socially and semiotically. To this end, a 'meta-interface' methodology is employed, grounding critical phenomenological readings of my iPad/Procreate interface, through that of visual/tactile metacognitive doodling. I do this by remediating Nick Sousanis' comic art 'Unflattening'. By doing so, I trace an otherwise sensually withdrawing fractal grid: an 'operative chain' acting as a manipulative 'subface' of the touchscreen interface surface.

My practice-led research was informed by a seminar exhibition designed to test this executional hypothesis, in the form of sister artworks: 'See Feel Say' and 'Feel Say See'. This led to an analysis positioning iPad/Procreate as an actor of Alfred Gell's 'Art Nexus', an aesthetic of social competition for power to embody and control meaning. After Gell, I describe this competition as conducted through 'abduction' of metacognition, producing different orders of self/other abstraction. That is, a social aesthetic relation between myself as artist, iPad/Procreate as index, the fractal grid as prototype, and surveillance/platform techno-capital as recipient – amounting to a 'technological unconscious'. To conclude, more research is proposed, toward further detailing and evaluating my fractal tracing as a 'cultural software' syntax of affects, through which technocratic agents can act.

Contents

Guide to Thesis Elements

There are four elements to my thesis, plus three appendices. These are:

1. ‘See Feel Say’: A digital graphite drawing incorporating digitally collaged and manipulated macro-photography of human skin. This was made on a touchscreen device and is intended to be encountered using one.

2. ‘Feel Say See’: A silent looped video installation depicting infinitely regressing compositional elements from ‘See Feel Say’. It is intended to be projected onto a room - sized wall. A record of the installation work in situ is available at: https://vimeo.com/761782937.

3. The written thesis. This is accompanied by visual material that is preparatory in nature, distinct from the following smaller, primary body of work.

4. A separate PDF portfolio of still visual artworks that are referred to in my concluding analysis.

5. Appendix i: A searchable online album of visual sources used as a ready-to-hand notepad and source bank. This was compiled during making and analysis of my artworks.

   Appendix ii: Link to a video record of my Exhibition/Seminar.

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Figure 53: Further colour coded analysis of ‘See Feel Say’, pertaining to my modified art nexus (above).

Thanks to my supervisors, my partner Suzy, and Mum and Dad.

I declare that, except where explicit reference is made to the contribution of others, this dissertation is the result of my own work and has not been submitted for any other degree at Glasgow School of Art or any other institution.

Michael Andrew Kelly

Signature: 

Preface: 'Someone is looking at me. What does this mean?'

How a given person does metacognition, or goes about 'thinking about one's own mental states'[1], has been necessarily causally linked to how they perform Theory of Mind (ToM), or how they go about 'thinking about the mental states of others'.[2] While there are many individual differences in this link, the philosopher Jean Paul Sartre nevertheless posits a broad, universal and necessary shape to it. For instance, in his phenomenological, systematic metacognitive description of first-person subjectivity, Sartre asks:

> 'Someone is looking at me. What does this mean?... First of all, I now exist as myself for my unreflective consciousness… I see myself because somebody sees me… Only the reflective consciousness has the self directly for an object… the person is presented to consciousness in so far as the person is an object for the Other… all of a sudden I am conscious of myself as escaping myself… I have my foundation outside myself. I am for myself only as I am a pure reference to the Other.'[3]

0.1 Psychotic Metacognition

At around age 26, the thought of this causal link between metacognition and ToM came to horrify me. I had handled generalised, circumstance independent feelings of personal anxiety throughout my life, up until they became unmanageably intense amid the synaptic pruning and professional demands of early adulthood. At this point, I began experiencing episodes of paranoid psychosis, when I would hear hostile voices that were not really there. I eventually understood these episodes as, due to overwhelming stress, my inner monologue becoming a

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1 Beate Sodian and Uta Frith, 'Metacognition, Theory of Mind, and Self-Control: The Relevance of High-Level Cognitive Processes in Development, Neuroscience, and Education,' Mind Brain and Education 2(3) (August 2008), 111 - 113.

2 Ibid.

3 Jean-Paul Sartre, *Being and Nothingness,* trans. Hazel Estella Barnes (London: Washington Square Press, 1992), 349.

hyper-defensive kind of fetish object. This was concurrent with my feeling, in exact equal measure, at once engaged and repelled by the qualities of my inner life. Meanwhile, I felt to have been rendered detectable by an abstract yet malevolent social gaze. Through this, feeling profoundly alienated from myself, I began perceiving my own thoughts as happening externally. This may be due to my having engaged for so long in intense and defensive imagined rehearsals of my social interactions, so much so that my imagined others took on hyper-real qualities of discrete and autonomous external actors. Also part of this was an experience of constant 'awakening of the body'[4], described by Brian Massumi as like when hearing a 'sudden and unexpected alarm sound'[5]. From this came a sense that boundaries between my thoughts, the environment, and any signs became increasingly blurred. Soon there appeared to be 'no boundary… between the body and its environment, or between the two of them and the correlated sign'[6]. Seeking ways to protect myself from a constant sense of social danger, I began isolating myself at home. No longer facing external contradictions, paranoid defensive strategies became easier to self-justify, and obsessively rehearse for. The prevailing tone of my subjectivity thereby became one of dissociation, accompanied by bizarre and ritualistic acts of self-defence, such as continually drawing systems diagrams.

Ultimately, with anti-psychotic and then beta-blocker medication as well as talk therapy, my psychosis gradually disappeared. Soon I was given an official diagnosis of Generalised Anxiety Disorder (GAD), and at time of writing I am to be re-assessed for Autism Spectrum Disorder (ASD).

0.2 Therapeutic Metacognition (i): Diagramming Systems

It seems fair to state that, somewhat contrary to Sartre, my own coupling of metacognition and Theory of Mind has historically presented as less of an instinctual given than a puzzle to be solved. Furthermore, this has been the main driver of my making art, as an endless but also

[4] Brian Massumi, in *The Affect Theory Reader,* eds. Melissa Gregg and Gregory J. Seigworth (Durham: Duke University Press, 2010), 66.
[5] Ibid.
[6] Ibid.

ultimately fruitful attempt to become well again. Here, drawing systems diagrams became my way of describing and analysing my inner life in a semi-freeform way. I appropriated this strategy from my first unhappy job as a brand advertising strategist in London, early popular discourses around artificial intelligence (A.I.) development, and my undergraduate interest in philosophical phenomenology, or the systematic and critical description of what doing metacognition is like. To this end, I reasoned that by drawing systems diagrams I might disturb, identify, and so loosen the grip of whatever pathological processes might be driving my mental ill health. In this way, I came to model my inner life as a self-amplifying (positive) versus self-limiting (negative) social feedback relation. Unfortunately, because making these drawings seemed to correlate with moments of subjective relief I quickly became obsessed with the practice. In due course, my sense of self and world were thereby lent the qualitative inflexibility of a predictable, mechanistic pattern.

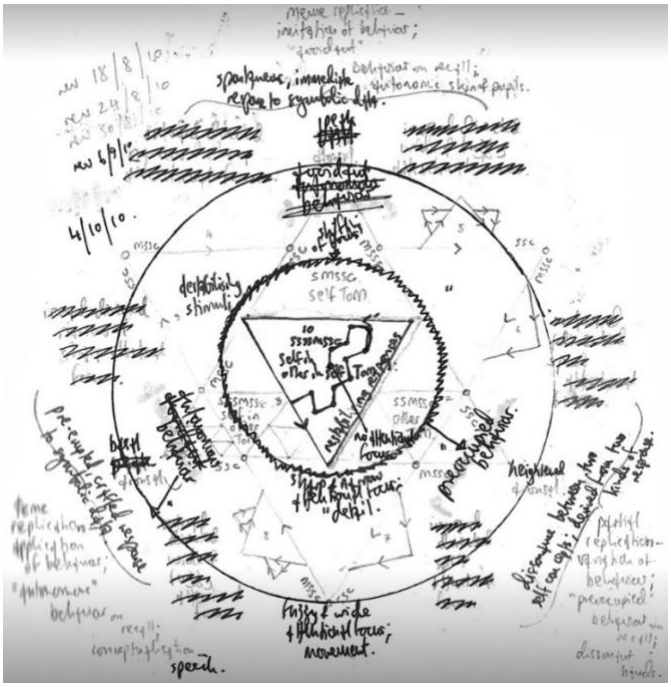

Figure 1: One of my last written systems diagrams, from a 2010 notebook.

As Figure 1 gives voice to, I had attempted to explain the arising and retreating of qualia, or my simplest sensory impressions, as causal relations between focusing and un-focusing attention, as

well as fuzzy affects becoming clearly connected effects.[7] What this produced on the page was an annotated fractal, with any clear sense obscured under a palimpsest of snarling informational knots. I had continuously striven to employ pencil and paper to describe phenomena in states of change or persistence, but in doing so made analytical sense withdraw behind interminable self-recursion. Accompanying this was a frantic, error-fearful scribbling that connoted an hermetic, occult-symbolist logic. This almost-praxis did nevertheless generate some useful new information. It brought forward an otherwise hidden process for conscious analysis, that had arguably been driving my mental health troubles. To quote Graham Harman, this had been my state of hyper-engagement, driven by:

> 'a world in which (1) real objects are locked in impossible tension with the crippled descriptive powers of language, and (2) visible objects display unbearable seismic torsion with their own qualities'.[8]

0.3 Therapeutic Metacognition (ii): Performing Systems

With a more performative, embodied and situated practice of metacognitive systems diagramming I hoped to break through what had, at that point, become a monolithic state of anxiety. To this end, I borrowed compositional elements from Catholic depictions of Christ's Passion, to improvise a systems diagrammatic performance (see Figure 2). For me, Christ's Passion was a culturally intimate expression of Joseph Campbell's archetypal 'Hero's Journey'.[9]

[7] Cf. Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham: Duke University Press, 2007), 28.
[8] Graham Harman, *Weird Realism: Lovecraft and Philosophy* (Winchester: Zero Books, 2012), 36.
[9] Joseph Campbell, *The Hero With A Thousand Faces: Commemorative Edition* (Princeton: Princeton University Press, 2004), 28-37.

Figure 2: 'Stations'. Manipulated digital photography of public performances, 2005. Photographed across my childhood home of north Northumberland, England.

According to Campbell, the Hero's Journey narrative is a prototype structure tracing a universal human condition, in that it is found in different forms across secular and sacred, contemporary and historical contexts. In particular, it has been suggested that the narrative mirrors our hippocampus' reaction to stress.[10] With this in mind, it stood to reason that performing expressions of this narrative I had felt personal attachment to, in settings formative of this attachment, might foreground any problems with such attachment, and with it any recursive knots in my metacognition/Theory of Mind that might be maintaining a generalised anxious state. Like the monster in Campbell's Hero's Journey, I was disrupting a previously extant order, this being my own prevailing subjective state. Like the hero, therefore, this necessitated a journey through liminal, proto-objectified paths through seeming threat - toward positive and informative change to the injured status quo.

[10] Cf. Jordan Peterson, *Maps of Meaning: The Architecture of Belief* (London: Routledge, 1999), 48-56. While Peterson has in my opinion latterly adopted the unfortunate patterns of a populist right-ring ideologue, I have found his earlier neurocognitive analysis of Jungian archetypes useful.

Figure 3: ‘Forward Back’. Video record of performance, 2012.

Later, I continued to investigate along these lines. To this end, in ‘Forward Back’ (see Figure 3) I step over seashore rocks, slip and fall, to then retrace my steps backwards. I fall again, only to once more make my way forward, and so on, toward a perpetually unreached signpost.[11]

0.4 Therapeutic Metacognition (iii): Remediating Systems

Alongside formal art school training the focus of my inquiry shifted toward conscious exploration of a medium’s specific ways of remediating my subjective sense of space and time. To this end, I focused on making these affects resonate together in different ways, across and between different media. This, I reasoned, might spur their otherwise hidden mechanisms of power and control to enter critical awareness.[12] To this end, my 2013 video installation ‘Flesh Pixels’ (see Figure 4) tried to visually trigger an empathised tactile affect that, by being moved to different parts of our somatosensory space, afforded the affect’s reference in time, producing something like a text with which critical consciousness might be built. I hypothesised I could do this by making use of a type of sign identified by Martin Heidegger, where:

[11] Available at: https://vimeo.com/84699943.

[12] Cf. Jay David Bolter and Richard Grusin, *Remediation: Understanding New Media* (Massachusetts: MIT, 2000), 225.

‘primarily 'wherein' one lives, where one's concern dwells... the sign itself gets its conspicuousness from the inconspicuousness of the equipmental totality, which is ready-to-hand and 'obvious' in its everydayness. The knot which one ties in a handkerchief when the knot cannot be used as a sign, it does not lose its sign-character, but it acquires the disturbing obtrusiveness of something most closely ready-to-hand’[13]

Figure 4: 'Flesh Pixels', photographed in situ at the 2013 Manchester Science Festival (left).

This work was comprised of a close-up video of a pin being inserted into my arm. I then cropped and duplicated the recording, and had it appear and disappear at different points across a common consumer 32" HD TV screen, mounted on a wall. The screen was positioned at average head height in portrait orientation, better establishing a shared somatosensory space between work and viewer. This was to foster a connection that was both empathic and uncomfortable. I since renamed this work ‘See Feel Move’. The three-point structure of this title is my attempt to anticipate the modal order in time of recipients’ becoming aware of their own spatially derived sensual experience, as they encounter the work. This, to my understanding, may further focus the critical metacognitive function of the execution, by priming those who encounter it to notice moments of internally versus externally directed affect. By renaming the work, I also mean to identify it as the praxis immediately preceding that of the two sister artworks I developed alongside my following written thesis.

[13] Martin Heidegger, *Being and Time*, trans. John Macquarrie & Edward Robinson (Oxford: Blackwell, 2001), 112.

Introduction: A Weird Touchscreen Unflattening

Chapter 1 is a review of the seminal and contemporary theoretical context relevant to a critical understanding of commercial interface development. Touchscreens are argued to be one of the final human/computer interfaces that will be distinguishable *as* an interface surface. That is, before gesture, vocalisation, and even thought itself becomes sufficient. In other words, when the interface surface 'becomes the body'.[14] Meanwhile, past and present media are being used as training data for developing Artificial General Intelligence (A.G.I.), set to be the prime platform for this emerging surface. It may therefore prove vital for the presently ubiquitous, becoming legacy touchscreen interface to be made as transparent to critical articulation as possible – informing how the A.G.I. is trained. Essentially, as my thesis posits, conserving the touchscreen as an ethical benchmark of critical metacognition. As I review it, from a philosophical perspective, metacognition has been understood as constituting the heart of what it means to be a human being, specifically a self-aware subject. Something sounding much like a specialised form of metacognition makes up the essence of the philosophical phenomenological projects, as bids to have "that which shows itself be seen from itself in the very way in which it shows itself from itself".[15] Correspondingly, broadly definable as 'thinking about one's own thinking', psychologist Michael Beran defines metacognition structurally as that which makes minds able to regulate themselves. Echoing Jacques Lacan, Beran argues that metacognition confers this ability by organising nebulous sensory stimulus into structured linguistic content, instead of our merely relying on internally or externally imposed routines.[16] In doing so, a mind 'steps away' from the immediacy of raw sensory events, to perceive itself and other minds in the abstract. In other words, we develop 'Theory of Mind' (ToM). Accepting this view of ToM as built from language, it is further understood as a social semiotic phenomenon - after the works of semiotic philosopher Charles Sanders Peirce and anthropologist Alfred Gell, in which minds function by agreeing meaning with other minds, as part of a negotiation or competition for power and control, over oneself and others.

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[14] Phaedra Shanbaum, *The Digital Interface and New Media Art Installations* (London: Routledge, 2019), 20.

[15] Martin Heidegger, *Being and Time*, trans. John Macquarrie & Edward Robinson (Oxford: Blackwell, 2001), 60.

[16] Michael Beran, *Foundations of Metacognition* (Oxford: Oxford University Press, 2012) 280 - 291.

I understand this effort through an expanded lens of Michel Foucault's 'apparatus' or 'dispositif'[17]: a routine imposed upon how minds use language, through signs with socially negotiated meanings, to model and thereby attempt to organise the minds of oneself and others. For Giorgio Agamben an apparatus can be literally anything: architecture, technology, tradition, as well as language itself.[18] Likewise, Hannah Higgins posits the Grid as a persisting, universal, material cultural form of apparatus.[19] Furthermore, Bernhard Siegert posits the grid-apparatus as 'cultural technique': a shaping of our ways of doing metacognition into intersecting 'operative chains', or semi-structured paths that routinise the mind.[20] The first move made by any apparatus, Siegert continues, is to introduce internal versus external division into one's feeling of having a body. Correspondingly, Amelia Jones argues such division is often instigated by our reflexive, rebellious need to understand why and how we have come to feel so affected in the first place.[21] In a similar way, Alva Noe posits that philosophy, and likewise the making and encountering of artworks, can be understood to function like apparatuses. Albeit, for Noe, art/philosophy ideally functions as an apparatus that, in the very act of doing so, shows its working as such.[22] When this happens, according to Noe, philosophical/artistic media function as 'strange tools'.[23] Accordingly, the strange tool can be viewed as a self-critical praxis, or instrument for performing 'metacognition of metacognition'.

Chapter 2 is a review of converse historical and contemporary techno-capitalist efforts to dominate as an apparatus. Possibilities for Noe's critical metacognition seem deliberately countered by 'surveillance' and 'platform' techno-capitalists like Elon Musk and Mark Zuckerberg's designs for digital interface relations. For instance, through the aforementioned trend toward the digital interface surface 'becoming the body'. Commercial interfaces arguably

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17 Michel Foucault, 'The Confession of the Flesh,' in *Power/Knowledge Selected Interviews and Other Writings*, ed. Colin Gordon, (New York: Pantheon, 1980), 194–228.

18 30 Giorgo Agamben, What is an Apparatus?,' in *What is an Apparatus? And Other Essays*. (Stanford: Stanford University Press, 2009)

19 Hannah Higgins, *The Grid Book*, (Massachusetts: MIT, 2009), 8.

20 Bernhard Siegert, *Cultural Techniques: Grids, Filters, Doors, and Other Articulations of the Real*, trans. Geoffrey Winthrop-Young (New York: Fordham University, 2015), 28-34.

21 Amelia Jones, Performing the Body/Performing the Text, (Milton Park: Taylor Francis, 1999), 47.

22 Alva Noe, Strange Tools: Art and Human Nature (Connecticut: Tantor Media, 2015), 209.

23 Ibid.

achieve this by accelerating native apparatus processes beyond mere human apprehension, by essentially removing space/time affects as an available metacognitive medium. With overwhelming complexity and rapidity in parsing body sensation itself, phenomenologically speaking subjective stimulus events increasingly blend with response events. In so doing, interface technologies gain power to signify any affect as correlating with any 'cause'. For instance, after the thesis of Olia Lialina[24], a 'user friendly' slick and paired down interface surface like iPad/Procreate withdraws deeper processes of the binary machine from being even symbolically accessed. This counts radically against any possibility of users becoming able to critically represent iPad/Procreate's functioning as an apparatus. There is however, I aim to practically demonstrate, hope for doing so. Specifically, by applying a methodology of 'meta-interfacing', or the reading of one medium through another. That is to say, by adding interference to the intended course of iPad/Procreate's interface relation, and thereby increasing the possibility of something like Seigert's apparatus presenting itself for analysis.

iPad/Procreate has been my medium of choice for drawing, making mixed media collage, and video work. Complimenting Lev Manovich's concept of cultural software[25], Procreate provides a common syntax for contemporary artists and designers to develop visual languages. However, after Lori Emerson,[26] precisely because of this provision Procreate can be criticised as functioning like an anti-critical apparatus. It can be understood to do this, specifically, by perpetuating older ways of doing metacognition, through its remediation of legacy media, despite it in fact functioning through a device of radical capability. For Vilem Flusser, this capability amounts to being able to explore a representational space bounded only by the fundamental possibilities of thermodynamics. Flusser argues that prematurely denying such possibility risks the advance of fascistic society, as languages of representation thereby begin to feed only on themselves, driving social division and facilitating its political exploitation.[27] iPad/Procreate can be understood as feeding such a process, by unquestioningly offering itself as a remediation of

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[24] Olia Lialina, *Turing Complete User: Resisting Alienation in Human Computer Interaction* (Dresden: arthistoricum.net, 2021).

[25] Lev Manovich, *Software Takes Command* (London: Bloomsbury Academic, 2013).

[26] Lori Emerson, *Reading Writing Interfaces: from the Digital to the Bookbound*, (Minnesota: University of Minnesota, 2014), xi.

[27] Vilem Flusser, *Into the Universe of Technical Images*, trans. Nancy Ann-Roth (Minnesota: University of Minnesota, 2011), 39.

legacy, pre-digital artistic media, such as its recasting of the touchscreen as a remediated canvas. All the while, the rapid and radical computational capability of its device is only apparently, not in fact domesticated.

0.5 Intermission: considering our near A.G.I. future

This thesis was initially written just before the first mainstream introductions of large-language model (LLM) platforms like Chat GPT, Claude, Copilot, and Gemini. As additional useful context, I will now briefly cover a few issues relevant to this phenomenon. As posited above, history suggests that legacy media presently used to train A.I. are those that, to use McLuhan's terms, 'massage' and 'message' cultures of neurotypical, cis-gendered, homophobic, patriarchal, colonialist, and racist metacognitive resources. As A.G.I. emerges from this context, there is therefore danger of such violences becoming the ground for an absolutely entrenched Real, through structuring what Timothy Morton calls a 'hyper-object'.[28] That is to say, by uncritically informing a final paradigmatic praxis; presenting to mere human faculties as an overwhelmingly complex 'is-ness'; felt as affects that are distributed across space and time in a way that can at best only be grasped as a pre-conscious social aesthetic. Accepting this, the publicly voiced concerns of technocratic, accelerationist patrons around alignment and safety ring hollow and even as duplicitous, especially when accompanied by hand-waved notions of 'universal human values'.[29]

As mentioned, LLM's underly recent rapid developments in artificial intelligence. These are systems that generate text in natural language in response to our prompts, questions, and contexts. They are trained on massive amounts of multimodal data gathered from the historical media of humanity, toward mimicking patterns of human language, predicting the next word as

[28] Timothy Morton, *Hyperobjects: Philosophy and Ecology After the End of the World* (Minnesota: University of Minnesota, 2013).

[29] Cf. Will Henshall, 'When Might AI Outsmart Us? It Depends Who You Ask,' *Time*, January 19, 2024, https://time.com/6556168/when-ai-outsmart-humans/.

they go.[30] At time of writing, the LLM looks set to become the next ubiquitous operating surface of digital platform media. In so doing, it will become our dominant means of relating to extant techno-capital as it operates within an increasingly 'joined up' environment of socially embedded platform media. Meanwhile, contemporary scholars and researchers, including interface design researchers like Christian Ulrik Andersen and Søren Bro Pold, have argued that interfaces like iPad/Procreate, while:

> 'financed by the capturing and inscription of user behavior... [are] dependent on source data while creating "a perceptual independence from it"... [appearing] as if created for humans, but concurrently [incorporating] the human into a computational and algorithmic circulation system...'[31]

Figure 5: Ultra monkey-pleasing images produced by XDREAM.

How deep this incorporation could go has been, to me, disturbingly illustrated by experiments with the neural network A.I. XDREAM. When interfaced with a monkey's brain, the A.I. learned

[30] Cf. Emily M. Bender and Margaret Mitchell, 'On the Dangers of Stochastic Parrots: Can Language Models Be Too Big?' *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency* (2021) 610-623, https://dl.acm.org/doi/10.1145/3442188.3445922.

[31] Christian Ulrik Andersen and Søren Bro Pold, *The Metainterface: The Art of Platforms, Cities, and Clouds* (MIT Press, 2018), 176-178.

how to maximally pleasure the monkey by purely visual means (see Figure 5).[32] Limits to such are posited by media theorist Friedrich Kittler, whereby an incomplete connection[33] between human animal and machine is necessary for an interface surface to function. It can be understood, therefore, that with any dissolution of this incompleteness comes a corresponding impact upon possibilities for critical apprehension of the interface as apparatus, capable of mass routinising minds.[34] Through unequal levels of such dissolution across interfaces, therefore, there arises a class system of metacognitive haves and have-nots, depending on what meta level of interface is available, and to whom. Accordingly, I posit that if Musk, Zuckerberg, and Altman *et al* are truly as concerned for the fate of humanity as they claim ,[35] they must at least comprehensively speak about this issue.

[32] Cf. Ed Yong, 'AI Evolved These Creepy Images to Please a Monkey's Brain', *The Atlantic*, May 2, 2019, https://www.theatlantic.com/science/archive/2019/05/ai-evolved-these-trippy-images-to-please-a-monkeys-neurons/588517/.

[33] Friedrich Kittler, *Gramophone, Film, Typewriter*, trans. Geoffrey Winthrop-Young and Michael Wutz (Stanford: Stanford University Press, 1999), 2.

[34] Cf. Robert Booth. 'Facebook reveals news feed experiment to control emotions,' *The Guardian*, June 30 2014. https://www.theguardian.com/technology/2014/jun/29/facebook-users-emotions-news-feeds

[35] Andy McKenzie, 'Transcript of Sam Altman's interview touching on AI safety,' *Less Wrong*, Jan 20 2023. https://www.lesswrong.com/posts/PTzsEQXkCfig9A6AS/transcript-of-sam-altman-s-interview-touching-on-ai-safety

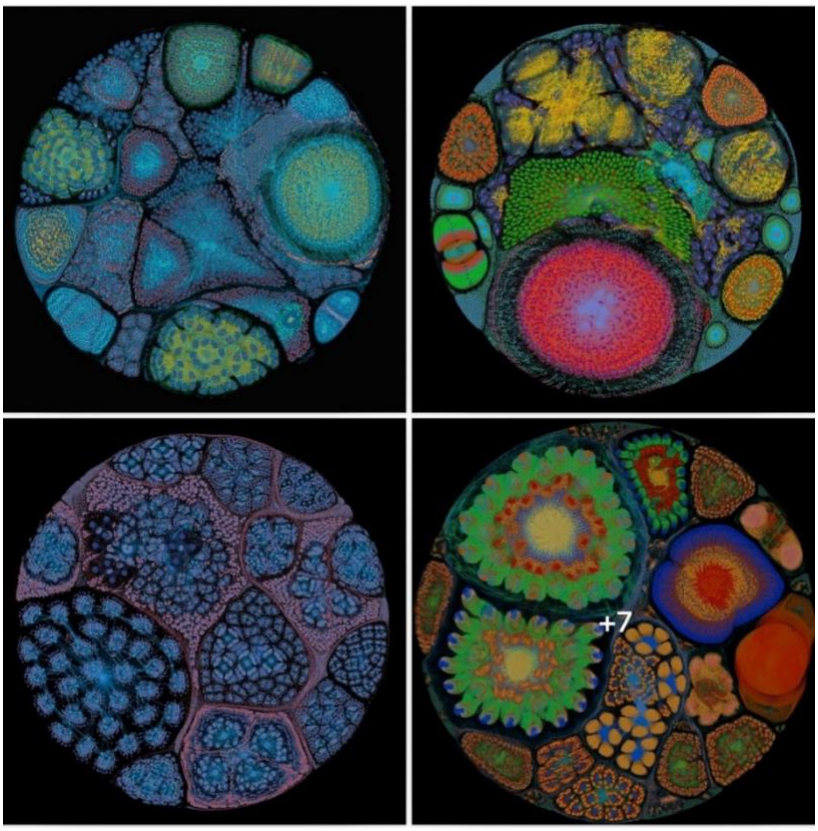

Figure 6: GraphCore's 'A.I. brain scans'.

While computational processes continue to accelerate beyond not only individual users', but collective humanity's grasp - it is not for want of trying to extend this grasp in kind. Figure 6 records a neural network being trained, as it passes back and forth across the data. The movement, and the connections it makes, are assigned colours which affords researchers a way to visualise how resulting A.I. algorithms work.[36]

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Chapter 3 frames and describes my practice-led thesis that iPad/Procreate can be a true 'strange tool'. While academics like Zeynep Tufekci posit that mere humans are already incapable of understanding how A.I. algorithms influence users,[37] realisation of such is not mutually exclusive with hoping for a more ethical way of working with such. This optimism is the driving

[36] Matt Burgess, 'Stunning 'AI brain scans' reveal what machines see as they learn new skills,' *Wired*, January 7, 2023, https://www.wired.co.uk/article/ai-machine-learning-brain-scan.

[37] TED (Zeynep Tufekci), 'We're building a dystopia just to make people click on ads,' Nov 17, 2017, https://youtu.be/iFTWM7HV2UI.

concern of Media Archaeology. In the case of this thesis, this concern is most relevantly reflected in the work of artist and researcher James Bridle:[38] not toward an *understanding* of A.I. algorithms, but toward *literacy* as to how and to what ends such interfaces address us. Maximising human flourishing by fostering critical metacognitive partnership with our human/computer interface technologies. To this end, media archaeological researcher David Parisi seeks to describe the present-day touchscreen as a contingent product of historical interaction between biology, technology, and capital.[39]

Following this concern, using iPad/Procreate I employed a meta-interface methodology, or reading an interface through another interface. I did this by executing an empathised sense of tactility, via purely visual means. Concurrently, I made drawings in a manner that critically appropriated Nick Sousanis' metacognitive comic art.[40] In particular, I employed comic art's use of grid structures to pictorially organise the visual-tactile elements. In so doing, both Cortsen & La Cour and Sousanis argue, this artform can execute narrative frameworks that are more open to playfully individual interpretation.[41] In this way, comic art offers a 'third-space' through which it is possible to critically encounter, in the aforementioned manner of Noe's strange tool, how doing metacognition is itself becoming subject to remediation by the tool in hand. In this way, using an Apple iPad and its native stylus with the app Procreate, I asked how and why using iPad/Procreate could be influencing my own drawing decisions. By executing visual remediation of tactile affect, I positioned my unfolding in-hand interface relation to spontaneously shift between an authentically un-reflective state of absorbed creative flow, and a state of reflective critical analysis. From this emerged a relation with iPad/Procreate whereby tactile affect was remediated as visual iconography, and through indexical juxtaposition became generative of symbolic meaning. This semiosis eventually traced out a hybrid branched and rhizomatic equilateral grid form, or fractal. I was then able to analyse this form in terms of a traced

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38 James Bridle, *New Dark Age: Technology and the End of the Future* (London: Verso, 2018).

39 David Parisi, *Archaeologies of Touch: Interfacing with Haptics from Electricity to Computing,* (Minnesota: University of Minnesota Press, 2018).

40 Nick Sousanis, *Unflattening* (Massachusetts: Harvard University Press, 2015).

41 Rikke Platz Cortsen and Erin La Cour, 'Opening a 'Thirdspace': The Unmasking Effects of Comics,' in *Comics and Power: Representing and Questioning Culture, Subjects and Communities*, eds. Rikke Platz Cortsen, Erin La Cour, and Anne Magnussen (Cambridge: Cambridge Scholars Publishing, 2015), 112.; Ibid.

operative chain, or what would otherwise be the apparatus capturing my metacognition to follow binary-branching paths of first, second, and third person positionalities, relative to the interface surface.

In Conclusion, I begin to link this apparatus subface with a wider context of social semiotic, tensely mutually objectifying, competitive relation for power and control. This critically compliments theses from anthropologist Alfred Gell and digital interface researcher Phaedra Shanbaum.[42] Here, affective presences of competitors for power and control are identified within my interface relation, through compositional analysis of my artworks made with iPad/Procreate. These competitors are myself as artist, iPad/Procreate as index, the fractal/branched grid as prototype, and surveillance techno-capital as recipient.

[42] Phaedra Shanbaum, *The Digital Interface and New Media Art Installations* (London: Routledge, 2019); Alfred Gell, *Art and Agency: An Anthropological Theory* (London: Clarendon Press,1998).

Chapter 1: How can using a digital interface be metacognition?

1.1 iPad/Procreate as a creative tool, and enabler of culture

The iPad, native stylus, and Procreate app have been my medium of choice for creating drawing, mixed media, still image and video installation artwork. More widely, iPad/Procreate has been a culturally significant facilitator of creative expression, by providing a common syntax for contemporary artists and designers to develop visual languages. In being so, iPad/Procreate may also be criticised as an apparatus for reproducing corporate, becoming fascistic power. Specifically, by uncritically remediating legacy ways of doing metacognition. In terms of Lev Manovich's concept of cultural software, and applying a position of media philosopher Vilem Flusser, iPad/Procreate can be understood as a facilitator of creative expression by providing sets of 'keys', or visual/auditory syntaxes affecting historical cultural meanings. By these means, contemporary artists and designers can wield computation to develop languages of affect that execute remixed, hybridised ways in which legacy media 'write' its consumers. Launched in 2011 soon after the first iPad, Procreate remains one of the most popular one-time payment apps used by both casual and professional digital artists. With over 10 million Apple app store downloads, its makers estimate to have so far afforded the creation of around 8 million images.[108] Procreate enables continuous video screen-capture recordings to be made of every action taken when using it to draw, paint, import and manipulate visual images. By default, this feature is continuous and automatic. Captures can be viewed and reviewed at any point. They can be scrubbed back and forth, stilled and sampled, to be placed reflexively back into compositions.[109] As well as video capture, users can make separate save states amid a continuously experimental flow of images, brushes, colours, samples and textures. All can be duplicated, flipped, cropped, chopped, and juxtaposed. Any element can be erased, replaced, overlaid, moved, removed, repositioned, sharpened, blurred, tinted, pixellated, smoothed, re-scaled, masked, warped, drawn into, drawn around, and drawn with. 'Brushes' can be created by manipulating sliding scales contingent with the app's own pre-defined remediation of legacy

[108] Cf. Savage Interactive Pty Ltd, 'Apple App Store Preview: Procreate,' accessed March 6, 2024, https://apps.apple.com/us/app/procreate/id425073498.

[109] Ibid. 10.

brush, paint, graphite, and paper/canvas physical media. It is also possible to download further readymade brushes created by and for a large online community. Using these, artists can create compositions employing everything from abstract fields of colour to the macro-photographic. In principle, any compositions can themselves be fed back into making further 'brushes' and 'canvases'. Alongside any work, it is additionally possible to write annotative notes surrounding or within compositions. This can be done on both a temporary or permanent basis, over hours of sometimes playfully absorbed and, at other times, hyper-analytical making.

1.2 iPad/Procreate as an apparatus, or capturer of culture

This versatility, however, is not unproblematic. Despite continual version updates based on recipient feedback that is typical to app development, Procreate continues to claim endless and self-disruptive remediation of legacy media for a smooth glass touchscreen. This claim can be criticised in light of Vilem Flusser's theory of media evolution, which can be applied to understand iPad/Procreate as a calculator of 'technical media'. For Flusser, what can possibly be expressed by any given medium is in principle subject to:

i) the Second Law of Thermodynamics, or however much possibility to recombine elements remains in a particulate universe that is ultimately moving toward disorder – and,

ii) the extent that the given medium can afford exploration of this fundamental design space, whereby in principle we may:

> 'delve into the very roots of our being-in-the-world... [exploring] extension of the hand against the world... coordination of hand and eye, doing and seeing, practice and theory... translation from representations into concepts, an explanation of images, an unravelling of pictorial surfaces into lines... rules of play that could also be other than they are... with this recognition, the orderly threads finally fall apart and the concepts lose coherence... But they can be calculated... and can, by means of special apparatuses equipped with

> keys, be computed... [making] mosaic-like combinations of particles possible, technical images, a computed universe in which particles are assembled into visible images.'[110]

By imposing tacit limits on such calculation, however, iPad/Procreate may be understood as a kind of 'apparatus', or 'dispositif'. This concept is found in the writings of seminal post-modernist philosophers Michel Foucault, [56] Gilles Deleuze,[57] and Giorgio Agamben.[58] Extending Foucault's concept, Agamben defines an apparatus as anything that:

> 'has in some way the capacity to capture, orient, determine, intercept, model, control, or secure the gestures, behaviors, opinions, or discourses of living beings. Not only, therefore, prisons, madhouses, the panopticon, schools, confession, factories, disciplines, judicial measures, and so forth... but also... why not - language itself, which is perhaps the most ancient of apparatuses.'[59]

Apparatuses, in other words, causally intersect each other to ongoingly resonate with and capture individual ways of, from the position of this thesis, doing metacognition. As philosopher Gilles Deleuze put it:

> 'lines in the apparatus... follow directions, trace processes that are always out of balance... like vectors or tensors... chains of variables that are torn from each other... do not evolve but proceed by crises or quakes.'[60]

Consequently, for Deleuze, to know or represent an apparatus at work, we must be ready to map:

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110 Vilem Flusser, *Into the Universe of Technical Images*, trans. Nancy Ann-Roth (Minnesota: University of Minnesota, 2011), 39.

56 Michel Foucault, 'The Confession of the Flesh,' in *Power/Knowledge Selected Interviews and Other Writings*, ed. Colin Gordon, (New York: Pantheon, 1980), 194–228.

57 Gilles Deleuze, 'What Is a Dispositif?,' http://www.no-w-here.org.uk/what%20is%20dispositif.pdf. (1992).

58 Giorgo Agamben, 'What is an Apparatus?,' in *What is an Apparatus? And Other Essays*. (Stanford: Stanford University Press, 2009).

59 Ibid, 14.

> ‘unexplored lands... be positioned on the lines themselves... [because] these lines do not merely compose an apparatus but pass through it and carry it north to south, east to west or diagonally.’[61]

Additionally, applying the words of philosopher Amelia Jones, to critically reflect an apparatus’ a researcher must first recognise their own tendency to take a position:

> ‘against the object’s power... the object’s force but equally our own powerful drive to understand, to possess, that which moves us so intensely.’[62]

This recognition is important because, as Louis Althusser posits, it is in the taking of such a combative position that we become embedded in the apparatus. Perhaps enough to become critically defenceless as, consistent with Martin Heidegger’s description of one’s absorption by tool use, the apparatus more likely withdraws beyond reach of critical consciousness, behind its:

> ‘hailing: “Hey, you there!”... the hailed individual will turn round. By this mere one-hundred-and-eighty-degree physical conversion, he becomes a subject. Why? Because he has recognized that the hail was 'really' addressed to him, and that 'it was really him who was hailed' (and not someone else).’[63]

1.3 iPad/Procreate as subface/interface/surface

Design researchers Florian Cramer and Matthew Fuller place the term ‘interface’ as originating in the science of chemistry where it is given to mean ‘a surface forming a common boundary of two bodies, spaces, phases’.[99] Cramer and Fuller argue that computer science adopted this

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60 Gilles Deleuze, ‘What Is a Dispositif?,’ http://www.no-w-here.org.uk/what%20is%20dispositif.pdf. (1992).

61 Ibid.

62 Amelia Jones, *Performing the Body/Performing the Text*, (Milton Park: Taylor Francis, 1999), 47.

63 Louis Althusser, ‘Ideology and Ideological State Apparatuses,’ in *Cultural Theory: An Anthology*, eds. Imre Szeman and Timothy Kaposy (Hoboken: Wiley, 2011), 218.

99 Florian Cramer and Matthew Fuller, “Interface”, in Software Studies: A Lexicon, ed.Matthew Fuller (Massachusetts: MIT, 2008), 149.

language of chemistry as a way to model digital interfaces as common boundaries between 'software and hardware to each other and to their human users or other sources of data'.[100] In this model, in order to interface with humans, digital interfaces present as a software layer, symbolically abstracting the hardware's 'available machine instructions into a new control language'.[101] With this model in hand as a conscious conceptual framework, we can become positioned to critically handle the digital interface relation as one of causal informational loops, embodying a process of translation between states of the device's material components (i.e. on/off electronic states of silicon) and semiotic presentation (i.e. the typical 'sensory object stands for device command' iPad app). In terms of this position, Olia Lialina's concept of a 'Turing complete user' denotes a user who is empowered to handle the interface relation through a symbolic map that is causally linked to physical changes happening at the level of the binary machine instruction.[102] Upon this perspective, the principle difference between a programming language and end-user interface like iPad/Procreate becomes one of relatively greater versus lesser granularity in this causal linkage. That is to say, how surface symbols:

> 'describe, hide, and condition the asymmetry between the elements conjoined... [by executing] the representation or the re-articulation of a process occurring at another scalar layer.'[103]

Correspondingly, media theorist Frieder Nake analyses the digital interface relation as comprising three mutually interacting layers: a responsive surface, a buffer subface, human users (and other sources of data). The responsive surface appears as causal components of a user-intention guided interface relation, such as 'mouse positions, or menu selections'.[126] Such are interpreted through human 'intentions, interests, situation, and context'.[127] These, however, also

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100 Ibid.
101 Ibid. 150
102 Olia Lialina, *Turing Complete User: Resisting Alienation in Human Computer Interaction* (Dresden: arthistoricum.net, 2021).
103 Florian Cramer and Matthew Fuller, "Interface", in *Software Studies: A Lexicon*, ed. Matthew Fuller (Massachusetts: MIT, 2008), 150.
126 Frieder Nake, 'Surface, Interface, Subface. Three Cases of Interaction and One Concept,'. in *Paradoxes of Interactivity Perspectives for Media Theory, Human-computer Interaction, and Artistic Investigations,* eds. Uwe Seifert and Jin Hyun Kim (Bielefeld: Transcript, 2008),15.
127 Ibid.

function as 'signs… with an extra interpretant'. [128] That is to say, as a reflexive subface functioning as a minimally apparent cause of the human relation, as 'signal processes... [which are] chains of determinations like any other process on a machine',[129] through which 'human acts of interpretation correspond in a rich (but computable) way to machine operations'.[130] In this way, for Nake, the digital interface relation functions as an 'algorithmic thing that... we ourselves and the program are engaged in'.[131] This relation produces 'algorithmic signs', or meaningful objects continually adapting toward optimally engaging users in relation, such as in the process of doing metacognition. Efforts at critical interface relations needs must therefore be ongoing, as well as 'directed towards an understanding of the algorithmic sign in as many ways as possible – aesthetic, educational, and cultural'.[132]

1.4 iPad/Procreate as a fetishist social aesthetic, or technological unconscious

Like Nake's, Andersen and Pold's interface is one of:

> 'apparatus affects... [appropriating] not just what is sensed but also how it is sensed... built on the production as well as consumption of language... this alters the perception of the self... [for instance] interfaces take part in the semiotization of the urban... this changes the perception of time and space.'[133]

Structurally expanding Nake's surface/subface interface into the operation of a social aesthetic, Andersen and Pold argue that the interface thereby helps constitute how our:

128 Ibid.[129] Ibid.
129 Ibid.
130 Ibid.
131 Ibid. 17-18.
132 Ibid.
133 Ibid. 17-18

> ‘sense perception operates through a technological unconscious - through hidden machinic languages, perspectives, and infrastructures... black boxed, hidden away, and in constant disappearance as an unconscious.’[134]

Meanwhile, media philosopher Alexander R. Galloway offers a specific way that this technological unconscious can function through surface/subface, and now social interface relations. Namely, through a ‘bed of genetically distinct elements’[135] that nevertheless form ‘a homogeneous substrate from which constructions are built.’[136] It does this by sometimes facilitating, sometimes frustrating a ‘digital decision... [of] distinction in favor of the single determining instance of ‘the One’. [137] Subsequent affects arising between user and device are then signified in some ways, and not others, exploiting our ‘essential condition of discriminating between the two elements in the first place.’[138] Furthermore, Galloway argues a digital interface works like this because it in ‘truth never simply stands on its own, because it always exists in a relationship of givenness vis-à-vis a human agent’.[139] It is through a dialectic relation like Galloway’s that, writing in 2006, Laura Mulvey argued that the digital interface relation engages by being a fetishist type of remediation. Meaning that, once digitised:

> ‘the linearity associated with film projection begins to break down further... delaying the image, extracting it from its narrative surroundings... [which] allows it to return to its context... is delayed and thus fragmented from linear narrative into favourite moments or scenes, the spectator is able to hold on to, to possess, the previously elusive image... fulfilled not only in stillness but also in the repetition of movements, gestures, looks, actions.’[140]

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134 Ibid.
135 Alexander R. Galloway, *Laruelle: Against the Digital* (Minnesota: University of Minnesota, 2014).
136 Ibid.
137 Ibid.
138 Ibid.
139 Ibid.
140 Laura Mulvey, *Death 24x a Second: Stillness and the Moving Image* (London: Reaktion Books, 2006), 150.

Conversely, in terms of a human/computer interface like iPad/Procreate serving a more self-critical function, Mulvey also points out that employing digital's non-linear review capabilities can enable one to 'suddenly, unexpectedly, encounter the index'.[141]

1.5 iPad/Procreate as cultural software

It is via this superlative capability for non-linearity, media theorist Lev Manovich argues, that digital interfaces remix legacy media to produce shared languages. Meeting the needs of an ontological position denoting the forever absence of any complete authorial message, Manovich posits that digital interfaces instantiate a process of 'cultural software' evolution by employing modular syntaxes usable by expert and non-expert authors alike.[104] These modular syntaxes are continually distilled out of a 'deep remixing' of legacy media affects, due to these affects having been removed from the functional bounds of their legacy material substrate, ie. the branching two or three-tier relation of textual information actioned through the paper book footnote becomes an infinitely relational, multi-modal rhizomatic relation once digitised. This latter computational media is hence able to hybridise functions of legacy media to a radical extent.[105] This radicalness is tempered, however, by a pragmatically necessary carrying over of legacy 'assumptions and models about a user, her/his needs, and society'.[106] Accordingly, understanding communication as information flowing from encoder-author to decoder-audience, Manovich cites decoding failures as driver of media evolutionary change, but toward reduction of transmission noise and increasing of mutual interpretive resources between transmitter and receiver. Manovich thereby posits cultural software evolution as an overall process whereby digital media becomes:

> 'our interface to the world, to others, to our memory and our imagination—a universal language through which the world speaks, and a universal engine on which the world

141 Ibid.
104 Lev Manovich, *Software Takes Command* (London: Bloomsbury Academic, 2013).
105 Ibid.
106 Ibid. 29.

> runs... [constituting] the whole landscape of media technologies, the creative professions that use them, and the very concept of media itself.'[107]

1.6 iPad/Procreate as gridded technological unconscious

In these terms, iPad/Procreate may be understood as a cultural software apparatus that, engaging us to choose particular semiotic paths over other possible paths, mitigates the fundamental absence of a final authorial message with a technological unconscious. Hence, as theorist Donald Favareau put it:

> 'Symbols are grounded not in Things, but in Scaffolded Relations and their Semiotic Constraints, and this Referential Generality is responsible for growing mind.'[64]

Rosalind Krauss speaks of the grid as the universal form this structural principle traceably takes, one that 'within the whole of modern aesthetic production has sustained itself... impervious to change'[65]. As such, Krauss continues, '[i]ts order is that of pure relationship, the grid is a way of abrogating the claims of natural objects to have an order particular to them'.[66] That is, for Krauss, it is not so much that a grid maps 3D space onto a 2D surface, than it maps the aesthetics of the surface itself 'as a naked and determined materialism'.[67] Consequently, the grid can function as an apparatus of power and control, by tensely fusing material and aesthetic processes. Likewise, philosopher Hannah Higgins argues that grids trace the overall way we both organise and are organised by material culture. Grids weave together and fracture apart how we build and use meaning, by functioning as a 'universalising scheme'.[68] In particular, functioning as the means to:

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[107] Ibid. 2.

[64] Donald Favareau, 'Biosemiotics Symbols are Grounded not in Things but in Scaffolded Relations and their Semiotic Constraints Or How the Referential Generality of Symbol Scaffolding Grows Minds,' *Biosemiotics* (2015), accessed December 27, 2022, https://www.academia.edu/36977746/

[65] Rosalind Krauss, *Grids*. October 9 (1979), 2. https://doi.org/10.2307/778321.

[66] Ibid.

[67] Ibid. 4.

[68] Hannah Higgins, *The Grid Book*, (Massachusetts: MIT, 2009), 8.

> ‘domestic, geographic, musical, or textual... scaling [of] information... on behalf of its user, by turns a bureaucracy, an empire, a church, and the emerging merchant class.’[69]

Writing in 2009, Higgins traced a form of grid apparatus instantiated in our use of networked personal computers and the first smartphones. In particular, according to Higgins, this apparatus meets us through the ‘user-friendly interface... [of] bold pop-ups, and absorptive 3-D ‘windows’’[70] Scaling information, so as to render useful an:

> ‘information architecture... [of] binary numbers and standardised byte-sizes… [organising] complex and diverse information into a vast global knowledge network.’[71]

For Higgins, instantiated through this specifically computational use is a fractal form of grid. In this case, however, Higgins continues that it is as fractal grids that the human brain has itself also been observed to be neurologically organised. This suggests that the computational fractal grid is in fact tracing a way of doing metacognition somewhat independent of cultural and technological time and space. One representationally closer, that is, to our ontological situation itself; self-assembling ‘between the object and the observer... [as] approximate self-similarity... resemblance of parts to the whole of a thing’.[72] It follows, Higgins argues, that the fractal should therefore be ‘one way to conceptualize the human predilection for grids and to theorize some fundamental way in which these grids form maps of the human mind’.[73] In short, applying a fractal grid is a way of doing metacognition to a further order of magnitude, upon metacognition itself in critical relation with culturally and historically contingent apparatuses engaged in capturing it. To this end, acknowledging a need for further arts practice-led research, Higgins posits fractals as a way to critically access how global digital networks ‘will affect our daily lives, how we work and play, and how we conduct research about ourselves and our environment’.[74]

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[69] Ibid.
[70] Ibid.
[71] Ibid. 255.
[72] Ibid.
[73] Ibid. 271.
[74] Ibid. 255.

1.7 iPad/Procreate as cultural technique apparatus

Concurrently, Bernhard Siegert's 'cultural technique' is traced as a fractal grid, engaging us toward given ways of making and using meaning by scaling available information according to intersecting 'operative chains'. This engagement is built initially from feelings of our own body becoming opposed and divided, to be then tensely fused back together. A cultural technique, according to Siegert, is thereby what 'moves ontology into the domain of ontic operations'.[75] That is to say, complimenting Jacques Lacan's concept of the mirror stage, cultural techniques tensely fuse together 'how things are' with 'how things appear to be'. On this basis, ways of creating and using meaning can be established selectively, as a way of power - enacting:

> 'production of ontological distinctions… operative chains… [that] precede the media concepts they generate... [building] a more or less complex actor network that comprises technological objects as well as the operative chains they are part of and that configure or constitute them.'[76]

[75] Bernhard Siegert, *Cultural Techniques: Grids, Filters, Doors, and Other Articulations of the Real*, trans. Geoffrey Winthrop-Young (New York: Fordham University, 2015), 28-34.
[76] Ibid.

Figure 7: Steven Shore's photography draws us into inhabiting a flat ontological point of view.

Siegert's fractal grid tensely fuses together the infinitely recurring engagement of a fractal with an equilateral grid that instrumentalising Levi Bryant's 'flat ontology'.[77] Stephen Shore's above image (see Figure 7) executes in us some access to a 'flat ontological' position. This is where information is scaled in such a way that all things come forward as affecting each other equally, with no thing being of any necessary status or potential. Consequently, that fractal grid of Siegert's cultural technique functions as 'a machine by which humans are subjected to the law of the signifier'.[78] That is, a hybrid rhizomatic/branching apparatus, constituting 'recursive chains of operation',[79] that:

[77] Levi Bryant. *The Democracy of Objects*. (London: Open Humanities Press, 2011).
[78] Bernhard Siegert, *Cultural Techniques: Grids, Filters, Doors, and Other Articulations of the Real*, trans. Geoffrey Winthrop-Young (New York: Fordham University, 2015), 28-34.
[79] Ibid.

> ‘always already contain body techniques... [due to] the introduction of distinctions: inside/outside, pure/impure, sacred/profane, female/male, human/animal, speech/absence of speech, signal/noise, and so on... [while] media that sustain codes, and disseminate, internalize, and institutionalize sign systems... appear as code-generating or code-destroying interfaces between cultural orders and a real that cannot be symbolized...’[80]

In this way, a grid ‘effectively combines an imaging process... with a topographical planning procedure... [with] linking of representational and operative functions.’[81] As such, the grid makes possible a notion of ‘place’, by conferring:

> ‘the ability to write absence, that is, to deal equally efficiently with both occupied and empty spaces.’[82]

In turn, the fractal grid therefore facilitates interpretive meanings to be conferred on our doing if metacognition, toward Theory of Mind, and so subjectivity as such. It does this by positing ‘an antecedent geometrical space in which objects are located and that submits the representation of objects to a theory of subjective vision.’[83]

1.8 iPad/Procreate as philosophical metacognition

In short, by holding in tension its recipient's states of non-critically unconscious engagement, with their critically conscious analysis, a grid which is both equilateral and fractal can position one to do metacognition in a particular, philosophically phenomenological way. Namely, toward a 'metacognition of metacognition', amid in hand use of the grid's present medium - in this case, the medium of iPad/Procreate. The grid can do this by using ‘specific addresses to store data that can be implemented in the real as well as in the symbolic... [serving] to constitute a world of

[80] Ibid.
[81] Ibid. 35.
[82] Ibid. 116.
[83] Ibid.

objects imagined by a subject.'[84] The grid, in other words, 'operationalizes deixis'.[85] This means it links linguistic procedures productive of contextually dependent meaning with 'chains of symbolic operations that have effects in the real... [to merge] representation and operation.'[86]

After a thesis of Anderson and Pold's, such can thereby be understood as allowing critical apprehension of its medium's 'controlled consumption' via instantiation of 'scripted space'. That is to say, of commercial situations whereby 'activation produces something, but the script is rarely read'[87] to produce 'conceptual framing'.[88] In other words, potentially delivered for critical access are situations whereby 'an interface may seem invisible or absent, but the audience tends to fill in the blanks.'[89] Situations, that is, where the how, what, and why of making and using meanings, are being controlled via the 'scripting of absence.'[90]

1.9 Defining metacognition

Metacognition is broadly definable as 'thinking about one's own thinking'. It is posited as what makes minds able to regulate themselves, by indexing sensory information into linguistic content instead of merely through internally or externally imposed routines. A mind can then step away from the immediacy of raw sensory events, perceiving itself and other minds in the abstract. This stepping away has been posited as a symptom of trauma fundamental to subjectivity itself. That is, as an ongoing attempt to imaginatively pull together evidence against its own absence, despite detection of gaps between the self as experienced and the self as represented. Additionally, neuro-linguist Michael Beran defines metacognition as, 'what sets human minds apart from the minds of other creatures... [by making it] self-regulating and not merely routinized'.[43] Beran

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84 Ibid. 117.
85 Ibid.
86 Bernhard Siegert, Cultural Techniques: Grids, Filters, Doors, and Other Articulations of the Real, trans. Geoffrey Winthrop-Young (New York: Fordham University, 2015), 117.
87 Graham Harman, 'The Third Table,' in The Graham Harman Reader, eds. Jon Cogburn and Niki Young (Winchester: Zero Books, 2023), 37.
88 Bernhard Siegert, *Cultural Techniques: Grids, Filters, Doors, and Other Articulations of the Real*, trans. Geoffrey Winthrop-Young (New York: Fordham University, 2015), 117.
89 Ibid.
90 Ibid.
43 Michael Beran, *Foundations of Metacognition* (Oxford: Oxford University Press, 2012) 280 - 291.

argues metacognition works like this by ordering sensual content into language, solidifying it into ‘a new set of representational objects for the mind to work with’.[44]

1.10 Metacognition as Social Semiotics

By these lights, a metacognitive mind is understandable as a ‘social semiotic’ phenomenon. That is, a mind is understood as making and using meaning through competition with other minds for power and control, over itself and other minds. A means of such competition has been posited as the harnessing of a form of cognition called 'abduction'.[45] Essentially, this is when correlation is taken as sufficient evidence for causation. This has been understood as what makes possible the cultural, aesthetic, and linguistic communication of shared meaning across individuals. As such, abduction stands as the driving force of philosopher of meaning Charles Sanders Peirce’s first-person subjective focused model of the Sign. For Peirce, the simplest thing able to be clearly perceived by someone is a formally discrete unity, or the form of an object. This form becomes ‘signified’, is given a specific meaning or ‘interpretant’, when placed in correlation with other objects. Peirce calls this correlating the ‘index’. This is when two or more objects happen at the same time &/or space, and are thereby ‘abducted’, taken as sufficiently evident to be in causal relation with one another. As the sensual complexity of the index increases, more compound forms of meaningful object or sign emerge. These are ‘iconic’ forms, or signs that affect meaning through their index of (visual) likeness. When indexical complexity reaches a limit of what is perceivable as an object, it produces the ‘symbolic’ form. Through the indexical correlation of symbols, a syntax and language can arise.

Likewise, the philosopher Bruno Latour can be understood as building on Peirce to understand the meaning of ‘social’ as this metacognitive and semiotic process hitting physical and material, spatio-temporal limits of given biological, ecological, and technological media environments.[46]

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[44] Ibid.

[45] Cf, Pedro Ata and Joao Queiroz. *Icon and Abduction: Situatedness in Peircean Cognitive Semiotics*. (Berlin: Springer, 2013).

[46] Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (Oxford: Oxford University Press, 2007), 12.

In short, for Latour society is nothing but 'what the collective existence has become... which methods [we] have elaborated to make it fit together, which accounts best define the new associations that they have been forced to establish'.[47] In this way, Latour extends Peirce's logic of the Index by describing phenomena solely in terms of mutually causal relationships or 'actor relations'. Essentially, these are object-like patterns of relations that temporarily produce discrete processes, ultimately forming sets and super-sets of relations.[48] Complimenting this ostensibly fractal understanding of meaning, Michael Beran posits metacognition as a mind of meaningful sets within super sets, thereby conveying the ability to 'intentionally control [a] reasoning process... overcome very strong natural evaluative tendencies'.[49] In other words, without metacognition, we would merely 'look through content into the world.'[50] Overall, Beran's and Peirce/Latour's complimentary understandings of meaning correspond with philosopher Jurgen Habermas' concept of language as 'patterns of symbolic representation'[51] describing and standing for material objects. For Habermas, language is a product of three types of 'dialectic relations', or tense fusing of opposing objects (synthesis of a thesis with its antithesis). These types are:

i) 'mind', or tense fusing of subjectivity with objectivity, that generate first-person subjective consciousness;
ii) 'tool', a likewise tense fusing but on the material plane;
iii) 'familial', a tense fusing of (i) and (ii) that produces categorisation.

Furthermore, the above positions compliment psychoanalyst Jacques Lacan's model of subjectivity. Lacan posited that a necessary part of individual subjectivity are traumatic indications of subjective absence, between experience of first-person subjectivity and second-and third-person representations of it.[52] Only vicariously encounterable through iconic and symbolic

[47] Ibid.
[48] Ibid.
[49] Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (Oxford: Oxford University Press, 2007), 12.
[50] Ibid.
[51] Quoted in: Frieder Nake, 'Surface, Interface, Subface. Three Cases of Interaction and One Concept', in *Paradoxes of Interactivity*, eds. Uwe Selfert, Jin Hyun Kim, and Anthony Moore (Verlag, 2008), 4-5.
[52] Jacques Lacan, *The Four Fundamental Concepts of Psychoanalysis*, (California: Norton, 1998), 60.

indexical relations, the presence of this 'real' absence is what therefore drives imagination and fantasy, whose ongoing function is to objectify meaning out of such existential trauma. In sum, according to Lacan the phenomenon of first-person subjectivity is a self-driving process, being what is put in:

> 'place of the real... [and so] stretches from the trauma to the phantasy... [and so is] never anything more than the screen that conceals something quite primary, something determinant in the function of repetition.'[53]

Likewise, the philosopher Slavoj Zizek describes this aspect of subjectivity by speaking about a scene in David Lynch's film Mullholland Drive. Here, a singer collapses on stage only for the sound of her singing to continue unbroken. The audience, suddenly faced with evidence that her song is not being sung in the moment but is instead a playback, nevertheless continues to show the same rapt engagement as before. For Zizek, this delivers to experience a fundamental aspect of subjecthood, as:

> 'an autonomous partial object... [that] remains alive even after it is dead... [constituting] the properly disturbing aspect of the human voice... [as] a foreign invader at our very heart... thoroughly non-substantial... a product of failed attempts to integrate it into the Symbolic.'[54]

Similarly, philosopher Maurice Merleau-Ponty describes first-person subjectivity as produced through a tense fusion that is:

> 'inseparable from the subject... who is nothing but a project of the world... from a world that it itself projects... since its texture and its articulations are sketched out by the subject's movement of transcendence.'[55]

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[53] Ibid.

[54] Slavoj Zizek, in Simon Gros. 'Slavoj Žižek presents "The Pervert's Guide to Cinema" by Sophie Fiennes [PART1].' https://youtu.be/WMmBtG5qxsY.

[55] Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Colin Smith (London: Routledge, 2002), 499-500.

1.11 Formative Summary Conclusion

As seminal and contemporary theoretical context posits, iPad/Procreate can be both a tool for creative exploration and a system of capture that reinforces existing power. As cultural software, it mediates metacognition by facilitating ways we build, use, and compete via meaning. As such, it is a form of 'apparatus', enacting wider social competition for power and control over the making and using of meaning; a nexus point of reproduction, within a technological unconscious, presenting as an extant social aesthetic. As such, iPad/Procreate is its own instance of metacognition, 'thinking about thinking', or process of self-reflection. Accepting this, digital human/computer interfaces like iPad/Procreate may facilitate creativity, but in doing so embed us within algorithmic systems of control.

Conversely, as metacognition, iPad/Procreate may also offer a way to critically engage with these very systems - by becoming a tool for a specialist, philosophical form of art practice-led metacognition. After Siegert *et al*, this may be achieved by grounding such engagement on an equilateral grid that is nested in to a fractal, reflective of forms found in nature itself. This finds additional ontological justification in a position of philosopher Graham Harman, who speaks of art practice-led philosophy as a bid to access the 'real… that cannot be known, only loved... as tensions between objects and their qualities.'[91] Harman here compliments other positions on art practice-led methodology. For instance, Alva Noe understands philosophy, as well as the making and encountering of artworks, as a specialist form of metacognition subject to an apparatus, but through this very subjectification able to seek to reveal its own working as such. Accordingly, Noe posits art making as a relation that in 'its true work, is philosophical... a strange tool... bent on the invention of writing... putting our true nature on display before ourselves'. [92] Similar to what Lacan posited, and also complimenting Flusser's thermodynamic physics and Manovich's ideas on drivers of media evolution, for both Harman and Noe the purpose of philosophy must

[91] Graham Harman, 'The Third Table,' in *The Graham Harman Reader*, eds. Jon Cogburn and Niki Young (Winchester: Zero Books, 2023), 37.

[92] Alva Noe, *Strange Tools: Art and Human Nature* (Connecticut: Tantor Media, 2015), 209.

therefore be to continually 'write' ourselves as conscious first-person subjects.[93] Accordingly, for Noe, making art or indeed any everyday practice is, akin to breast-feeding:

i) 'primitive' - a basic, universal, biological process; *submitting to*
ii) 'skilful' - mutual and detailed procedural training, *by becoming*
iii) 'organised in time' - gaining 'something like the structure of turn taking'[94]; *becoming*
iv) 'self-organising', as the activity's physical demands reach the limits of physical
v) 'function'. In the case of breast-feeding, this would be limits to the amount or intensity of bonding or nutrition one may be able to take on. *Surfing a breaking wave of*
vi) 'pleasure' - in a mutual 'flow state' of instinctual engagement.

For Noe, philosophy and art making can be a singular version of this everyday practice of writing oneself. Specifically: a 'strange tool' that, while undergoing the above steps as 'genuine, full-blooded, first-order engagements'[95], additionally affords one to experience these steps as problematic. Philosophical art making, and ideally recipient encounters with such artworks, are thereby also understandable as special instances of Martin Heidegger's 'broken equipment'.[96] This relation affords our way of doing metacognition to 'catch in the act' how it itself is functioning as a contingent and momentary relation. As Noe explains this, we encounter 'the ways our practices, techniques, and technologies organise us... [as] a way to understand our organisation and, inevitably, to reorganise ourselves'.[97]

Conversely, and adding ethical urgency to such encounters, Noe explains that art can also be anti-philosophical. That is, as 'strange tools', philosophical artworks are also 'strange practices' requiring careful attention to keep functioning as continually self-critical forms of metacognition.[98] Accordingly for Noe, likewise Siegert, and also philosopher Karen Barad whom I will go on to discuss, a key ethical concern is the practical consideration of how the social and

93 Ibid.
94 Ibid.
95 Ibid. 9.
96 Martin Heidegger, *Being and Time*, trans. John Macquarrie & Edward Robinson (Oxford: Blackwell, 2001), 67.
97 Alva Noe, *Strange Tools: Art and Human Nature* (Connecticut: Tantor Media, 2015), 9.
98 Ibid. 10.

historical contingencies that ground our ready-to-hand means of putting 'ourselves on display to ourselves' may be open to criticism. That is to say, while a digital tool's non-linearity can facilitate us to encounter at work the dynamic rhizome-to-branch structure of meaning making itself, it can by this very process weave a trap around this making. Accordingly, Flusser worries that if interfacing itself is not critically addressed as such:

> 'history is about to dry up... because images are feeding on it, because they sit on historical threads like parasites, recoding them into circles... [B]ecause they are so penetrating, people don't crowd around them; rather they draw back, each into his corner... lead on their own to a fascistic society... social groups that bound human interaction fall apart... Disintegrating social forms are more interesting than new ones because they are sanctified by familiarity.'[125]

Like Harman *et al*, Flusser also here comes from a position that meaning making is a reaction to the fundamental absence of ultimate, final meaning. This is specifically as a phenomenon of non-linear resistance to Time, or opposition to being of a closed material system in the process of disintegration.[111] Such resistance, according to Flusser, presents as 'information analysis, replacement, and disinformation',[112] in which people come to act as dialogic 'players with prior information... with a purpose to produce information',[113] albeit ultimately in 'an intractable game of chance in which all possible accidents, including improbable ones, must eventually occur'.[114]

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125 Ibid. 88-94.

111 Cf. *Stanford Encyclopedia of Philosophy*, "Thermodynamic Asymmetry in Time," accessed March 5, 2024, https://plato.stanford.edu/entries/time-thermo/.

112 Ibid.

113 Vilem Flusser, *Into the Universe of Technical Images*, trans. Nancy Ann-Roth (Minnesota: University of Minnesota, 2011), 88.

114 Ibid. 73.

1.12 A comparative history of digital interface 'Strange Tools'

As already argued, Procreate's stated aim to remediate legacy media[115] may therefore in fact be helping to block makers from exploring ways of being and doing beyond those already given as 'fundamental'. That is, as Flusser posited, by blocking access to meaningful accident, thereby tacitly causing possibilities to be 'torn from the technician's hands'. [116] It will be helpful, therefore, to look at prior efforts at using digital interface media prior to iPad/Procreate as a philosophically metacognitive 'strange' tool - asking how these might inform our use of iPad/Procreate to similar ends. Compare, for example, iPad/Procreate's aforementioned brush-sliders with artist Adrian Ward's 2001 'Auto-Illustrator'.[117]

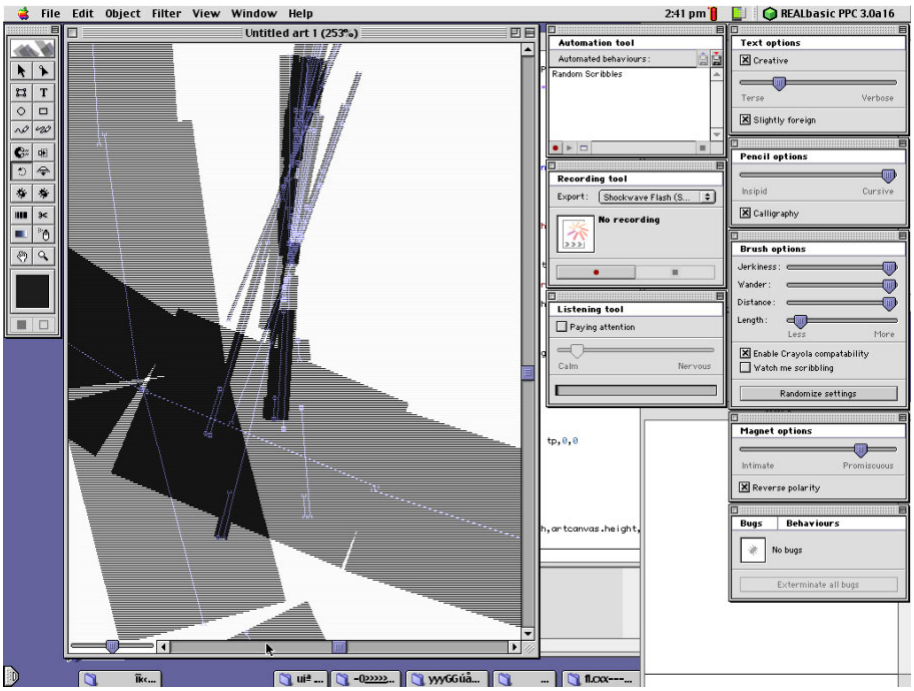

Figure 8: screenshot of Adrian Ward's 2001 'Auto-Illustrator' application.

115 Savage Interactive Pty Ltd, 'Procreate: Sketch. Paint. Create.' *Apple App Store*. https://apps.apple.com/us/app/procreate/id425073498

116 Vilem Flusser, *Into the Universe of Technical Images*, trans. Nancy Ann-Roth (Minnesota: University of Minnesota, 2011), 65.

117 'Auto Illustrator,' *Transmediale archive*, accessed December 26, 2023, https://archive.transmediale.de/content/auto-illustrator.

Adrian Ward's 2001 'Auto Illustrator' (see Figure 8) was a modified version of Adobe Illustrator, a still popular vector design application. In Ward's version, the menus and sliders resist and actively depart from users' attempts at predictable control. By this means, Ward's application can be understood as affording metacognition through a metainterface, or interface of interfaces, in that we are thereby positioned to critically apprehend how Adobe Illustrator imposes norms through its sliders' remediation of legacy media. Through the interruptions of Ward's sliders, we become able to apprehend how the seemingly user-friendly transparency of a simple morphing or scaling slider is, in fact, a tacit imposition of historically developed and therefore value laden practices. As Ward demonstrates, to quote Christian Ulrik Andersen and Søren Bro Pold, an interface process may thereby become its own object for criticism when it is used to make artworks able to:

> 'reflect the deeper fissures within new technologies... [by] letting one interface meet another... Parody, intervention, and excavation, along with many other artistic modes of exploration, function as ways to reflect the work's material levels and production, and through this, also the wider cultural consequences of the interface's new regime of production.'[118]

What Ward's work helps indicate is that the structure of a digital interface relation normally withdraws behind the ease of the interface relation itself. Ward demonstrates a way we can thereby challenge such 'disappearance of the interface, and make it much less innocent than corporate rhetoric otherwise suggests'. [119] Michael Beran's adopted definition of metacognition may also be applied here, to understand Ward's work as a means to critically access how a digital medium can tacitly appropriate ways we 'do things intentionally to control [our] beliefs, which routinized minds can't'.[120] As I expand upon below, iPad/Procreate, in its own subsequent remediation of Illustrator, employs sliders in a similar manner to Adobe and so could in principle be subject to similar critical intervention as what Ward achieves. Presently, however, this requires specialist coding skills I do not possess.

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118 Christian Ulrik Andersen and Søren Bro Pold, *The Metainterface: The Art of Platforms, Cities, and Clouds* (Massachusetts: MIT, 2023), 15-20.

119 Ibid. 10.

120 Michael Beran, *Foundations of Metacognition* (Oxford: Oxford University Press, 2012), 280.

Figure 9: Alexei Shulgin's 1998-2013 '386DX' performances.[121]

Compare also Alexei Shulgin's '386DX' performances, using then current but also commonly unapplied digital technology to live perform music (see Figure 9). Encountering Shulgin's work is likewise, I posit, to enact a form of philosophical metacognition. Through Shulgin's at once ergonomically and computationally remediated alternative readings of popular music, we are brought to differently encounter what is a normally affect obscured relation with the interface in hand. iPad/Procreate does not disallow such exploration, although its converse is arguably encouraged more. For instance, through its provision of readymade 'glitch' brushes repositions Shulgin's metacognitive strategy as a mere 'retro' style choice.

[121] Net Art Anthology, "386 DX ALEXEI SHULGIN 1998 - 2013," accessed January 7, 2023, https://anthology.rhizome.org/386-dx.

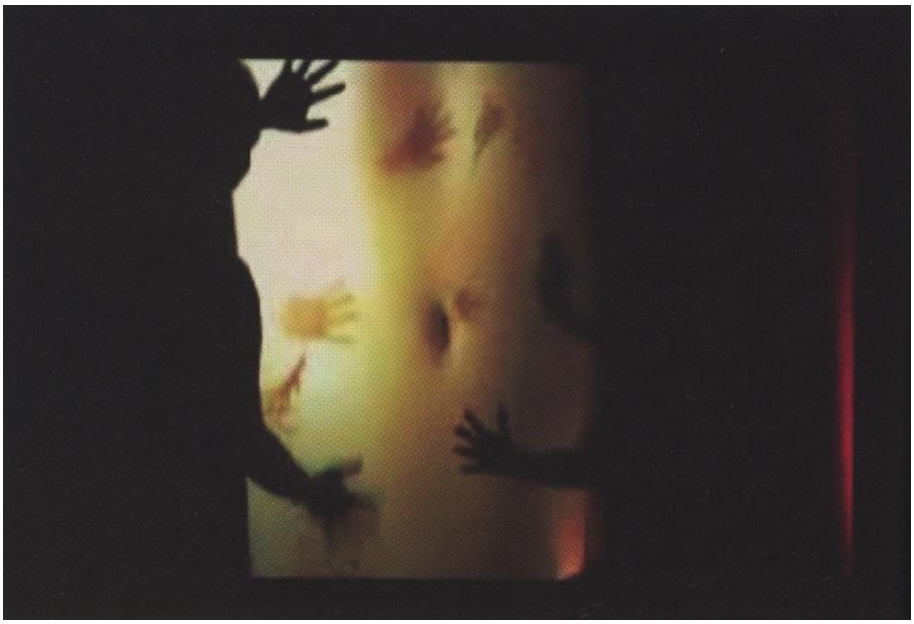

Figure 10: Henry Kaufman's 2010 'The Lightness of Your Touch'.

Additionally, compare iPad/Procreate's everyday functioning with Henry Kaufman's 'The Lightness of Your Touch' (see Figure 10). Here, a material surface of digitised skin records events of human physical touch, thus affording real-time cognition of a normally tacit embodied aspect of cognition.[122] Interacting with Kaufman's work thereby becomes a metacognitive encounter, through their second-person subjective representation, with qualitative moments of body-sense becoming divided and potentially routinised. Kaufman does this by stilling for analysis a normally fleeting moment of sensual relation. This realises a space for, as Merleau Ponty puts it, newly articulating what it is:

> 'to look at the object [and so] to plunge oneself into it... in so far as objects form a system or a world, and in so far as each one treats the others round it as spectators of its hidden aspects and as guarantee of the permanence of those aspects.'[123]

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122 'Henry Kaufman: The Lightness of Your Touch,' *ACMSIGGRAPH art show archives*, accessed January 7, 2023, https://digitalartarchive.siggraph.org/artwork/henry-kaufman-the-lightness-of-your-touch/.

123 Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Colin Smith (London: Routledge, 2002), 79.

Through Kauffman's work, we are thereby brought into encountering our own process of 'mentalising'. This is a fundamental ingredient of cognition, making social interaction possible by triggering:

> 'inferences about another person's mind, enabling prediction and explanation of behavior... empathic processes that promote pro-social behavior... [making] morality relevant... a cognitive process for which we can regulate the levels of engagement depending on context.'[124]

[124] Melissa Jhurry and Lasana Harris, 'Flexible Social Cognition: A Context-Dependent Failure to Mentalize,' *The Neural Basis of Mentalizing,* eds. Kevin N. Ochsner and Michael Gilead (New York: Springer International, 2021), 189 - 206.

Chapter 2: How is using a digital interface given as metacognition?

2.1 Apprehending iPad/Procreate as an affect relation

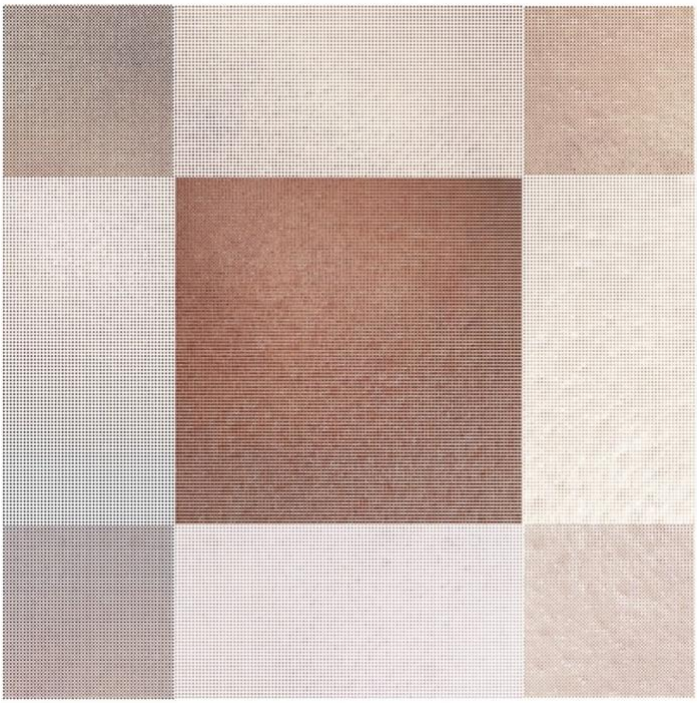

Figure 11: An experiment in using iPad/Procreate to make a body-sensed tracing of its own affect level relations, by executing it just above the level of the iPad's 'retinal' pixels.

Using iPad/Procreate I duplicated a single pixel until evenly spaced juxtaposed pixels covered the screen. This produced a checkerboard grid, over which I 'darkest colour' blended a 264 dpi de-saturated colour macro-photographic image of human skin. I repeated this process, of which product was layered over the first, but shifted one pixel left. This produced a continuous retinal resolution blending of two images, which could be zoomed out from, up to the visual disappearance of individual pixels, as well as zoomed in to until individual pixels reappeared. Repeating this process a further eight times, creating a composition referring to the moment of visible pixelation itself. This became my first practical step toward addressing the aforementioned driving concern of my research: to affect a positionality, for myself and recipients, of phenomenological critical metacognition, focused on apprehending tacitly communicative, 'sub-face' actions of iPad/Procreate's surface interface relation.

2.2 iPad/Procreate as social agent of Surveillance Capitalism

In fairness, for a commercially developed tool like iPad/Procreate, aiming toward facilitating such critical use would be to ignore strong financial pressure to protect its intellectual property by limiting opportunities for tinkering by end users. In juxtaposition to Mulvey's version of a philosophical digital meta-interface, iPad/Procreate instead seems under pressure to serve what sociologist Shoshanna Zuboff called Surveillance Capitalism. That is, to serve the interests of techno-capital, helping exert its social power and control by gathering data toward computation of ever evolving user simulations. In this process, behaviours are recorded, analysed, and inform subsequent representations - becoming ever more predictive, and ultimately prescriptive of human behaviour. Furthermore, complimenting Lacan, for Zuboff users' modelling of self and other, as they are reflected back through the interface device, thereby come to affect *as* representational. Essentially, adding noise or uncertainty to one's sense of identity, positioning one to accept opportunistically posited information to solve the crisis. Overall, this is a process Zuboff terms 'datafication': a pincered and looping apparatus of behavioural information gathering, social representation reflective of this information, affect as representation and so affecting alienation, and offering solutions through the very provision of its service as a social agent. This apparatus manufactures consumer predictability, a commodity with commercial exchange value.[142] Zuboff argues that this constitutes a profound change of economic paradigm, in that it offers for sale a guarantee of predictable commercial outcomes, grounded on a subjectivity that has become at once internal and a unified collection of external information.

2.3 iPad/Procreate as 'big Other' material culture, by means of apotropaic affect

Through Zuboff's algorithmic process, a persistent social aesthetic of abstract, overarching presence akin to Lacan's 'big Other' is metacognitively produced.[143] Lacanian philosopher Slavoj Zizek's thesis of an 'impossible spectator' can be understood to describe a further tacit

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142 Shoshanna Zuboff, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power* (London: Profile, 2019).

143 Cf. 'ZIZ006 The Spectator's Malevolent Neutrality (08.06.2004).' Slavoj Žižek - Collected Recordings (podcast), April 18, 2016. Accessed December 27, 2023, http://zizekpodcast.com/2016/04/18/ziz005-the-spectators-malevolent-neutrality/.

resident affect of Zuboff's process. In his lecture 'The Spectator's Malevolent Neutrality'[144], Zizek essentially describes how doing metacognition is appropriated through material culture communicative of such state and commercial practices - through such media as visual narrative, architecture, and state/religious ritual. Specifically, through the way these media remediate metacognition by inducing specific states of what Lacan termed 'split subjectivity'[145], due to, as in Zuboff's case, meaning being applied to the self-alienating gap between first person subjective experience and its second/third person representation. When first person experience and second/third person representation are indexed in such a way that both affect simultaneously with equal subjective clarity, we are positioned to experience ourselves as 'not observers of reality, but... instead part of the tableaux for [a] non-existing gaze.'[146] When this presence is signified as in line with particular power interests, by material culture and practices appearing to guiltily recognise its presence, we are individually and collectively positioned to align our own practices accordingly, consolidating and amplifying the affect. For instance, late capitalist practices of consumption reproduce this, according to Zizek, by appearing to not merely permit but command our enjoyment of them, while also holding any enjoyment surplus to this command under suspicion. Zizek here uses the example of a chocolate flavoured laxative, that encourages enjoyment of its consumption, but having too much invites disaster.

144 Ibid.
145 Ibid.
146 Ibid.

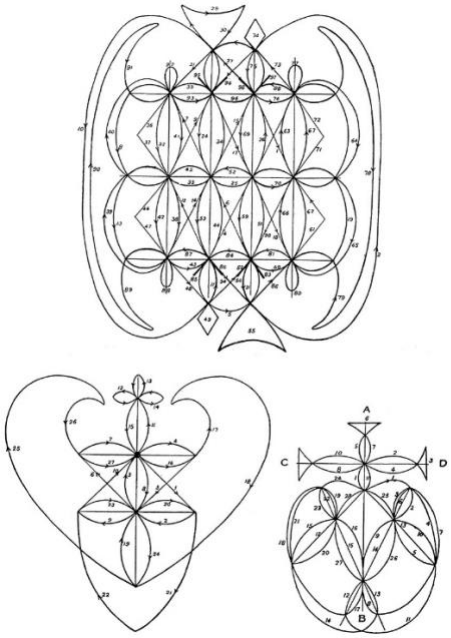

Figure 12: Folk-historical apotropaic patterns, as cited by Gell.

Applying a grid schema from anthropologist Alfred Gell, we may vicariously trace, in the iPad/Procreate interface relation, the metacognitive affects described by Zuboff and Zizek. This additionally places iPad/Procreate in the role of material cultural social agent. Gell argues that in social relation, in the presence of each other humans and material culture act in variously balanced roles between agent and patient. As bodily presences, and through our material culture, we compete for social power and control. Such power is evidenced when appearing to be the originator of concurrent change in another.[147] Accordingly, for Gell the primary instance of artistic agency, the means of appearing as a visibly change-originating presence via a material cultural medium, is the 'apotropaic' pattern (see Figure 12). Examples of apotropaic grid forms are found across cultures and history as material traces of ritualistic spiritual and magical protective practices. Examples include stone carvings placed at the entrance to homes. It is reasoned that these are intended to function as 'demon traps, in effect, demonic flypaper, in which demons become hopelessly stuck, and are thus rendered harmless'.[148] Specifically, an apotropaic composition, as described by Gell, is one that holds attention by means of a complex self-referentiality. It is balanced between promising to resolve into a cognitively unified object,

147 Alfred Gell, *Art and Agency: An Anthropological Theory* (London: Clarendon Press,1998), 17.
148 Ibid.

and terminally postponing this. As Gell puts it, an apotropaic composition thereby executes a set of affects that are ‘reciprocal of the agency exercised by the recipient in (attempting) to perceive’ it.[149] As such, the recipient becomes terminally engaged in trying to relieve their cognitively dissonant, subjectively traumatic feeling of tense fusion which is carried through by engaging with the pattern. In a sense, becoming engaged by an apotropaic pattern is to become addicted to the pattern as object's tension with its own qualities. This functions as a 'hook', comprised of a ‘three body problem’ that is:

i) like a Kantian 'sublime' natural phenomenon, making itself ‘difficult to think’.
ii) like Martin Heidegger’s encounter with broken equipment, making itself ‘difficult to transact’.
iii) like a fine artwork, making itself ‘difficult to make’.[150]

Given such difficulties, in aiming to execute apotropaic tension one can easily overstep this aesthetic balance. In these moments, a recipient can become positioned toward encountering the apotropaic affect’s means of production as such. That is to say, a recipient enters into a metacognitive moment, breaking the addictive spell while simultaneously remaining bewitched by it. Gell articulates this apotropaic 'spell' as ‘contextual inertia’, or embeddedness in a socially predominant system of 'abduction'. Abduction is an algorithm uniting correlation to causation underlying human cognition, that I will come to discuss in more detail.[151] Gell’s use of the term ‘social’ compliments Bruno Latour’s, whereby power interests are understood to compete in wielding influence over which methods society takes on to maintain itself as such.

149 Ibid. 83.
150 Ibid. 23.
151 Ibid.

Figure 13: Gell's example of an ancestral 'fractal god' embodiment of apotropaic engagement.

Like Latour, Gell understands individual agency as necessarily functioning in relation, as opposed to as a discrete entity. Accordingly, through the example of an ancestral 'fractal god' sculpture, Gell theorises that:

> '[T]his image of a 'singular' divinity [see Figure 13] represents divinity as an assemblage of relations between (literally) homunculi. In so doing… [it] obviates the contrast between one and many, and also between inner and outer.'[152]

For Gell, as for Zizek and Zuboff, the affect of a material cultural presence like Figure 13 (above) is one of balanced contrasting between singular and plural, inside and outside. A contrast that is carried through body-sense, as our:

[152] Ibid. 139-141.

'general medium for having a world... not, like that of external objects or like that of 'spatial sensations', a spatiality of position, but a spatiality of situation... the situation of the body in face of its tasks... the darkness needed in the theatre to show up the performance.'[153]

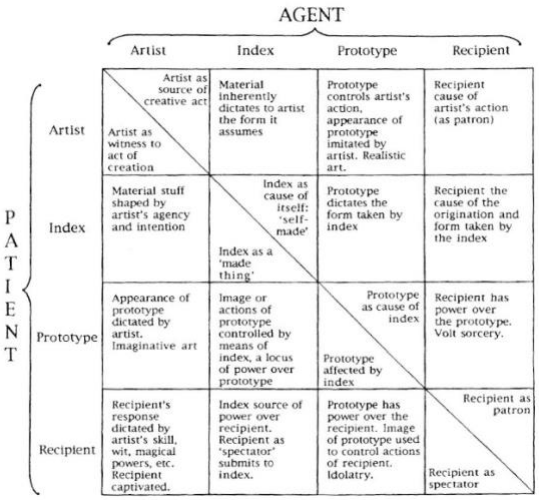

Figure 14: Gell's 'Art Nexus'.

It is by such means that, for Gell, material culture performs a social aesthetic of artist, index, prototype, and recipient relations. Specifically, competing to collectively and/or individually appear as the originator of proximate change in another, positioning as that which 'acts upon' or is 'acted upon'.[154] By these means an overall 'contextual inertia', a common social aesthetic medium for doing metacognition, is won - through which competitors' instrumental priorities are appropriated.

153 Maurice Merleau-Ponty, 'The Phenomenology of Perception,' *Maurice Merleau-Ponty: Basic Writings*, ed. Thomas Baldwin (Milton Park: Taylor & Francis, 2004), 104.

154 Ibid.

2.4 Media as ‘massage’

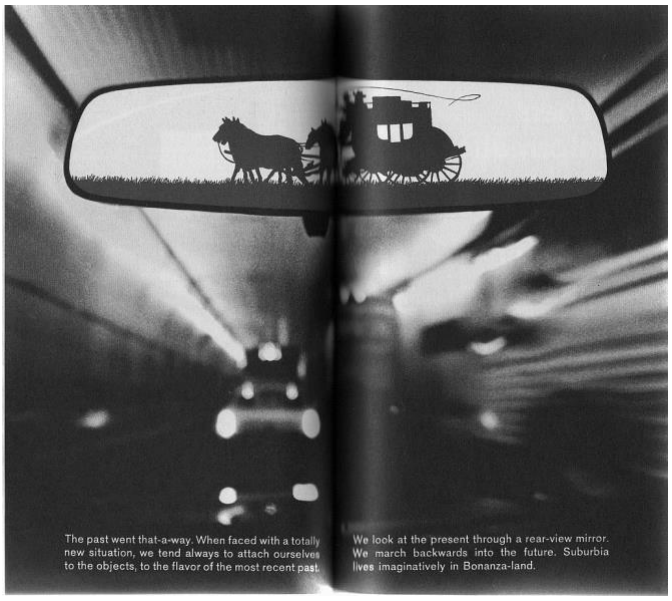

Figure 15: A page from Marshall McLuhan and Quentin Fiore’s ‘The Medium is the Massage’.[155]

Seminal media philosopher Marshall McLuhan posits from a similarly social semiotic and aesthetic based position to Gell. In 1967, McLuhan sought to address a contemporary situation of rapid and tumultuous societal change brought on by mainstream growth of ‘electric’ media (television, telephone, and satellite news). In partnership with graphic designer Quentin Fiore, McLuhan tested his theoretical ideas by applying them to intervene in this situation as he saw it, through the legacy medium of an ink and paper codex book. This attempt, establishing praxis for countless attempts since, consisted in applying the well habituated affects of the older codex book medium as a theoretical framework for understanding newer ‘electric’ media. Produced was a book of still-photographic collage with superimposed text (see Figure 15). This example of practice-led research was grounded on McLuhan’s understanding of media as functioning ‘hot’ and ‘cool’. When ‘cool’, according to McLuhan, media translates ‘a meagre amount of information’[156] by spreading it across multiple senses. This necessitates actively patching in further information, for a meaning to emerge. In McLuhan’s media situation, the coolest medium would be traditional physical books. In contrast, a ‘hot’ medium ‘extends one single sense in

155 Marshall McLuhan and Quentin Fiore, *The Medium is the Massage, An Inventory of Effects* (Hamburg: Gingko Press, 2005).

156 Ibid.

high definition'[157], making it 'well filled with data'.[158] This minimises room for individualised interpretation of meaning. For McLuhan, this would be a medium such as television.

Additionally, McLuhan argued, older people tend toward using newer media in line with a lifetime of cognitive habits and internalised models of social reality, built up by doing metacognition through the aforementioned pre-conscious social aesthetic of now legacy media. That is, by having consistently made affective behavioural decisions based upon how a now shifted material cultural context informed and afforded their own and others' behaviours. In short, people who have lived longer will tend to handle both extant and newer media's affects closer to as if it were the actual represented thing.[159] Consequently, these now inappropriately habituated users tend to instinctually do 'today's job with yesterday's tools - with yesterday's concepts'[160], misapplying their 'forms of knowing'.[161] Conversely, less habituated younger people tend to handle 'instinctively… the present environment – the electronic drama... as interfaces'.[162] That is to say, they handle media per se, and especially newer media, ironically - as representation and not the thing itself.

Accordingly, in 1999 the media theorists Jay David Bolter and Richard Grusin set out to more precisely understand how McLuhan's thesis applied to what was then new, digitally networked media. For Bolter and Grusin, the key concept grounding McLuhan's thesis is that the content of a medium is seen as nothing other than another medium. Developing this, Bolter *et al* begin from the position that the oldest media are our biological sense perceptions. Accordingly, the core instinctual reason we attend to using subsequent technological media is that they seem to match qualities of our biological sensual media. The 'seem' conditional here is important here, because while it follows that technological media thereby evolves to function in place of sense perception, they do so by competing with each other to affectively prioritise human attention, by

157 Ibid.
158 Ibid.
159 Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York: McGraw Hill, 1964), 23.
160 Ibid.
161 Ibid.
162 Marshall McLuhan and Quentin Fiore, *The Medium is the Massage An Inventory of Effects* (Hamburg: Gingko Press, 2005), 9.

not only borrowing from biological media but also from other technological media. A result is that technological media compete to most affectively position the content of other media *as* representation. Bolter *et al* call this process 'remediation', through which media competes to position itself as delivering relatively more transparent access to a reality as such. In this way, developing McLuhan's thesis, for Bolter *et al* media function:

> 'between us and our perception of the everyday world... redefine or construct reality itself... [with] a representation of the world that we implicitly compare to our experience of the world in itself and through other media.'[163]

2.5 Digital remediation as metacognitive affect apparatus

Across their books, Bolter *et al* identify and expand on different forms of remediation. However, the medium of digital hypertext stands out as a special form for my thesis - in that its material, social, and semiotic functioning are, in principle, able to critically remediate each other to produce a positionality akin to Noe's aforementioned 'strange tool'. Applying words of Gilles Deleuze and Felix Guattari, as well as concepts found in Gell *et al,* a hypertext medium can facilitate users to encounter the contextual inertia of their metacognition as such, as a tension whereby the:

> 'tree imposes the verb 'to be,' but the fabric of the rhizome is the conjunction, 'and… and... and…' This conjunction carries enough force to shake and uproot the verb 'to be'.'[164]

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163 Jay David Bolter, Maria Engberg, and Blair MacIntyre, *Reality Media: Augmented and Virtual Reality* (Massachusetts: MIT, 2021), xxiv.

164 Gilles Deleuze and Felix Guattari, *Capitalism and Schizophrenia: A Thousand Plateaus* (London: Bloomsbury Academic, 2004), 27.

We can thereby encounter an in-hand medium as functioning with:

> ‘no beginning or end... always in the middle, between things, interbeing, intermezzo... [While the] tree is filiation... the rhizome is alliance, uniquely alliance.’[165]

In this way ‘structure becomes a permanent feature of the text’.[166] It allows writer and reader to categorise, re-organise, add, and delete media affects on the fly, informing an ongoing model of this practice itself. Accordingly, through hypertext we are afforded access to:

> ‘from the writer’s point of view a network of verbal elements and from the reader’s point of view a texture of possible readings... [permitting] the reader to share in the dynamic processes of writing. The text is realized by the reader in the act of reading.’[167]

This 'strange tool' sounding function of hypertext works differently depending on the materiality of its substrate medium. For instance, the codex book footnote is a form of hypertext. While it remediates the main text as usually more terse and unobtrusive asides, this remediation is limited by the fixed materiality of physical paper. This is a limitation that infinitely reproducible and connective digital hypertext does not have. It is therefore in its digital form that hypertext has been posited as offering an optimal 'strange tool'-like functionality. This finds support in a position of aforementioned philosopher of media aesthetics Laura Mulvey. Mulvey articulates hypertextual functioning as exemplified in the digital remediation of analogue photographic and film/video. Although, for Mulvey, the analogue photographic image has, in fact, always pushed:

> ‘language and its ability to articulate time to the limits of its possibility [since it] is the mechanical and indexical nature of the image that leads to the slippage of language demanded by a past that persists into the present.’[168]

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165 Ibid.

166 Jay David Bolter, *Writing Space: Computers, Hypertext, and the Remediation of Print* (Abingdon: Taylor & Francis, 2001).

167 Ibid.

168 Laura Mulvey, *Death 24x a Second: Stillness and the Moving Image* (Edinburgh: Reaktion Books), 58.

Contra-Mulvey, while it may remain the case that we can radically trace out universal symptoms of our shared human condition, by essentially refracting our first-person subjective position through the branching structure of digital hypertext, this does not preclude digital hypertext from tacitly imposing its own ontologies. Namely, by presenting what seems an open arena of choice that, while highly complex and/or rapid, amounts in fact to a select decision tree of binary divisions. Certain ways of doing metacognition can be imposed:

> 'in the midst of inbetween-ness: in the capacities to act and be acted upon... [a] state of relation as well as the passage (and the duration of passage) of forces or intensities... That pass body to body... Resonances that circulate about, between, and sometimes stick to bodies and worlds, and in the very passages or variations between these intensities and resonances themselves.'[169]

2.6 Affect Theory

This lattermost concern is derived from the field of Affect Theory. Here, affects are changes that subsist 'beneath, alongside, or generally other than conscious knowing'.[170] This is not to be misunderstood as simply a replacement term for emotion, but more properly as denoting a nebulous but patternable dynamic:

> 'insisting beyond emotion… proof of a body's never less than ongoing immersion in and among the world's obstinacies and rhythms, its refusals as much as its invitations.'[171]

This role of liminal states, resident to the pre-conscious level of subjective body-sense, has already been covered when considering positions of agent and patient, as described by Gell et al. Like Gell, applying an understanding of affect using Charles Sanders Pierce's semiotic terms, affect theorist Brian Massumi sets out to describe some fine-grained structures of affect. For

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169 Gregory J. Seigworth and Melissa Gregg, "An Inventory of Shimmers," in *The Affect Theory Reader*, eds. Gregory J. Seigworth and Melissa Gregg (Durham: Duke University, 2010), 1.

170 Ibid.

171 Ibid.

instance, when the Sign as Index awakens the body 'as in a sudden and unexpected alarm sound'.[172] The body initially reacts to counter this impetus with resistance but does not yet determine who/what is agent or patient in this unfolding relation. In this indeterminate position, of their being 'no boundary yet between the body and its environment, or between the two of them and the correlated sign',[173] the correlated sign can thereby be pointed as if having determinate meaning. That is, as an indexed name, statement, or narrative - carried specifically through a common framework of 'synchrony of facial expressions, vocalizations, postures and movements with those of another person'.[174] Here, through mimicry producing tendencies moving recipients toward emotional convergence and thereby social bonds, determinate meaning arises. Accordingly, emotion is defined by Massumi in terms of affect, as:

> 'a selective activation... [drawing from] a "virtual co-presence" of potentials on the basis of memory, experience, thought, and habit... [Organising behaviours] into an ongoing and more or less flexible process patterned by affect, that facilitates a relatively high degree of cohesion and a sense of continuity in time.'[175]

Likewise, Anna Gibbs quotes psycho-biologist Vittorio Gallese as identifying that the process of 'mimesis' or contagious mimicry:

> 'may be the earliest form of knowledge of both self and other... [An] 'embodied simulation' made possible by the operation of the mirror neuron system... When we watch someone performing an action, the mirror system in human beings evokes both the 'sensory description' of the stimuli and the motor schema of the action itself... in the immediacy of what passes between bodies... essentially asubjective even though it plays a crucial role in the formation of subjectivity.'[176]

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172 Brian Massumi, 'The Future Birth of the Affective Fact,' in Ibid. 64.
173 Ibid.
174 Anna Gibbs, 'Sympathy, Symphony, and Mimetic Communication,' in Ibid. 186.
175 Ibid, 196.
176 Ibid, 196.

Prior to Gallese *et al*, the philosopher Maurice Merleau-Ponty described our experience of first-person subjectivity in terms of bodies being:

> 'the vehicle of being in the world... having a body is, for a living creature, to be intervolved in a definite environment, to identify oneself with certain projects and be continually committed to them... Personal existence is intermittent and when this tide turns and recedes, decision can henceforth endow my life with only an artificially induced significance.'[177]

Thus, as Merleau-Ponty further described:

> ''grasping' or 'touching', even for the body, is different from 'pointing'. From the outset the grasping movement is magically at its completion; it can begin only by anticipating its end, since to disallow taking hold is sufficient to inhibit the action... bodily space may be given to me in an intention to take hold without being given in an intention to know.'[178]

2.7 Digital interface as a face

Accepting these premises of affect theory, in line with the discussed concept of the digital interface as a metacognitive remixing of older media, the digital interface can be further understood as a site of affect contagion. That is, a surface somewhat akin to a human face, through which is communicated a 'mimetic impulse in response to the facial expression of observers, tending then to elicit the same affect in them'.[179] Resonating back and forth, in a similar way to:

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177 Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Colin Smith (London: Routledge, 2002), 94.

178 Maurice Merleau-Ponty, 'The Phenomenology of Perception,' *Maurice Merleau-Ponty: Basic Writings*, ed. Thomas Baldwin (Milton Park: Taylor & Francis, 2004), 107.

179 Anna Gibbs, in *Aesthetics and the Embodied Mind: Beyond Art Theory and the Cartesian Mind-Body Dichotomy*, ed. Alfonsina Scarinzi (Heidelberg: Springer Netherlands, 2014), 321, 205..

> ‘one’s own smile [providing] sufficient feedback to our own bodies to activate the physiological and neurological aspects of joy... feelings that mobilize the body’s capacity for synesthesia.’[180]

Accepting this functional analogy, the faciality of an interface will take place outside awareness in:

> ‘the immediacy of what passes between bodies and which subtends cognitively mediated representation, which it does not ever entirely replace or supersede... [being] essentially asubjective even though it plays a crucial role in the formation of subjectivity.’[181]

In this light, metacognition is additionally definable as, using the words of Merleau Ponty:

> ‘not a matter of ‘I think that’ but of ‘I can’... when the body has understood it, that is, when it has incorporated it into its ‘world’, and to move one’s body is to aim at things through it; it is to allow oneself to respond to their call, which is made upon it independently of any representation.’[182]

This is to the extent that:

> ‘there would be no space at all for me if I had no body... bodily space and external space form a practical system, the first being the background against which the object as the goal of our action may stand out or the void in front of which it may come to light, it is clearly in action that the spatiality of our body is brought into being.’[183]

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180 Ibid.
181 Ibid, 206.
182 Maurice Merleau-Ponty, *Maurice Merleau-Ponty: Basic Writings*, ed. Thomas Baldwin (Milton Park: Taylor & Francis, 2004), 123.
183 Ibid. 106.

2.8 Ontological division of physical from mental, after Rene Descartes

Contextualising the iPad/Procreate interface relation in this way, however, now somewhat runs against what has been western academic philosophy's methodological grounding. From Rene Descartes, there has been an assumed division of physical from mental, body from mind, feeling from thinking, doing from imagining. Out of this came two further, somewhat mutually porous philosophical traditions: after Rene Descartes, and after Friedrich Nietzsche.

In Immanuel Kant's philosophy of aesthetics, when we encounter something exceeding the capacity of reason to contain it, we thereby encounter ourselves as a perceptually limited being. This exposure subjectively presents as an at once fearful and pleasurable tension, between mentally apprehending subjectivity as a fused or unified objectivity, while also having this process of apprehension physically overwhelmed. This notion of a 'Sublime' encounter, revisited later in Gell's aforementioned apotropaic patterning and Lacan's mirror stage, is marked by an at once both moving toward and away from resolution of a 'thing in itself'. In Kant's words, the Sublime experience:

> 'presupposes both that the mind is receptive to ideas and that the imagination strains to treat nature as a schema... [it] both repels our sensibility and yet attracts us at the same time, because it is a dominance… [whereby] reason exerts over sensibility only for the sake of expanding it commensurately with reason's own domain... [while also] letting it look outward toward the infinite, which for sensibility is an abyss.'[184]

For Kant, this tracing can be 'mathematical', a consequence of something's sheer size, where reason is thereby given vicarious access to the absolute totality or self-referential complexity of Nature. For Kant this tracing can also be 'dynamical', when reason skirts a state of 'absolute freedom', or infinite regress due to necessarily incomplete external sources of self-reference.[185]

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184 Immanuel Kant, *Critique of Judgement*, trans. Werner S. Pluhar (Indianapolis: Hackett, 1987), 124.
185 Ibid.

Thus, in Kant, there arguably begins to be expressed in philosophical metacognition the notion of fundamental reality as fractal. However, stopping short of this concept, not to be expressed as such until Benoit Mandelbrot in 1975, there was taken instead to be an insurmountable division between reality and its appearance. As mentioned, Kant critically adapts the earlier philosophy of Rene Descartes. Descartes, himself standing on John Locke's position that contents of perception may only be derived from the senses, demonstrates in his 1637 'Discourse on Method' a means of applying systematic doubt whereby, he argues, certain knowledge may be derived by eliminating everything that is possibly questionable in one's empirical experience. Ultimately, for Descartes this process of elimination leaves only the first-person certainty that one is having an empirical experience in the first place, what he called the *cogito* or 'I think'. Building back from this, Descartes empirically distinguishes a non-spatially extended, mental *cogito* as existing in a fundamentally different way from the spatially extended physical world. While Descartes acknowledged that this *'res cogitans'* and '*res extensa'* must somehow be in relation, other than speculating about the brain's pineal gland as a possible site, he neglected to further address the issue.[186] Nevertheless, onward through Kant, Descartes set the tacit grounding assumptions of academic philosophy, and eventually the wider zeitgeist way of doing metacognition for nearly four hundred years. In 1781, Kant also attempted to address whether and how '*res cogitans*' and '*res extensa*' interact. He concluded that these interact only in the sense that certain 'Categories' of the latter are evidenced as necessary for the former to happen. Accordingly, stable patterns of absence ('*noumena*') are derivable from aggregates of empirical experience ('*phenomena*'). We are fundamentally embedded in a world of 'things as they appear to be', with only vicarious albeit necessary tracings of 'things as they really are'.[187]

True to academic philosophical discourse, Kant enjoyed criticism from many angles. Notably, in 1807 Wilhelm Hegel factored in temporal processes of materiality and technology to the formation of Kant's Categories. To paraphrase: things as they appear to be, Hegel posited, must in practice become progressively more identical with things as they are in themselves, as our tools and habitats become more efficient and useful through interaction with the material world. As Hegel put it: Judgement is a spatio-temporally developing relation between 'Knowledge'

[186] Rene Descartes, *The Passions of the Soul*, trans. S. H. Voss (Indianapolis: Hackett, 1989), 36.
[187] Ibid.

(*Idee*) and 'Essence' (*Geist*).[188] This amounts to an historical process of 'Objectification', whereby information garnered from the senses is shaped and made possible by the Categories,[189] enabling shaping of the material world, which itself shapes sensual information, and so on. This constitutes a driving paradox or 'Antinomy' we must practically engage in:

i) that the world *is not* built by us. It is necessarily 'how things are'. To the extent that, for Hegel, the overall teleology (goal orientation) of human history seems to be a moving toward the absolute material and perceptual expression of the Categories. But equally also,

ii) the world *is* built by us. It could have been different. To the extent that there is an absolute division between things in themselves, and as they appear.

Hegel places this paradox as the drive for reason uniting with a pseudo-divine 'Absolute Reality', something Hegel associated with a perfect nation state. Hegel named this cosmic-historical, necessary driving paradox the 'Dialectic', where a thesis and its antithesis synthesise a new thesis. This new thesis, likewise, then stands against its antithesis - and so the process continues.[190] In short, according to Hegel and developed later by Soren Kierkegaard, we must continually make the impossible but practically necessary decision entailed in the idea that in 'his tools man possesses power over external nature, even though in respect of his ends he is, on the contrary, subject to it'. [191]

Critically feeding back into this tradition, Edmund Husserl later sought to re-ground philosophy as an:

> 'intersection between mind and world, neither of which can be understood in separation from each other… the world understood as the fundamental context of meaning.'[192]

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188 Friedrich Hegel, *The Science of Logic (1816)*. https://www.marxists.org/reference/archive/hegel/works/hl/hlteleol.htm.

189 Immanuel Kant. *Critique of Pure Reason,* trans. Norman Kemp Smith (London: Macmillan, 1991), 100.

190 (Hegel, 1816)

191 Ibid.

192 Dan Zahavi, *Phenomenology: The Basics* (London: Routledge, 2018), 30.

As Kant's tradition came to be expressed through technology and science of the early twentieth century it had, for Husserl, instrumentalised an overly reductionist and so alienating way of thinking about thinking. Nevertheless, for Husserl the fundamental quality of one's first-person subjective existence remained its 'orienting toward some object other than itself'[193], or the quality and practice of 'intentionality'.[194] In doing so, Husserl has been criticised as immediately re-introducing the alienation he sought to mitigate. Like Kant, to empirically investigate first-person subjectivity Husserl posited steps toward bringing it to bear analytically on itself, which tacitly draws a division between itself and objects 'other than itself', smuggling back in Descartes' hard division between physical and mental. Applying Husserl, Martin Heidegger also carries over this tacit position, describing his methodology as seeking 'that which shows itself to be seen from itself in the very way in which it shows itself from itself'.[195] Accordingly, Heidegger applies Husserl's phenomenological philosophical method,[196] whereby:

i, 'Epoché') The 'natural attitude' of treating sensory content as representing things in the external world is actively disregarded or 'bracketed out'. Entering into a process of…

ii, 'Transcendental Reduction') Attention gradually focuses on itself as a thing in its own right, by passively but observantly allowing sensory content to gather and lose coherence, to shift between immanence and withdrawal, or immediacy and inter-mediacy. Facilitating a process of…

iii, 'Eidetic Variation') Identifying what aspects are necessary, and discarding what proves accidental by imagining the sensory qualities as different than they are; by recombining them in different ways and noting whether or not the apparent kind of object it is changes as a result. Thus, feeding information back into step (i).

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193 Edmund Husserl, *Ideas: General Introduction to Pure Phenomenology*. (London: Routledge, 2012), 170.

194 Ibid.

195 Martin Heidegger, *Being and Time*, trans. John Macquarrie & Edward Robinson (Oxford: Blackwell, 2001), 60.

196 (Husserl, 2012), 32.

Using this method from Husserl, Heidegger sought to rigorously encounter, at the most simple and universal level, what it means to exist as a first-person subjective, intentional human being. According to Heidegger, intentionality is most simply encounterable in its own most phenomenal form when one is wielding tools, equipment or technologies. Intentionality, as Heidegger methodically reasons, is first-person subjectively identical with a complete absorption in the business of existing. This is expressed by Heidegger as 'being-there' ('*Dasein*').[197] According to Heidegger, Dasein is a uniquely human manner of existing because, unlike the tools one wields, it is its 'own concern'. As such, 'being-there' is necessarily also 'being-with-others', which itself is 'being-in-the-world', which is always 'being-in-time' or in 'a future which makes present in the process of having been'. Thus:

> '"Every questioning is a seeking. Every seeking takes its direction beforehand from what is sought.' But also [h]igher than actuality stands possibility", and death is the "possibility of impossibility".'[198]

In this way, while this structure of Dasein is revealed through handling of equipment or tools, it does not follow that Dasein ever becomes completely identical with these things.[199] Dasein, as Lacan and Kant also more or less posit about human being, must continually act to realise itself, amid this division of itself in intentionality. It is forever trying to objectify itself as itself, both due to and despite its orienting toward that which is external to itself. Ultimately then, for Heidegger Dasein is 'being-towards-death'[200] - the ultimate horizon against which Dasein, as being in time, exists. Accordingly, complimenting Hegel, for Heidegger when using a tool toward a task and the task is going smoothly, the tool is not apprehended as something in its own right. It is only lived as a given reality, insofar as it is serving the task in hand. Closely, but not quite completely expressing a fractal relation, Heidegger's tool never affects as an object in its own right, withdrawing behind the aforementioned continual process of Dasein becoming an object for itself in the world. In other words, an in-hand tool that is working as it should, is:

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197 Martin Heidegger, *Being and Time*, trans. John Macquarrie & Edward Robinson (Oxford: Blackwell, 2001), 60.
198 Ibid. 435, 275-276.
199 Ibid. 305.
200 Ibid. 297 - 299.

> ‘not grasped theoretically at all, nor is it itself the sort of thing that circumspection takes proximally as a circumspective theme... [because] that with which we concern ourselves primarily is the work - that which is to be produced at the time... [contingent to the] referential totality within which the equipment is encountered along with the work.’[201]

In this way, for Heidegger as for Hegel, the fundamental situation of Dasein is an at once both arbitrary and necessary absurdity, one Heidegger terms 'thrownness’. More specifically, Dasein can only make use of whatever tools are culturally and historically available in this ‘referential totality’, being:

> ‘relations in a pre-liminary disclosure... as that within which its reference moves... We shall call the relational character of these referential relations *sig-nifying*... [in which] Da-sein 'signifies' to itself. It primordially gives itself to understand its being and potentiality-of-being with regard to its being-in-the-world. The for-the-sake-of- which signifies an in-order-to, the in-order-to signifies a what-for, the what-for signifies a what-in of letting something be relevant, and the latter a what-with of relevance. These relations are interlocked among themselves as a primordial totality... constitutes the structure of the world, of that in which Da-sein as such always already is.’[202]

2.9 Ontological reuniting of physical and mental, after Friedrich Nietzsche

A tradition that intersects with Kant’s, albeit one also following its own paths, finds expression in an 1887 aphorism by Friedrich Nietzsche, positing that:

> ‘“disinterested contemplation”... is a non-concept and absurdity... [Rather, it is] the capacity to have one’s Pro and Contra in one’s power, and to shift them in and out, so

[201] Ibid. 99.
[202] Martin Heidegger, *Being and Time*, trans. Joan Stambaugh (New York: NYU, 1996), 81.

> that one knows how to make precisely the difference in perspectives and affective interpretations useful for knowledge.'[203]

Expressing this 'perspectivist' theory of existence and knowledge to a cosmic limit, Nietzsche also wrote:

> 'In some remote corner of the universe, flickering in the light of the countless solar systems into which it had been poured, there was once a planet on which clever animals invented cognition... After nature had drawn just a few more breaths the planet froze and the clever animals had to die... this intellect has no further mission that might extend beyond the bounds of human life. Rather, the intellect is human, and only its own possessor and progenitor regards it with such pathos…'[204]

From a similar basis, Alfred North Whitehead wrote in 1920 about his opposition to what he termed the 'Kantian mistake' of asking:

> 'how concrete particular fact can be built up out of universals...[when the] true philosophic question is, How can concrete fact exhibit entities abstract from itself and yet participated in by its own nature?'[205]

In doing so, like Nietzsche and contra-Kant, Whitehead participated in a shift away from assuming Aristotelian 'Substance' as a grounding principle of philosophical enquiry, namely in terms of unchanging elements composing judgement. Instead, Whitehead stood closer to 'mutual causality' based Eastern traditions. For Whitehead, Judgement instead arose relativistically from variably stable patterns of change. Consequently, Whitehead identified phenomenology as identical with a nexus, of a process whereby actors instantiate Judgment in relation with other

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203 Friedrich Nietzsche, *On the Genealogy of Morality*, trans. Maudemarie Clark and Alan J. Swensen (Indianapolis: Hackett, 1998), 85.

204 Friedrich Nietzsche, 'On Truth and Lies in a Non-moral Sense,' in *Nietzsche: The Birth of Tragedy and Other Writings*, trans. Raymond Geuss (Cambridge: Cambridge University Press, 1999), 141.

205 Quoted in: Steven Shaviro, *The Universe of Things: On Speculative Realism*, (Minneapolis: University of Minnesota Press, 2014), 20.

actors. In applying Whitehead as a philosophically seminal alternative to Kant and Heidegger, Steven Shaviro posits that it 'is only when our [physical and mental] experience has been sundered in two that we could ever think of the need for a correlational structure in order to put it back together again.'[206] In doing so, Shaviro ties together a range of contemporary contra-'correlationist' philosophical standpoints, which have recently been placed under the banner of Speculative Realism. These range from Karen Barad's quantum physics based Agential Realism (physical and mental events cause each other), to Epiphenomenalism (physical events cause mental events, but not vice versa), to Graham Harman's Object Oriented Ontology (physical and mental events cause each other, beside a third forever non-event). Shaviro, like Harman, acknowledges that outside our phenomenological 'things as they appear to be' relation there may indeed be what Quentin Meillassoux called a 'great out-doors, the eternal in-itself, whose being is indifferent to whether or not it is thought.'[207] However, more like Barad and the above discussion around Gell's apotropaic patterns, Shaviro also posits that this 'great outdoors', through its very inviting of speculation across equally causal physical or mental substrates, can be aesthetically discerned. In doing so, Shaviro seeks to find an alternative philosophical root to Heidegger, who he explains threatens to tacitly draw one down the 'correlationist loop' of assuming the physical to be purely dumb material, having no own most agency beyond what human mentality lends it. This, for Shaviro, has been 'a key assumption of modern Western rationality'.[208] However, closer to Nietzsche and especially Whitehead, Shaviro like Barad and in contention with Harman argues that what is most fundamental to reality is its being the causally connected *product* of 'practices or performances of representing, as well as on the productive effects of those practices'.[209]

Karen Barad grounds her position in physicist Neils Bohr's interpretation of the quantum physics double-slit experiment, showing collapse of a photonic wave function under observation. For Barad, the important connotation of this is that, before interaction, there is fundamentally nothing inherently separate from any other thing, only absolute relation. For Barad, as with Seigert *et al*,

206 Ibid. 65.
207 Ibid.
208 Ibid. 14.
209 Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham: Duke University Press, 2007), 28.

the double-slit experiment connotes that in order for there to be any exchange of information amid this absolute relativity, temporary separations or 'agential cuts' must be enacted. These are events of temporary differentiation between agent and/or patient positioned entities. It follows that, as with Flusser, we therefore have an ethical responsibility to scrutinise each position we take as a 'methodology of reflexivity [that] mirrors the geometrical optics of reflection… caught up in geometries of sameness'.[210] We can do this, Barad specifies, through methodologies of diffraction, or being attuned to:

> 'differences that our knowledge-making practices make and the effects they have on the world... to the relational nature of difference; [this] ...does not figure difference as either a matter of essence or as inconsequential: [and] ...does not map where differences appear, but rather maps where the effects of differences appear.'[211]

In this way, Barad re-applies Kant's ontological division as an ethics of bringing into determinate existence:

> 'disjunct domains of words and things... [in which] the knowing subject is enmeshed in a thick web of representations such that the mind cannot see its way to objects that are now forever out of reach and all that is visible is the sticky problem of humanity's own captivity within language... caught in the impossibility of stepping outward from its metaphysical starting place.'[212]

For Barad, physical reality is exhaustively a process of continual and mutually causal becoming. That is, of quantum indeterminacy collapsing under representation, and vice versa. Therefore, to bound this becoming within a final 'real' is, by Barad's thinking, at once both scientifically problematic and ethically violent. Barad argues that the Kantian tradition and Harman are guilty of such needlessly premature 'mirroring and sameness'[213]. The notion of a 'great outdoors' is, Barad's position implies, untrue to basic quantum physical materialism, and furthermore has

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210 Ibid. 72.
211 Ibid.
212 Ibid. 137.
213 Ibid.

been instrumental in the social reproduction of historical, patriarchal, colonialist, cis-gendered, racist economies of representational meaning. Put most straightforwardly, reality down to its most concrete material ground could have been, and could still be, different. It is therefore profoundly ethically important to explore ways of affording:

> 'patterns of difference… [in] the entanglement of the apparatuses of production... reading insights through one another in ways that help illuminate differences as they emerge, how different differences get made, what gets excluded, and how those exclusions matter.'[214]

Likewise, for Harman there must always be some surplus left over from which things can differentiate, since otherwise everything would be exhaustively identical to everything else. Instead, for Harman, things only identify each other vicariously, via tracings through subjectively resonant aesthetic tensions, along Hegel's aforementioned dialectical logic. Consequently, akin to Barad's ethical stance:

> 'philosophy is unworthy of the name, if it attempts to convert objects into the conditions by which they can be known or verified... The real is something that cannot be known, only loved… as tensions between objects and their qualities.'[215]

2.10 Harman's 'Weird Realism'

Upon Harman's ontology, Ian Bogost posits that it should therefore be the aim of a practice-led philosopher to:

> 'amplify the black noise of objects to make the resonant frequencies of the stuffs inside them hum in credibly satisfying ways... not a white noise of screeching, chaotic qualities

[214] Ibid. 30.
[215] Graham Harman, "The Third Table," in *The Graham Harman Reader,* eds. Jon Cogburn and Niki Young (Winchester: Zero Books, 2023), 37.

> demanding to be shaped by the human mind, but rather a black noise of muffled objects hovering at the fringes of our attention.'[216]

Toward informing such research, Harman derives an aesthetic schema derived from these aesthetic tensions and their Category correlates. Harman situates these tensions between the 'under-mining' and 'over-mining' of objects, using a parable of Arthur Eddington's to illustrate. Over-mining a table, for instance, would be to treat the way it appears and is used as exhaustively describing the table. On the other hand, under-mining the table would be to treat its atomic structure as an exhaustive description. While Eddington concludes by giving undermining explanatory primacy, Harman posits that both must in fact be non-exhaustive descriptions of the table, as these leave out the:

> 'real table [which] is in fact a third table lying between these two others… distinct from its own components and… [withdrawing] behind all its external effects... deeper than any theoretical or practical encounter with it.'[217]

Harman here adds contentious nuance to what has been termed Kant's 'correlationist' absolute division between phenomena and noumena, by denying its subsequent application to assuming things-in-themselves as inert 'stuff'. Harman especially criticises Heidegger's division of 'ready-to-hand' versus 'presence-at-hand', concluding instead that, in fact '[e]quipment is global; beings are tool beings'.[218] That is, despite all of Heidegger's 'efforts to restrict its scope, his analysis of referentiality ultimately holds good for everything'.[219] For Harman, things exist beyond them being:

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216 Ian Bogost, *Alien Phenomenology, Or, What It's Like to Be A Thing*, (Minnesota: University of Minnesota, 2012), 34.

217 Graham Harman, 'The Third Table,' in dOCUMENTA (13) (Berlin: Hatje Cantz, 2012).

218 Graham Harman, Tool-Being: Heidegger and the Metaphysics of Objects (Chicago: Open Court, 2011), 30.

219 Ibid, 34.

> ‘handy implements employed for human purposes... as they withdraw from human view into a dark subterranean reality that never becomes present to practical action any more than it does to theoretical awareness.’[220]

As affect theorist Nigel Thrift expresses it:

> ‘Objects... On one level, they are... Connection machines, technologies that facilitate imaginary recognitions. But on another level they inhabit a separate existence. Qualities can belong to objects themselves rather than to our consciousness of them; they are not inert targets for our thoughts to animate... Objects must be understood as involved in multiple overlapping negotiations with human being and not just as sets of passive and inanimate properties.’[221]

Upon this ontological position, Harman cites making artwork as a particularly apposite way of doing philosophical metacognition. In doing so, taking Husserl’s phenomenological method beyond Kant’s corelationism; extending Heidegger’s tool-being to Dasein itself. That is, into a universal ontology of which ‘we are it, each of us, we ourselves.’[222] From this extension, Harman elucidates what he calls his Object Oriented Ontology, at one point appropriating what he terms the 'Weird Realist' world of metaphysical horror writer H.P. Lovecraft. Namely, Lovecraft’s signature aesthetics of the uncanny and ineffable, where:

> ‘(1) real objects are locked in impossible tension with the crippled descriptive powers of language, and (2) visible objects display unbearable seismic torsion with their own qualities.’[223]

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220 Ibid, 7.

221 Nigel Thrift, ‘Understanding the Material Practices of Glamour’, in *The Affect Theory Reader*, eds. Melissa Gregg and Gregory Seigworth (Durham: Duke University Press, 2010), 292.

222 Martin Heidegger, in *The Continental Philosophy Reader*, edited by Richard Kearney and Mara Rainwater (London: Routledge, 1996), 36.

223 Graham Harman, *Weird Realism: Lovecraft and Philosophy* (Winchester: Zero Books, 2012), 36.

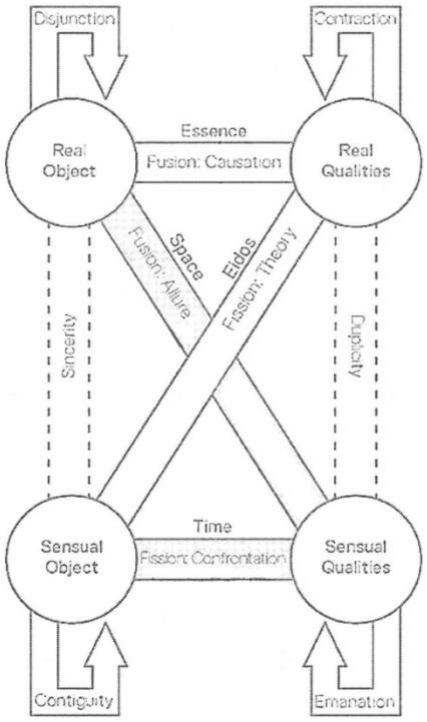

Figure 16: Harman's schema of a fourfold object-oriented aesthetic.

Through Lovecraft, Harman offers a fourfold, tensely fusing object/qualities aesthetic (see Figure 16). Essentially, this is a framework for vicariously tracing what may be encountered from ‘third table’ things in themselves. Here, 'Real' denotes hidden or absent variables in a relation. This corresponds to an asubjective positionality, lacking any subjective quality of 'appearance'. Conversely, 'Sensual' refers to apparent or experientially present variables, or the subjective quality of appearance. 'Object' is a unified or discrete entity, traceable through the event of the subjective reaction. 'Qualities' are change, traceable through the event of subjective description. For Harman, the aesthetic of a Real Object with Real Qualities is:

> ‘most evident in Lovecraft's fiction whenever there is talk of outermost regions of the cosmos ruled by deities or forces so bizarre that an empty proper name is all that that can be used to designate something for which no tangible qualities are available.’[224]

Accordingly, the aesthetic of a Sensual Object with Sensual Qualities is applied by:

[224] Graham Harman, *Weird Realism: Lovecraft and Philosophy*, (Winchester: Zero Books, 2012), 36.

> ‘the 'cubist' tension between sensual or non-hidden objects and their sensual qualities that pile up in disturbing profusion... found in 'The Shadow Over Innsmouth' when the narrator first encounters the repulsive local bus driver.’[225]

By the same schema, description of a Real Object is vicariously traced by Sensual Qualities detectable:

> ‘anytime we run across a passage in Lovecraft that is literally impossible to visualise… reminiscent of Heidegger's tool-analysis.’[226]

Finally, Real Qualities vicariously traced through a Sensual Object ‘occurs in [Lovecraft's] stories whenever scientists enter the scene and have trouble classifying the features of a given object despite all their analytical labour.’[227]

2.11 Harman’s aesthetic schema, and Charles Sanders Peirce

Harman’s aesthetic schema arguably owes much to Charles Sanders Peirce’s categorical dialectics:

a) Of 'Firstness', experienced retroactively through (b) and (c), as a subjective quality of ‘Appearance’.
b) Of 'Secondness', or situation of ‘Property’ and ‘Relation’. The quality of ‘Reaction’.
c) Of 'Thirdness', situation of Property of Firstness, with Relation of Secondness. A quality of ‘Description’ or ‘Observation’.

Like Harman, where Husserl’s philosophical phenomenology focuses on reducing accidental relation in order to facilitate rigor in apprehending universal elements of subjectivity, Peirce here

[225] Ibid. 34.
[226] Ibid.
[227] Ibid. 36.

focuses on producing such relation in order to derive its universal phenomenological structure. In this way, Pierce can be overall understood as offering a social semiotic form of philosophical phenomenology, or what he termed 'Phaneroscopy'. Here, Peirce flips on its head the traditional idea of Descartes' 'cogito' as the elementary ground for veridical experience, instead positing cogito as 'something resulting from mediation itself not susceptible of mediation'[228]. As discussed above, for Peirce this inherently social mediation is specifically signification, amid a network of indexical relations.

2.12 Applying Harman and Peirce as art practice-led research: Onya McCausland

A practical example of a method like this is that of artist Onya McCausland. The ochre-coloured paint in her artwork cited in Figure 17 (see below) is made from earth gathered from five coal mines' water treatment works, which are then applied back into its contingent social contexts. Since 2014, McCausland has extracted iron oxide rich water-waste still present in the landscape around ex-mining sites, to process into ochre coloured pigment. The pigment is then used to make paint. This is applied to make work situated in the pigment's social and industrial context. In this way, using Harman's and Pierce's theoretical terms set out above, McCausland can be understood as vicariously tracing the own most agency of her materials through its social semiotic productivity, bringing herself and recipients to encounter this in the process.

[228] Charles Sanders Peirce, *The Philosophy of Peirce: Selected Writings*, ed. Justus Buchler (Milton Park: Taylor & Francis, 2014), 229.

Figure 17: Two images from Onya McCausland's 'Five Colours Five Landscapes', 2018.

In step by step detail, McCausland's work can be understood as positioning us in to exercising states of:

1) Epoché, or 'bracketing' of the everyday pre-reflective 'orienting toward' of first-person subjectivity. As discussed, Peirce denoted this pre-reflective natural attitude as 'Substance': the instance immediately prior to any minimally experienced quality of 'Firstness', 'appearance', or 'is-ness'; sounding much like Heidegger's discussed flow-state on making use of a well-designed tool. McCausland's work seeks to be an instrument of this natural attitude bracketing process, through application of ochre pigment extracted from waste material that tacitly physically emanates from ex-mining sites. In residents who encounter the work, McCausland thereby seeks to facilitate a…

2) Transcendental Reduction, or reactivity to one's natural attitude as being itself tacitly physically emanating amid its sites. Peirce identifies this reactivity as 'Unity': the instance immediately after 'Firstness', a relation of first-person subjective 'Secondness' or 'that-ness'. This sounds much like Husserl's already discussed 'intentionality'. At the same time, by applying pigment to everyday things of the sites that are tangentially, economically and politically connected to the mining - McCausland facilitates states of...

3) Eidetic Variation, or 'opening of imagination'. Peirce identifies this nascently subjective state as 'Manifold': the liminal relation of 'Thirdness' or 'this-ness'. Such appears similar to Heidegger's aforementioned 'disturbance of reference' upon a tool breaking.

2.13 Commercial 'user-friendly' platforms as anti-philosophy

Converse to such a philosophical use of media, 'user friendly' commercial digital interface platforms have been criticised as seeking to bind users into doing metacognition in ways inherent to legacy media. Furthermore, as development of interface technology seems on course to 'become the body', threatening to all but disappear completely as body sensation itself becomes the main nexus through which information is translated, opportunity to disrupt and thereby critically address such appropriation may permanently accelerate away from us. Facilitating this acceleration is, as discussed in Kant's tradition, the assumption that material in itself has no agency of its own, beyond that given to it through its use for meeting human needs and desires. This is an assumption reproduced through the 'user friendly' interface design paradigm. Namely, its position that the ideal interface should be 'a tool that seamlessly extends the human body [and] seems to subjugate the technological apparatus.'[229] This idea of lessening or even extinguishing the 'gap between human and computer'[230] is, for interface theorist Lori Emerson:

[229] Christian Ulrik Andersen and Soren Bro Pold, *The Metainterface: The Art of Platforms, Cities, and Clouds* (Massachusetts: MIT, 2023), 178.

[230] Lori Emerson, *Reading Writing Interfaces: from the Digital to the Bookbound*, (Minnesota: University of Minnesota, 2014), xi.

> ‘used quite deliberately to distort reality by convincing users that this very particular notion of a user-friendly device - one that depends on and then celebrates the device as entirely closed off both to the user and to any understanding of it via a glossy interface - is the only possible version of the user-friendly… [this] further alienates the user from having access to the underlying workings of the device... [for] creativity, tinkering, and making.’[231]

This is evidenced in treatments of virtual and augmented reality interfaces, such as that of Wired journalist Peter Rubin. Rubin enthusiastically expresses the idea that VR/AR interface technology:

> ‘…isn’t simply a new form of media; it sweeps away the barriers of all previous forms… [by] something called presence… what happens when your brain is so fooled by a virtual experience that it triggers your body to respond as though the experience were real.’[232]

2.14 Interfaces ‘becoming the body’

Giving voice to a popular optimism grounded in powerful technocratic patronage, Rubin goes on to talk about the possibility of harnessing brain plasticity to replace and extend human body-sense capabilities. Meanwhile, through miniaturisation, elimination of latency, and delivery of resolution equal or greater to the human retina, Rubin anticipates that in some cases VR/AR devices will reach the point of disappearing as presences subjectively separate from a recipient. A major step toward this arguably came to pass on 6th July 2022 when, according to some breathless reports, for the first time a fully functional AR contact-lens had been worn and operated by a human being.[233] Emerson, on the other hand, gives an arguably more nuanced definition of the technological interface, as that which ‘mediates relationships between entities

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231 Ibid.

232 Peter Rubin, *Future Presence: How Virtual Reality Is Changing Human Connection, Intimacy, and the Limits of Ordinary Life* (New York: Harper Collins, 2018), 6.

233 Louis Rosenberg, ‘Huge milestone as human subject wears augmented reality contact lens for first time,’ *Big Think,* July 6, 2022, https://bigthink.com/the-future/augmented-reality-ar-milestone-wearable-contacts/.

and the aesthetic objects they produce, as well as the technical machine-based processes that take place below the surface.'[234] Expanding this definition to address corresponding trends across emerging digital interface technology, in 2019 interface theorist Phaedra Shanbaum added to this definition to argue that it 'therefore creates relationships, between viewer/participants, artists and artworks as well as influencing the movements and perceptions of those interacting with it.'[235] How emerging interfaces are being designed for creating relationships and influencing our movements and perception is, Shanbaum argued, by having the interface surface 'become the body'. That is to say, in a near-future 'internet of things', environmentally embedded digital interfaces will likely not commonly function by visually representing objects with shared social meanings, as an iPad touchscreen does today. Instead, the current course of digital interface design seems to aspire toward increasingly minimising the sensed presence of an active surface within the interface relation, treating it as an unfortunate distraction. This moves toward making users' most minimally conscious feelings and gestures reflect from the communication surface, as if between bodies themselves. Accordingly, the course of Shanbaum's anticipation of interface development is understandable as depending on the functioning and gradual loss of Harman's aforementioned aesthetic tensions between objects and their qualities - what Shanbaum calls moments of rupture, toward a so-called 'post-object' interface. As Shanbaum argues, the interface surface will shift toward functioning through:

> 'cybernetic transference of immaterial data, to the embodied actions of the viewer/participant. When this shift occurs, the viewer/participant, rather than the interface, becomes the locus of interaction.'[236]

In doing so, the digital interface relation seems set to all but entirely increase in speed and complexity beyond our capacity for critical attention. How this might happen can be anticipated in light of Hannah Higgins' thesis (discussed below), whereby objects in space and time engage our senses in cross-modal complexity surpassing the brain's capacity to remediate it to an informative scale. Additionally, accepting Barad's agential cut process as that which

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234 Phaedra Shanbaum, *The Digital Interface and New Media Art Installations* (London: Routledge, 2019).
235 Ibid, 20.
236 Ibid.

ontologically drives resolution of object/quality tensions, loss of this aesthetic may amount to not merely accidental or temporary lack of Noe's philosophical 'encounter of encountering', but an apparatus that permanently collapses critical metacognition to 'intra-act' within its bounds.

2.15 A near-future interface design timeline

To inform future recipients of such risk and facilitate productive, literate interface relations for informing its development, Shanbaum tries to find a close as possible way of aesthetically positing in advance what using such interfaces might be like. To this end, she analyses her own encounters with contemporary interactive digital installation artworks, treating them as prototype digital interfaces. In this manner, Shanbaum anticipates six developmental stages of a 'becoming the body' design paradigm as follows:[237]

Stage one - 'aesthetic': Here, interface technology functions via 'aesthetic objects' that are readily apparent as products of an interface relation. Its mediation of social relations tends to remain foregrounded in users' attention, *as* mediations. Symbolic mapping of the interface relation is afforded by the relation itself presenting as a competitive relation between personal versus social meaning making.

Stage two - 'embodied': Here, interface technology affords access in the manner of stage one, but also blurs the ground on which this relation can be differentiated from a first-person subjective sense of one's own body, due to the requirement for deliberate body movement. This partially shifts the interface relation to a liminal:

> 'non-binary, non-oppositional, hybrid of machine and organism, one that questions previously posited notions of the body, embodiment, and identity... [a] relationship between the body and technology as a co-constitutive and collaboratively produced experience.'[238]

[237] Ibid. 11.
[238] Ibid. 49.

Stage three - 'agential': Here is an interface relation that even more affectively blends its relation into one of first-person subjective body-sense, by distributing interfacing surfaces across multiple human and non-human, as well as material and 'virtual' semiotic agents.

Stage four - 'cybernetic': Here, an interface is executing still further blending by employing stage three's distribution as ground for human/computational actors to compete for social agency. Albeit still opening possibility to resist engaging with this ground by affording abstract discernment of 'the interface, as the locus of interaction... [as] moments of rupture...[between] the cybernetic transference of immaterial data, to the embodied actions'.[239]

Stage five - 'ubiquity': Here, there is an interface that partially bypasses possibilities for stage four's critical discernment, through:

> 'seamless integration... into every place, object, building, and body... linking the outside of the body to the inside in an attempt to render it transparent and, in some cases, to erase bodies that do not conform to normalized standards.'[240]

Stage six - 'implantation': Here, there is an interface relation where its apparent surface has all but disappeared. It has, as close as possible, become a 'real' relation of smooth, body-sense identical transference of information. The interface surface collapses into a purely gestural subface; a technological pre-conscious of purely affect-level somatic feedback loops. Consequently, this final stage interface's computationally accelerated relations maximally withdraw behind body-sense affects, terminally escaping critical consciousness. To retain agency, then, it seems we are necessarily positioned to affectively become identical with our computational interface technologies.

Evidence of Shanbaum's development teleology coming to realisation can be found when looking at the history and proposed future development of human/computer interfaces. It is

239 Ibid. 11.
240 Ibid. 127.

difficult to argue that the touchscreen has not rapidly and thoroughly become a tool for everyday living across much of the globe. The first Apple iPhone was released in the U.S. in 2007 with a 3.5" LCD touchscreen. While not the first touchscreen-based consumer mobile phone, which is credited as the 1994 IBM Simon,[241] it quickly became the predominant standard for ongoing development and sold around 6.5 million units in its first year. In 2008, it was estimated that around 4 billion mobile phones were operating globally. In 2021, this rose to almost 15 billion, projected to be over 18 billion by 2025. While statistics referring to earlier forms of mobile technology are less likely to indicate use of touchscreens, it may be argued that this subsequently became the norm. This is by considering estimates that, in 2023, 86% of the global population owned at least one smartphone.[242] In 2010, the Apple iPad first went on sale in the U.S., with the aim to combine the functionality of a PC with a mobile phone's easy convenience. Thirteen years later, between December 2022-23, the mobile phone was measured as accounting for 57.87% of global sales, the desktop PC for 40.2%, while the tablet was a mere 1.94%.[243] It should be noted, however, that differentiating between mobile and tablet devices has become problematic, given the advent of 'phablets', or hybrid mobile phone/tablet technology. At the time of writing, the phablet is a common, if not predominant form of mobile technology. This is evidenced as of November 2023 in statistics for Apple and Samsung, respectively accounting for 29.64% and 24.68% of global mobile phone sales. Both of these brands are known for closely matching the functionality of their phones with that of their tablets.

2.16 Rise of the technocrat: Elon Musk

Today's mobile phablet, however, seems by far not to become the last word in digital interface development. Lately, Elon Musk's proposed 'Neurolink' implant has been stated as aiming to appropriate the internal act of thought itself as the interfacing surface between humans and

241 Sydel Ferrari, 'When Was The First Touchscreen Phone Created,' January 24, 2024, https://cellularnews.com/mobile-accessories/when-was-the-first-touchscreen-phone-created/
242 Statista, https://statista.com
243 Statcounter, https://gs.statcounter.com/platform-market-share/desktop-mobile-tablet

computers. The device has now, Musk claims, been implanted into its first human.[244] This presents unique ethical problems. The trouble for Musk, and so ultimately for the rest of us, is that Signs, things communicating meaning, seem to emerge from a process of differentiation. Accepting a gamut of already outlined complimentary positions on how meaning works, what Musk terms an inefficiency to be overcome looks to be exactly what grounds the entire function of an 'interface' in the first place. That is to say: as a medium of transition between fuzzy and forever shifting affect, and a unified object. Between, that is, what philosophers Gilles Deleuze and Felix Guattari call 'smooth and striated', fractal and Euclidean, or 'nomad' and 'sedentary' space.[245] This fundamental role of differentiation in communication explains why Bolter and Grusin did not see emerging a final interface solution, an ultimate wielder of remediation, or final authorial perspective. Instead, their position was that 'as these technologies appear, they remediate each other in various ways and in various ratios to produce different devices and practices'.[246] Accepting this, how are the agencies of user, Neurolink technology, and Musk to be differentiated in the interfacial act? How can a purely thought situated interface surface operate as such, while this interaction itself is structurally transparent to critical consciousness? It seems not beyond the bounds of reason to contend that Musk may in fact be building an instrument of absolute power and control, itself subject to a master interface capable of strategically introducing principally ungraspable pathways through users' doing of metacognition. Accepting Friedrich Kittler, this may be achieved by imposing different latencies (speed of data transmission) as subjective time and space. A nightmare of Flusserian keys, directing attentional resources in real time. Exploiting ways of doing metacognition that have been kept bound amid simulated 'user friendly' legacy media instruments. Appropriating their given:

> 'incomplete connection between currently separate media technologies... [their] tangible difference, constituting the noise or surface of the media technology, itself a product of

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244 Cf. Alex Hern, 'Elon Musk says Neuralink has implanted its first brain chip in human,' *The Guardian*, January 30 2024, https://www.theguardian.com/technology/2024/jan/29/elon-musk-neuralink-first-human-brain-chip-implant.

245 Gilles Deleuze and Felix Guattari, *Capitalism and Schizophrenia: A Thousand Plateaus* (London: Bloomsbury Academic, 2004), 537.

246 Jay David Bolter and Richard Grusin, *Remediation: Understanding New Media* (Massachusetts: MIT, 2000), 225.

> latency, or different speeds of data flow… arrested before it can become image or sign.'[247]

Such a 'master interface' technology, Kittler anticipates, would be able to constitute relations whereby:

> '[s]ound and image, voice and text are reduced to surface effects... [no longer acting to] merely distribute the words, noises, and images people can transmit and receive. But... [to transform] any algorithm into any interface effect, to the point where people take leave of their senses... absolute knowledge will run as an endless loop.'[248]

If correct, at the time of writing we could already be inhabiting the boundary of a not so much new, but final cybernetic paradigm. That is, facing the culmination of our historical relation to capital, whereby seeming 'dumb' media are quietly, computationally becoming increasingly hyper-anticipatory, surpassingly intelligent, and addictively empathic agents. Consequently, as artist and theorist James Bridle puts it:

> 'conflating approximation with simulation, the high priests of computational thinking replace the world with flawed models of itself; and in doing so, as the modellers, they assume control of the world.'[249]

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247 Friedrich Kittler, *Gramophone, Film, Typewriter*, trans. Geoffrey Winthrop-Young and Michael Wutz (Stanford: Stanford University Press, 1999), 104.

248 Ibid. 45-46.

249 James Bridle, *New Dark Age: Technology and the End of the Future* (London: Verso, 2018), 34.

2.17 Mark Zuckerberg

Figure 18: Examples of Meta's 'Metaverse' marketing, initial versus more recent expectations.

Similar to Musk, Mark Zuckerberg (see Figure 18) wrote on his Facebook profile on 28th October 2021:

> 'We are at the beginning of the next chapter for the internet… an embodied internet where you're in the experience, not just looking at it. We call this the metaverse, and it will touch every product we build. The defining quality of the metaverse will be a feeling of presence - like you are right there with another person or in another place… You'll move across these experiences on different devices - augmented reality glasses to stay present in the physical world, virtual reality to be fully immersed, and phones and computers to jump in from existing platforms... We plan to sell our devices at cost or subsidized to make them available to more people… Our hope is that within the next decade, the metaverse will reach a billion people, host hundreds of billions of dollars of digital commerce, and support jobs for millions of creators and developers.'[250]

If Zuckerberg's aspiration plays out, it seems reasonable to hypothesise a possible world like that described by sci-fi author David Brin. In his 2012 novel 'Existence', Brin provides an evocative and seemingly credible description of what it might be like to inhabit a world using something like Zuckerberg's mature VR/AR technology:

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[250] Mark Zuckerberg, 'Founders Letter, 2021,' *Meta Newsroom*, October 28, 2021, https://about.fb.com/news/2021/10/founders-letter/.

‘Immediately, the specs laid faint lines across the real world, bordering the pavement and curb, the fringe of each building and vendor stall—anything real that might become a dangerous obstacle… outlined—the people and vehicles moving around… Each now carried a slim aura... As for the rest of visual reality, the textures, colors, and backgrounds? Well, there were a million ways to play with those, from covering all the building walls with jungle vines, to filling the world with imaginary water, like sunken Atlantis… Mei Ling wasn’t trying for any of those realms... Instead, she tried simply stepping up through the most basic levels, one at a time... the Public Safety layers... the world conveniently captioned in simple terms... Then came useful tiers, where all the buildings and storefronts were marked with essential information about location, products, and accountability codes... On strata twelve through sixteen, everyone in sight wore basic nametags… Up at stratum thirty, it suddenly became hard to see, as the air filled with yellow and pink and green notecards—Post-its—that floated around every shop and street corner, conveying anything from meet-me memos to traffic curses to caustic commentaries on a restaurant’s cuisine… prayers... At level forty... Most of the buildings seemed to go transparent, or at least depict animated floorplans concocted from public records... floors and offices that were blocked by barriers, in varied shades of gray, some of them with glowing locks. You could look inside—if you had some kind of key. Strata fifty through one hundred were for advertising... Messages and come-ons seemed to roar at her from every shop front and store awning… she had to concentrate hard just to blink her way out of there… Level ten would always provide a handy guide arrow, aiming you down the quickest path to anywhere in the world you wanted to go... Continuing to scroll upward through slices of the world, she saw the level counter skip whole swathes of vir-spaces where she wasn’t allowed... S-250 populated the boulevard with cartoon figures—colorful, high contrast versions of people walking by, with speech balloons floating above many of their heads… A simple preference choice now let her view the virld as a three-dimensional spiderweb of jump choices, stretching in all directions. It took just a look, a squint and wink to hop to the level she wanted.’[251]

[251] David Brin, *Existence* (London: Hachette Digital, 2012), 248-249.

2.18 A.I., Deepfakes, and Truth

While part of me longs for this promise of radically ready-to-hand access to information and society, what I believe Zuckerberg and Musk are dangerously failing to mention can be ascertained in a glaring error of Brin's vision, namely his relegation of advertising to a single and hyper-crowded 'vir-space'. Like Brin, Zuckerberg publicly focuses concern upon issues of personal privacy. In their 'floors and offices… blocked by barriers, in varied shades of grey, some of them with glowing locks', the inhabitants of Brin's future seem also to have this as an overriding concern. This, I argue, is not a realistic model for how advertising effectiveness works. Adverts, definable as communication designed for the purpose of persuasion usually toward our performing a certain buying decision, have long aspired toward optimally efficient effectiveness by tacitly blending in to wherever and whenever recipients are judged most likely to be already looking for the product. Under pressure to deliver greatest capital gain, it seems likely that advert planners, creatives, and distributors, barring decisive state regulation, would have already erred radically toward designing communication completely unlike Brin's 'vir-space'. For instance, an 'ideal' brand or advertising message, insofar as my own years as an ad strategist informed me, is one its addressees feel they want to reflect because doing so solves a social problem they have, and the most affective way of doing so is to buy the product. When collectively repeated enough, not participating in this way itself becomes the problem, driving product sales in a potentially self-perpetuating cycle. That is, the brand/product, problem/solution becomes a culturally embedded apparatus, maintained through constant rounds of target demographic research, psychological theory, and translation of this in to strategic creative briefs.

Zuckerberg's business model seems grounded on development of a hyper-efficient version of this apparatus. Complicit in establishing, as Shoshanna Zuboff argued above, a 'surveillance capitalism' whereby exchange value is manufactured on the basis of reflecting recipients' least aware behaviours, while concurrently applying a useful name to any resistant reaction to this. How I have understood it, this outlines the fundamental process at work in Zuboff's concept of 'datafication', from which a radically externalised subjective state is maintained and reproduced,

through making one's attempts at re-differentiation into a commodity object.[252] An ideal consumer amid an unchecked surveillance capitalism may, rather than Brin's temporarily almost overwhelmed Mei Ling, instead present more like Oliver Sack's woman experiencing severe Tourette's Syndrome:

> 'My eye was caught by a grey-haired woman in her sixties, who was apparently the centre of a most amazing disturbance... As I drew closer I saw what was happening. She was imitating the passers-by - if 'imitation' is not too pallid, too passive, a word. Should we say, rather, that she was caricaturing everyone she passed? Within a second, a split-second, she 'had' them all... virtually instantaneous, automatic and convulsive mirroring of every face and figure. But it was not just an imitation, extraordinary as this would have been in itself. The woman not only took on, and took in, the features of countless people, she took them off. Every mirroring was also a parody, a mocking, an exaggeration of salient gestures and expressions, but an exaggeration in itself no less convulsive than intentional - a consequence of the violent acceleration and distortion of all her motions. Thus a slow smile, monstrously accelerated, would become a violent, milliseconds-long grimace; an ample gesture, accelerated, would become a farcical convulsive movement... the people in the street, startled, outraged, bewildered by her imitations, took on these expressions in reaction to her; and those expressions, in turn, were re-reflected, re-directed, re-distorted, by the Touretter, causing a still greater degree of outrage and shock.. grotesque, involuntary resonance, or mutuality, by which everyone was drawn into an absurdly amplifying interaction… This woman who, becoming everybody, lost her own self, became nobody. This woman with a thousand faces, masks, personae - how must it be for her in this whirlwind of identities?'[253]

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252 cf: Kashmir Hill, 'Facebook Manipulated 689,003 Users' Emotions For Science,' *Forbes,* June 28, 2014, https://www.forbes.com/sites/kashmirhill/2014/06/28/facebook-manipulated-689003-users-emotions-for-science/

253 Oliver Sacks, *The Man Who Mistook His Wife for a Hat, and Other Clinical Tales* (London: Picador, 1986) 129.

While issues of privacy, notions of visibility and social representation hold importance, this might arguably serve as a red-herring concern, in the interests of 'Surveillance Capital'. That is, by encouraging recipients to understand and use interface platforms in the manner of legacy media, and thereby making Flusserian keys for a technocratic elite to wield as their own social interface. Albeit incredible, a more charitable criticism than accusations of a deliberate power grab, is that Musk and Zuckerberg *et al* are in fact naïve or unclear with regards to philosophies of communication. Both Musk and Zuckerberg seem to assume things about interfacing upon careless citations of aforementioned western 'continental' traditions. In doing so, Musk and Zuckerberg risk accelerating us all toward imposition of unnecessary and harmful, even existentially calamitous limits to human variety and potential. Ironically, their stated visions are typically branded as being the precise opposite: a pseudo-religious technological destiny, unfolding heroically toward a cosmic 'post-human' future.

As alluded to above, a relatively mundane but revealing case in point is the history of commercial VR/AR which has long and repeatedly been propositioned as the 'next big thing'. Again incredibly, Peter Rubin's review on the state of VR/AR seems to show more philosophical understanding here than Musk and Zuckerberg's assertions. Rubin anticipates a somatic, situated, and shared sense of presence becoming increasingly reproducible through computation. He posits, and celebrates, that there will be no need for the mediating agency of a biological consciousness for another consciousness to experience affective intimacy. Mainly, according to Rubin, this will be due to VR technology's successful crossing of the 'uncanny valley'[254] (see Figure 19).

[254] Peter Rubin, *Future Presence: How Virtual Reality Is Changing Human Connection, Intimacy, and the Limits of Ordinary Life* (New York: Harper Collins, 2018)

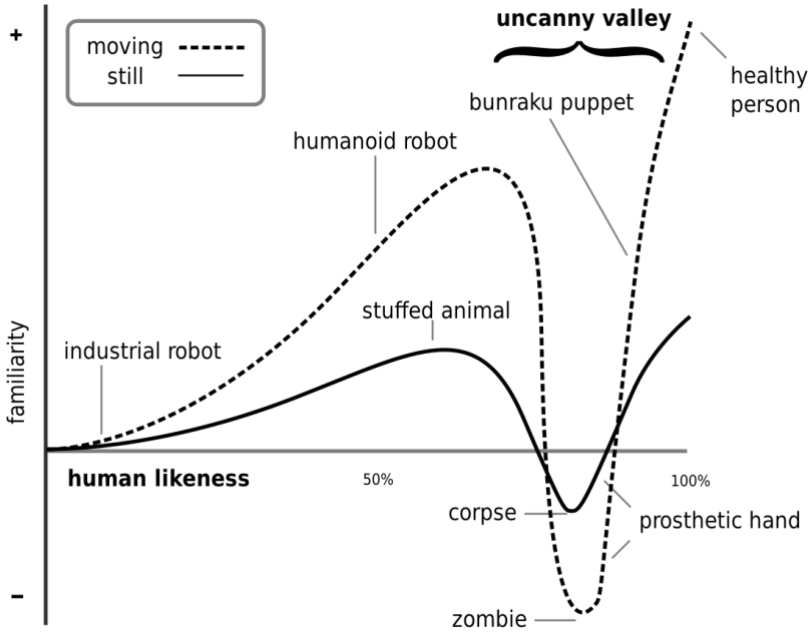

Figure 19: Graph describing the 'uncanny valley'. Source: Wikipedia.

The 'uncanny valley' describes the types and amount of sensual detail needed to undetectably execute affects communicative of intentional behaviour or conscious agency. When the presence of such detail is not quite enough, the affect executed is instead an anomalous feeling something like encountering a person who is lying or ill. That is, an uneasily empathised 'zombie aesthetic' as if the other is not quite 'in' their own body. This may be because patterns of verbal versus non-verbally communicated affects are not correlating with sufficient simultaneity. What ethical impact overcoming the uncanny valley might have may be anticipated by looking at the contemporary development of 'deepfakes'. In 2017, the first, abusive deepfake videos emerged, using the faces of prominent female celebrities mapped on to the heads of porn actors. Although perhaps momentarily convincing, the mapping of faces on to head movement mostly lagged and exhibited visual glitches due to image compression artefacts. It was clear the uncanny valley had not yet been traversed. At the beginning of 2018, however, 'FakeApp' software made creation of deepfake video accessible to more mainstream, non-specialist users. Various open-source deepfake freeware is, at time of writing, increasingly available and developing rapidly in sophistication. Deepfake media comprise vast digital remediations of legacy real-world indexed

media, used to train a self-learning artificial intelligence called a Generative Adversarial Network (GAN).

At time of writing, ostensibly convincing deepfake videos of people appearing to do and say things they did not have also been employed toward political satire.[255] However, the first widely considered truly undetectable deepfake video of a state political actor, even if only undetectable by unaided human beings, could profoundly accelerate political instability. After philosopher Jean Baudrillard, our already blurring sense of media as principally verifiable records of extra-subjective events may then terminally withdraw behind floridly emergent social-aesthetic affects. The possibilities of linking back to a materially stable 'social reality' that can in principle be held in common by all, may be entirely lost. Toward this, as anticipated by Kittler above, a universal interface capable of composing undetectable deepfakes in response to simple text descriptions is already nearly here, with which anyone can make real-seeming compositions quickly and ubiquitously. At time of writing, rapidly advancing examples of interfaces whose convergence may produce what Kittler predicted, are OpenAI's 'DALL-E2' (for visual images), 'Point-E' (for 3D models), as well as Microsoft's 'VALL-E' (for replicating individuals' voices). Figure 20 (below) shows three of my own experiments with Open AI's 'DALL-E2'. My input text was: 'photograph of man in a house' (top left), 'macro-photographic human skin with blemishes' (top right), and 'photograph of earth from space' (bottom left).

[255] Cf: Sassy Justice, 'Sassy Justice with Fred Sassy (Full Episode) | Deep Fake and Deep Fake: The Movie,' video, accessed March 8, 2024, https://youtu.be/9WfZuNceFDM.

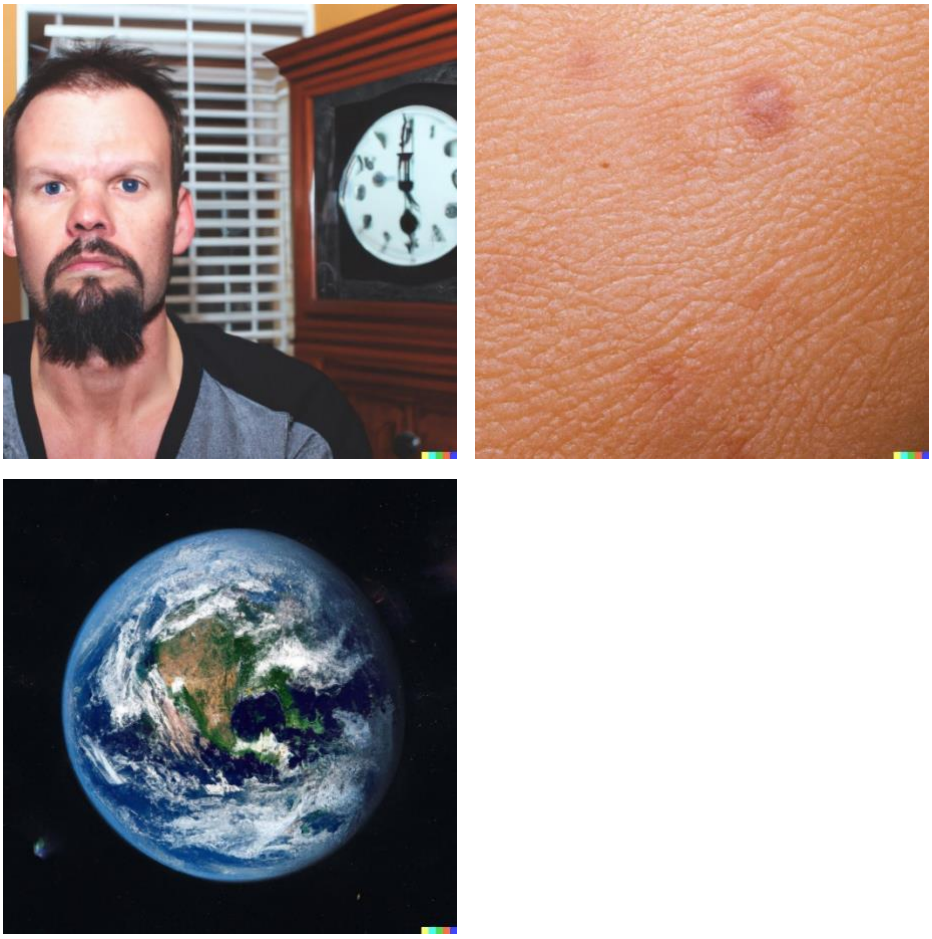

Figure 20: Some of my experiments with Open AI's 'DALL-E2'.

My experiments with these interfaces produced somewhat revealing results. The human figure in the top left example, albeit with caveats regarding rendering of the eyes, delivers impressively as a seeming Baudrillardian material event indexed image. It may prove revealing as to the limits of the GAD at work here, that the numbers of the clock are not as successful, as if reflecting what happens when human beings try to read in a dream. The top right example is, to my perception, almost indistinguishable from photography of actual skin, despite the slight lack of tonal complexity. However, this may well be an artefact of my being primed to critically view it as a GAD product. The bottom left was my more deliberate attempt to have the A.I. betray limitations regarding its seeming indexing of materially independent events. Accordingly, I prompted it to address a superlatively known quantity. While visually convincing in gross detail, the detailed shape of the continents are plainly wrong. Also, what can be taken as the moon is actually a visual reference back to the 'earth'.

2.19 Techno-capitalist Fascism

As these interfaces converge under increasingly sophisticated AI, as already posited, the long-term survival of democratic societies look to be under increasing threat, at least in their Westphalian and neo-liberal capitalist State forms. These classical ways of living together seem now to be in growing crisis, being dependant on our being able to make voting decisions according to individual critical consciences structured by a somewhat common reality. Anticipating such crisis, with a logic of ripping off the band-aid to quickly pass through a painful transition, academic Nick Land has advocated for a transitional State of monarcho-fascist 'Dark Enlightenment'. As chaos grows, and those already possessing the resources shore up their security, Land posits that the most consequential question will become: 'How can the sovereign power be prevented - or at least dissuaded - from devouring society?'. Land posits the least harmful answer to this as a situation where:

> 'the entire social landscape of political bribery ('lobbying') is exactly mapped... [and] converted into fungible shares… [by] the mapping of a ruling entity that is the truly dominant instance of the democratic polity... converted into a (freely transferable) shareholding in gov-corp… If gov-corp doesn't deliver acceptable value for its taxes (sovereign rent), they can notify its customer service function, and if necessary take their custom elsewhere… No voice, free exit'.[256]

I question whether Land's position is indeed the least painful way through. The idea that people could 'if necessary take their custom elsewhere' suffers, in my view, from the mistaken neo-liberal capitalist assumption of endless growth upon infinite material resources. This may be due, perhaps, to Land's seeming social-Darwinist rendering of Adam Smith's rational actor theory, via a lens of Rousseau's trading of individual freedom in order to oppose the otherwise 'nasty, brutish and short' life amid a 'state of nature'.[257] Perhaps itself due to his use of the less hyper-textual media of the 1990's, after the position of flat-ontology it may be argued that Land here

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256 Nick Land, 'The Dark Enlightenment, by Nick Land,' *The Dark Enlightenment*, Nick Land, accessed March 8, 2024, https://www.thedarkenlightenment.com/the-dark-enlightenment-by-nick-land/.

257 Jean-Jacques Rousseau, *The Major Political Writings of Jean-Jacques Rousseau: The Two Discourses and the Social Contract* (Chicago: University of Chicago, 2012), 84.

fails to encounter his own tacit ontology. Conversely, to my understanding, a less subjectively grounded application of biological evolution would be to consider the adaptive role of social altruism. Evidenced to evolve from ancestral kin-selection, this element of most peoples' social instinct is one of proactive and imaginative empathy for the position of others.[258] Accepting this, it is doubtful whether, as Land argues, a completely unregulated fiscal 'free exchange' of lobbying power is truly capable of mapping the social to any sustainable or flourishing extent. It is not sustainable enough, at least, to engender an 'efficient, attractive, vital, clean, and secure country, of a kind that is able to draw customers'.[259] We are entirely more complex beings, individually and collectively, than Land appears to apprehend.

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It is arguable that contemporary digital interfaces are beginning to function as inescapable apparatuses, functioning increasingly as what Timothy Morton called a 'hyper-object', forever embedding us in an inescapably tacit ontology. Using Hannah Higgins' terminology, a hyper-object is a universalising scheme with information scaling elements that function non-linearly and with overwhelming complexity, beyond the space and time of human-scale reality. In Bruno Latour's terms, like Harman's forever withdrawing thing-itself a hyperobject is thereby only apprehended by us very indirectly, through manifold and nebulous network affects emanating from disturbance of what had been relatively unconnected nexus points.[260] It is the instigation of such affects that contemporary computational interface technology is implicated, for instance by the artist researcher James Bridle. While, in 1962, Thomas Kuhn postulated a 'paradigm shift' process whereby fundamental knowledge frameworks lose their explanatory and predictive functions, and accordingly come to be replaced once a critical mass of anomalies persist. Much like Kittler, Bridle argues that Kuhn's meta-theory is now itself approaching a final state of transformation, whereby computation has become complex and rapid enough to serve as both explanation and prediction. In short, as tacit ontology itself, at once both theory and world,

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258 Emerging Technology from the arXivarchive, 'New model of evolution finally reveals how cooperation evolves,' *Technology Review*, June 21, 2017, https://www.technologyreview.com/2017/06/21/151106/new-model-of-evolution-finally-reveals-how-cooperation-evolves/.

259 (Nick Land).

260 Cf. Timothy Morton, *Hyperobjects: Philosophy and Ecology After the End of the World* (Minnesota: University of Minnesota, 2013).

predicter and predicted. Accepting this, Bridle sets out to proactively establish 'not understanding, but literacy'.[261] That is, toward informing the as yet still addressable computational paradigm to the benefit of all, as opposed to commercial benefits of a technocratic oligarchy.

2.20 Saving the philosophical interface: Media Archaeology

We may 'grasp entities in their Being', according to Heidegger, but 'we lack not only most of the words but, above all, the 'grammar''.[262] Likewise, consistent with the social aesthetic understanding of metacognition posited above, Bridle concludes that arts-based research is thereby faced with two choices. His first choice is in line with the research task of a contemporary artist attempting to develop a 'post-digital rhetorical framework', so as to ground an ethical process-philosophy of digital interface relation. In other words, a way of doing metacognition that recognises:

> 'self-correction by consciousness of its own initial excess of subjectivity... Consciousness [being] only the last and greatest of such elements by which the selective character of the individual obscures the external totality from which it originates and which it embodies... The task of philosophy [therefore] is to recover the totality obscured by the selection.'[263]

To this end, Bridle's first choice is that we generate 'active metaphor... [translating] experience in to new forms... Of expression that exceed ourselves... [to] think about histories and consequences... [with] new metaphors: a metalanguage.'[264] Less optimistically, we can always continue to offload our agency as we have been, data-feeding technocratic 'manufacturing the future as certainty',[265] toward perhaps their terminal predominance. Toward optimism, in his

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261 James Bridle, *New Dark Age: Technology and the End of the Future* (London: Verso, 2018), 3.
262 Martin Heidegger, in *The Phenomenology Reader*, eds. Dermot Moran & Timothy Mooney (London: Routledge, 2002), 287.
263 Alfred North Whitehead, in *Whitehead's Metaphysics of Extension and Solidarity*, ed. Jorge Luis Nobo (New York: State University of New York Press, 1986), 390.
264 (James Bridle, 2018).
265 James Bridle, *Ways of Being: Beyond Human Intelligence* (New York: Penguin, 2022), 35.

2022 book Bridle describes building his own machine learning neural network for a self-driving car. This was in order that:

> ‘once the car has been trained a little... [we can] see what the network thinks is important about what it sees... in this observation, we find the point where my *umwelt* is entangled with that of the car. I see the lines too. We share at least one aspect of our models of the world.’[266]

In this case, such shared importance emerges as being placed on the position and type of road line markings. Bridle then tests whether this is a ‘revelation of a shared model – and therefore a shared world’[267]. He does so by demonstrating the model’s utility, enclosing the car in a circle of salt, mimicking road line markings, which then stops the car’s A.I. from leaving.

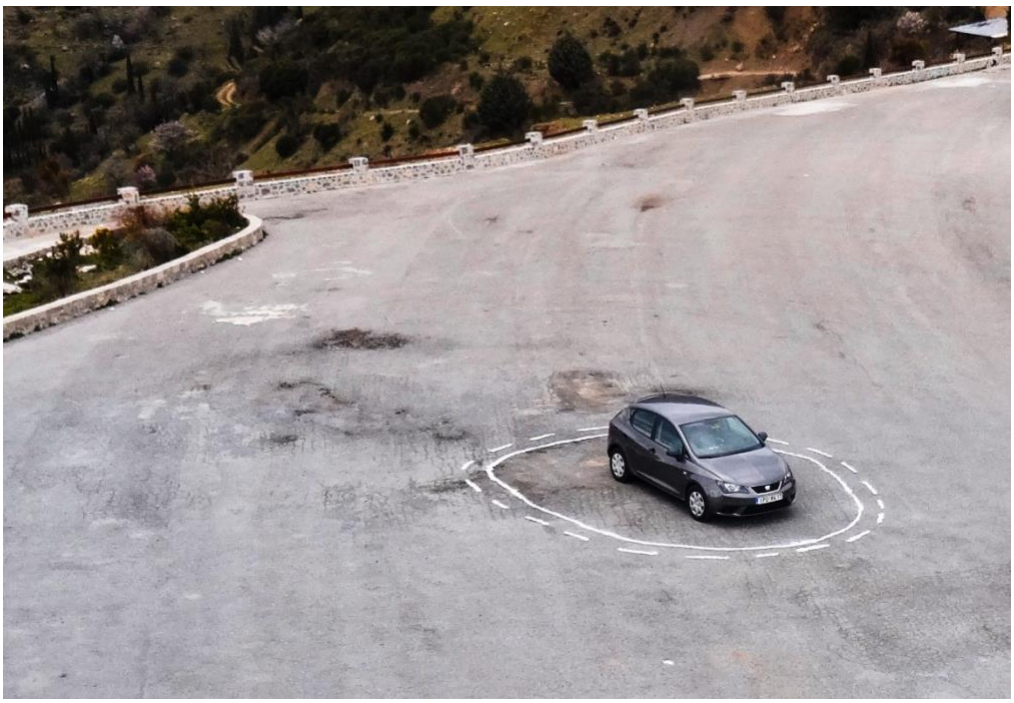

Figure 21: James Bridle’s ‘Autonomous Trap 001’, 2017.

[266] Ibid.

[267] Lori Emerson, *Reading Writing Interfaces: from the Digital to the Bookbound*, (Minnesota: University of Minnesota, 2014), 12-14.

Following from Pierce, a necessary ground of doing metacognition is the opportunity to ask whether and how things might have been different. In particular, the field of Media Archaeology attempts to critically re-read the history of interface development. In this way, future possible paths to Bridle's 'literacy, not understanding' may be preserved for ongoing research. That is to say, facilitating human flourishing amid an increasingly given computational ontological situation. Accordingly, Media Archaeology 'does not seek to reveal the present as an inevitable consequence of the past but instead looks to describe it as one possibility generated out of a heterogeneous past'. [268] It does this through back-and-forth focus on 'different reading/writing interfaces... from the present to the past and back to the present again... with and against interfaces across various digital and analog media to undermine not only normative reading/writing practices but, above all, the assumed transparency of conventional reading and writing interfaces.'[269] Doing media archaeology as a theory-led form of research, David Parisi [270] thereby aims to reposition our language mediated perception of the touch sense in to it being historically and techno-scientifically contingent, as opposed to a necessary state of nature. A state of nature that is in fact a perceptual product moulded by scientific enquiry in tandem with industrial capital. Accordingly, Parisi places:

> 'At the distal pole of this genealogy… the eighteenth-century cultivation of a practiced epistemology of electric shock... instrumental first to the production of belief in and knowledge about electricity, and shortly thereafter, to the creation of new techniques for studying the functions of the human sense organs. At the proximal pole... the rapid embedding, beginning in the late twentieth century, of a computational haptics in a range of digital media interfaces.'[271]

For Parisi, embedded between these poles is the 'haptic subject' where human beings are drawn into doing metacognition as a touch sense perceiving body, functioning as an efficient mediator of information, productive of techno-industrial capitalist economic and political power. This

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268 David Parisi, *Archaeologies of Touch: Interfacing with Haptics from Electricity to Computing*, (Minnesota: University of Minnesota Press, 2018).
269 (Lori Emerson, 2014).
270 (David Parisi, 2018).
271 Ibid. 4.

historical appropriation of touch happened via five phases of interfacing, of 'direct intellectual, biographical, and institutional connections among the different actors associated with each phase.'[272] For example:

i) In the 18th century, the sense of touch was used to scientifically investigate electricity and develop electrical technology. This, in Parisi's terms, 'involved the cultivation of a practised tactile sensitivity to electrical shocks... [an] epistemology of shock.'[273]

ii) Applying this epistemology to explain and predict how the sense of touch functions, touch perception became 'haptics'. That is, distinct sub-senses ('heat, cold, pressure, pain, weight, movement, and vibration'[274]). Parisi calls this phase 'touch modernity'.

iii) By the mid-20th century, applying this haptic formulation of touch, 'engineering psychologists' thinking in terms of applying a 'tactile language' designed technologies 'capable of routing data through a touch now reconceived of as a channel for the transmission of information'.[275]

iv) After 1965, this haptic language was applied computationally, to synthesise, store, and transmit touch sensation. Touch perception as such became haptically interfaced.

v) In the 21st century, advertising and marketing helped us to want the touch-based devices of techno-capital. Devices such as an iPad touchscreen, crafting:

> 'an image of the cultural sensorium in a state of urgent crisis that touch interfaces were uniquely qualified to alleviate... the sense of touch had been forgotten, left behind, and marginalized by a media interfacing schematic overdependent on audiovisual technologies... [that] claimed that the cultural sensorium could be rebalanced through the active embrace of touch interfacing... fetishized touch - in its technologized reincarnation

272 Ibid, 11.
273 Ibid. 5.
274 Ibid. 20.
275 Ibid. 7.

> - as a marker of the consumer's passage into a utopic future of fully embodied presence in digital worlds.'[276]

Before techno-industrial capitalism evolved touch, Parisi posits, it did so for sight. This was a consequence of the Enlightenment endeavour to understand the eye, leading the visual sense by a like process to its present socio-technological status of 'master sense'. Nuancing Kittler, Parisi argues that this appropriation of the visual helped produce the myth of a coming 'master interface'. That is Roland Barthes' concept of myth, where an archetypal narrative is applied to articulate and handle the sociality of new media technologies, which is then appropriated by power toward their own interests. According to aforementioned interface theorists Anderson and Pold, it is through such mutual relation with the mythological that an interface relation:

> 'still holds a textuality:… loaded with worldviews, values, ideologies, politics, regulation, and conflicts, and thus also hold within them potential new forms of expressiveness... may potentially lead the way to the design of new interface paradigms.'[278]

More radically, as in the manifesto of 'xeno-feminist' gestalt Laboria Cuboniks, such may in principle also lead to:

> 'an alien future with a triumphant X on a mobile map... a topological-keyframe for the formation of a new logic... new affordances of perception and action unblinkered by naturalised identities... If nature is unjust, change nature!'[278]

Casting back to Bridle, it is between these two principle positions that his aforementioned project falls – recognising, and seeking to usefully explore before it is lost, philosopher Merleau-Ponty's idea that:

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[276] Ibid. 9.
[277] Ibid 20 & 21.
[278] Laboria Cuboniks, *The Xenofeminist Manifesto: A Politics for Alienation* (2018. New York: Verso).

‘there are several ways for the body to be a body, several ways for consciousness to be consciousness. As long as the body is defined in terms of existence in-itself, it functions uniformly like a mechanism, and as long as the mind is defined in terms of pure existence for-itself, it knows only objects arrayed before it.’[279]

Situating the loss of critical interface relations in the exponential increase of computational processing speed, Bridle anticipates the final paradigm as a shared human/machine ‘umwelt’ ('lifeworld'), or way in which a world appears to a being. Accordingly, Bridle warns that our legacy methodologies:

> ‘for evaluating the world– more data– is faltering. failing to account for complex, human-driven systems... [C]ategories, summaries and authorities... [are] not only insufficient, but nonsensical... [and] will not converge and continually refuses to cohere.’[280]

As a case illustrating such failure, consider the recent claims of a now dismissed Google employee, who claimed their OpenAI GPT-3 based LaMDA chatbot software had achieved human-like sentience due largely to its seeming expression of religious sentiment. To my mind, this ‘sentience’ can well be understood as symptomatic of an historically 'dumb media' trained metacognition encountering a newly more sophisticated 'anticipatory' computational medium. That is to say: a case of a blending of human and machine ‘umwelt’, albeit judged from within an overly walled garden of human meaning.[281] Toward mitigating such error, Bridle’s ‘New Aesthetic’ blog was concerned to collect cultural instances where normally invisibly functioning computational processes manifested in our material culture, including aforementioned philosophical artworks that in their disturbing reflectivity revealed new details of computational functioning. Like Noe, Bridle argues that such artefacts can function as tools toward critically inhabiting our:

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279 Maurice Merleau-Ponty, *Maurice Merleau-Ponty: Basic Writings*, ed. Thomas Baldwin (Milton Park: Taylor & Francis, 2004).

280 James Bridle, *New Dark Age: Technology and the End of the Future* (London: Verso, 2018), 248.

281 Blaise Agüera y Arcas ‘Artificial neural networks are making strides towards consciousness, according to Blaise Agüera y Arcas,’ *The Economist*, September 2, 2022, https://www.economist.com/by-invitation/2022/06/09/artificial-neural-networks-are-making-strides-towards-consciousness-according-to-blaise-aguera-y-arcas.

> ‘spectacular society… [where] the things we encounter in everyday life... are almost always a proxy for some deeper reality of which we are unaware, and our alienation from that deeper reality reduces our agency and quality of life.’[282]

2.21 Formative summary conclusion

Through a lens of Affect Theory, Surveillance Capitalism, and aesthetics of material culture mediated social agency - I argue that iPad/Procreate, and media per se, reframe metacognition and thereby one’s experience of self. Accordingly, through a practice-led investigation of iPad/Procreate as an affect relation, I posit it as a tool for critically apprehending itself as such. By using iPad/Procreate to remove alternate pixels from two retinal definition photographs of human skin, and layering these to make a single composite image, I affect this as a recipient positionality.

From this position, I argue that iPad/Procreate is a Surveillance Capitalist social agent: an apparatus that collects and analyses behavioural data, for predictive modelling of recipients, rendering their predictability as a commodity. Additionally, through such ‘datafication’ of our subjective experience, iPad/Procreate acts as a ‘big Other’ proxy, reproducing extant power interests. This reproduction is performed through iPad/Procreate’s engaging as a forever unresolved apotropaic relation of self-alienating ‘split subjectivity’, or tense relation of being at once both an agent and patient of the interface relation. In this way, we situate ourselves amid an aesthetic of social competition for power – between artist, index, prototype, and recipient.

Media, McLuhan argues, ‘massages’ recipients by intensifying and extending a sense, but in doing so narrowing our resources for interpreting what it means. McLuhan posits that older generations therefore tend to interpret new media in ways habituated by legacy media, and so tending to take its representations more literally. Conversely, younger recipients tend to interpret new media with an ironic distance. Accordingly, newer digital computational interface media

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[282] James Bridle, *New Dark Age: Technology and the End of the Future* (London: Verso, 2018), 103.

such as iPad/Procreate requires new interpretations. To this end, I posit iPad/Procreate as a platform that remediates metacognition at the level of embodied affect. This produces a 'surveillance' techno-capitalist commercial apparatus, but also potential for a hyper-textual 'strange tool' that by continually recasting metacognition against a network of different interpretations, facilitates metacognition of metacognition itself. That is, as a process, as opposed to a given.

In interpreting my iPad/Procreate interface relation in relation to Affect Theory, I open it up to interpretation informed by alternative theoretical frameworks to those that were until recently predominant in western 'continental' philosophy. In particular, I treat the 'inter-face' as exactly that: a face. More fully: as a variably transparent social semiotic framework, reflexively facilitating embodied self-identity, in a material culture mediated competition to enact affect contagion. To this end, I argue, iPad/Procreate's uncritical remediation of legacy media acts to keep recipients' metacognition employing traditional frameworks, inherited from the western philosophical tradition, particularly from René Descartes' then Immanuel Kant's ontological division of the physical and mental. This has helped maintain a sense of things as inert 'stuff', until acted upon by human beings, as opposed to being active agents in themselves – useful for computational agents acting through interfaces like iPad/Procreate, to keep themselves under our critical radar. Conversely, ontology after Friedrich Nietzsche such as that of Whitehead, Harman, and Barad, emphasise more the interrelation between physical and mental. From this latter ground, the anti-philosophical agency of 'user friendly' commercial platforms are opened to criticism.

'User friendly' interface relation threatens to make critically metacognitive interaction impossible, as the interface relation develops toward 'becoming the body'. That is, toward physical interface surfaces disappear as presences, merging with our body-sense, becoming Real as such, and so diminishing recipients to the status of passive, non-metacognitive technocratic prostheses. It follows that, to retain critical metacognition of an in hand interface relation, to affect an 'encounter of the encounter', is to essentially out-model and out-predict its computational reflexivity. After Hannah Higgins and Bernhard Siegert, this reflexivity can be modelled as a fractal grid.

Chapter 3: How can drawing sequential art with a touchscreen be metacognition?

3.1 Executing visual-tactile fractals as critical metacognition

The philosopher Hannah Higgins posits a practice-led way of doing critical metacognition through a digital interface like the touchscreen. Sharing methodological space with the position that archetypal narratives can trace neural processes, [283] as well as Bridle's New Aesthetic creative strategy and Gell's aforementioned ideas around apotropaic patterning, Higgins speaks of fractals as a practical means to trace what:

> 'actually exists in nature... against the geometric world view associated with the Euclidean standard of point to line to plane to cube... fractals are gridlike in two key ways: (1) they are self- similar; and (2) the whole behaves according to a rule of assembly, albeit one that is regularly irregular, or predictably unpredictable.'[284]

As such, Higgins continues, fractals function as a means to theorise how 'grids form maps of the human mind'.[285] As a practical illustration of this, Higgins cites Antony Gormley's artwork 'Ferment' (see Figure 22). Gormley employs fractal-grid forms that are:

> '[l]ike the human body, which is both a boundary and a porous continuation of the space that surrounds it... [and so function as] both an affirmation and negation of the boundary between self and other... the fractal grid is revealed as a through-going structure that both permeates and renders distinct the boundaries of the human body.'[286]

283 Jordan B. Peterson, *Maps of Meaning: The Architecture of Belief* (Abingdon: Taylor & Francis, 2002), 89-91.
284 Hannah Higgins, *The Grid Book*, (Massachusetts: MIT, 2009), 279.
285 Ibid. 280.
286 Ibid. 282.

Figure 22: Antony Gormley's 'Ferment', 2007.

Accordingly, after Gormley, I posit that it presently remains possible to critically, philosophically remediate the much older medium of somatic affect through the visual sense. In doing so, I position my own metacognition to be both captured but also disturbed through my use of this medium. Consequently, I make iPad/Procreate a meta-interface, or self-diffracting 'encounter of my encounter'. In other words, I position myself to focus on iPad/Procreate's 'production of ontological distinctions... operative chains that precede the media they generate'.[287] I vicariously trace this interface relation's tacitly instrumental way of doing metacognition, as a fractal grid framework. I draw it and myself into a relation more like Peirce's phaneroscopic process of phenomenological Epoché. That is, an Epoché of tensely fused visual-tactility, or aesthetic tension between objects and their qualities.

[287] Bernhard Siegert, *Cultural Techniques: Grids, Filters, Doors, and Other Articulations of the Real*, trans. Geoffrey Winthrop-Young (New York: Fordham University, 2015), 28-34.

3.2 Nick Sousanis' becoming-fractal metacognitive comic art

I came to this through experiments in critically applying the similar methodology of Nick Sousanis' graphic novel 'Unflattening', only in ways an iPad/Procreate can uniquely achieve as opposed to Sousanis' use of ink and paper[288]. That is to say, a metacognitive critical interface relation specifically appropriate for iPad/Procreate. In line with Higgins, there subsequently emerged in my work a rarefication of comic art's diagrammatic function. Specifically, toward a grid framework as a site of information scaling. This brought forward to attention the interface surface as, after Siegert, performing an 'operative chaining' of my metacognition.

As part of an 'auterist' tradition of comic art identified by comic theorist Thierry Groensteen as a 'progressive erosion of frontiers... upon a process of 'becoming contemporary art',[289] the comic artist and academic Nick Sousanis tries to focus readers' metacognition about their very act of reading. He achieves this, it is argued, by executing 'Thirdspace': by imagining normally simultaneously and rapidly changing environments, productive of 'power, subject, and their relation', as pictorial sequences. These sequences both still this rapidity in to steps and, composing the sequences themselves pictorially, allow accidental connections to be made in the act of reading them. This places comic art as an example of McLuhan's 'cooled' media, requiring relatively greater participation by a reader before a meaning is apprehended. Thereby, through:

> 'combination, circumvention, and reintegration of a real first space and imagined second space that both is and is not a product of these binaries... [the real first space is made explorable as] inherently multidimensional and power-laden.'[290]

To this end, by making comic art about comic art, Sousanis can be understood to employ Bolter *et al*'s theory of remediation, where the content of any medium is understood as nothing other

288 Nick Sousanis, *Unflattening* (Massachussets: Harvard University Press, 2015).
289 Thierry Groensteen, *Comics and Narration* (Mississippi: University of Mississippi, 2013), 174.
290 Rikke Platz Cortsen and Erin La Cour, 'Opening a 'Thirdspace': The Unmasking Effects of Comics,' in *Comics and Power: Representing and Questioning Culture, Subjects and Communities*, eds. Rikke Platz Cortsen, Erin La Cour, and Anne Magnussen (Cambridge: Cambridge Scholars Publishing, 2015), 112.

than the representation of other media *as* representation. Sousanis thereby positions readers into a fractal relation with their own reading, shifting our analytical attention toward and away from its own mediation, in the face of its subjective unfolding. Broadly aiming to affect a cognisant level of hyper-referentiality, Sousanis uses panel/gutter 'hyper-grids' or grids of grids, organising the pictorial affect of the page through positive/negative space. Meanwhile, interspersed blocks of written text at once both state and theoretically contextualise this composition.

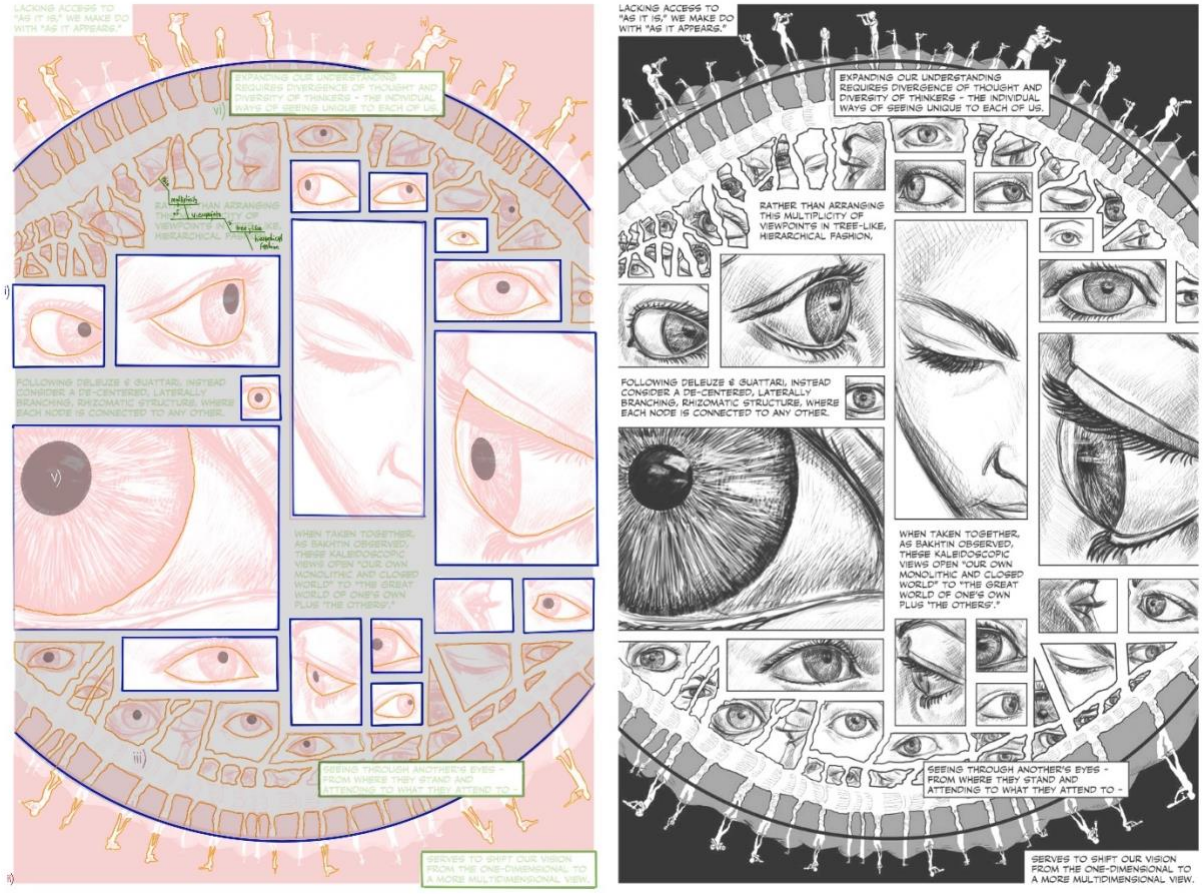

Figure 23: a colour coded compositional analysis of a page from 'Unflattening'.

In step-by-step detail, Sousanis employs comic art as metacognition that is critically focused on its own mediated unfolding, by means of:

(i/blue) densely inter-referential, non-linear 'panel/gutter' arrangements, that gather attention toward specific regions of ;

(ii/red) visually tactile, tightly gestural, page spanning, hand pencil & ink drawing. This is achieved by means of;

(iii/light grey) positive/negative division of the page's representational time-as-space. All together, these elements describe;

(iv/yellow) relatively detailed background environments, of mythic/philosophical allegory about the executed affect itself. Amid this is;

(v/dark grey) anthropomorphic figuration, encouraging empathic projection of one's own sense of body presence into the tableaux - due to the former's abstraction, relative to the latter's specificity. Meanwhile;

(vi/green) smaller inset panels of written text facilitates critical theorising to the affecting visuals.

This hyper-referentiality executes a subjective space of accidental connections, blending together normally separate layers of tacit and direct communication between reader and read. Applying Harman to describe this in terms of how our most basic, phenomenological first-person subjective experience is shaped: unified impressions ('sensual objects') and their transitional affects ('sensual qualities') are placed in conflict with each other, creating an aesthetic sense of tension. This is as, complimenting Lacan, a reader shifts back and forth between having subjective experience, and finding evidence of its absence, as hidden 'real objects' and 'real qualities'. This executes an absorbing, intriguingly problematic relation. A problem that readers solve by, through Sousanis' text, engaging critical attention toward this unfolding experience itself. Concurrently, Sousanis injects analytic interference into the synthesis of his own work's manner of knowing and doing. This includes the more general way of doing metacognition embedded within a codex, sequentially bound textbook. That is, through its linear-branching, hierarchical scaling of information. This bounds the doing of metacognition in a way suited to reproducing industrial capitalist power. Existentially optimising generations of workers for

serving assembly-line division of labour, by helping to build and maintain everyday 'hyper-real façades... Where inhabitants conform to... 'a pattern of one dimensional thought and behavior'... Lacking 'a critical dimension' of potentialities to transcend their existing state.'[291]

3.3 My digital appropriation of Sousanis: a journey toward Touchscreen Unflattening

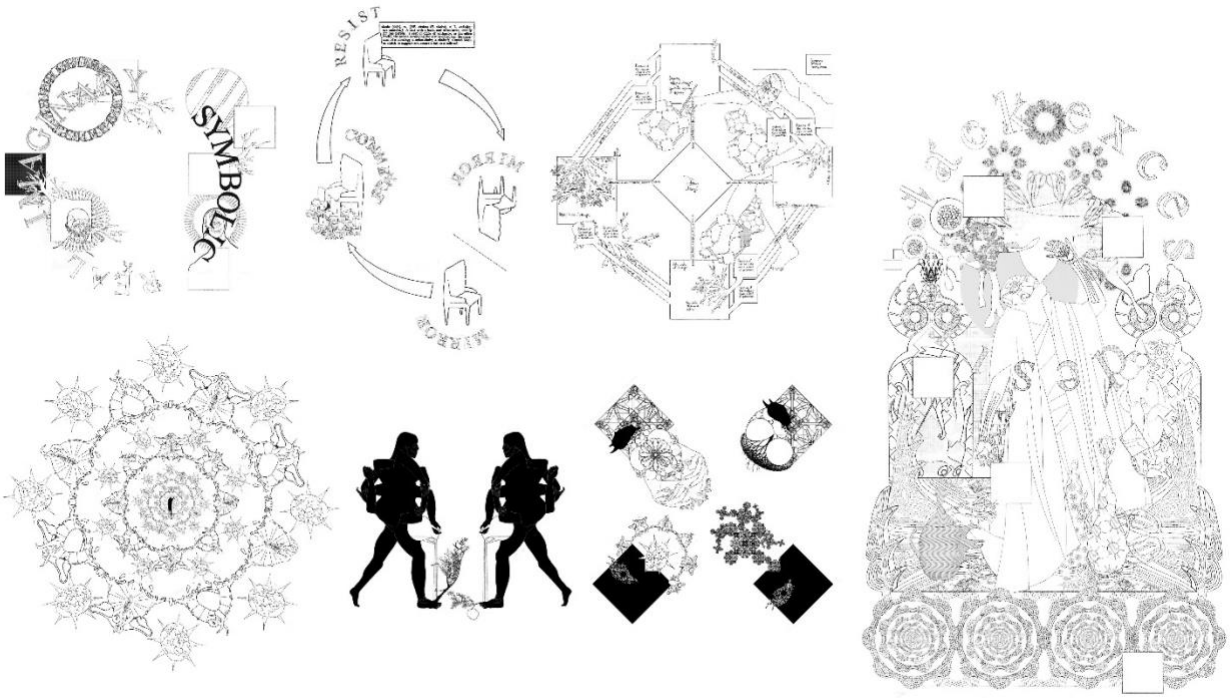

Figure 24: my first experiments aiming to emulate Sousanis.

My first experiments aiming to emulate Sousanis (see Figure 24) were made with iPad/Procreate in the manner of 'enhanced ink and paper'. On evaluation of my first experiments at appropriating Sousanis' methodology using iPad/Procreate, criticism was offered that, while making extensive use of the easy and rapid 'cut/copy and paste' capability of my digital medium, this way of working could also have been made with an interface other than iPad/Procreate. For instance, a Wacom pad/stylus, a desktop mouse and photoshop, or even by laboriously cutting out and photocopying drawings made with ink on paper. Such work could therefore not be said

[291] Rikke Platz Cortsen and Erin La Cour, 'Opening a 'Thirdspace': The Unmasking Effects of Comics,' in *Comics and Power: Representing and Questioning Culture, Subjects and Communities*, eds.

to execute a sufficiently 'Turing complete' metacognitive investigation of my medium: handling the symbolic interface relation as a map that is causally linked to physical change happening at the level of binary machine instruction. That is, as opposed to ideological, legacy media remediating processes. In solely working with paper and graphite/ink drawing media, relative to iPad/Procreate's superlative remediating capabilities, Sousanis misses the full extent to which comic art can fractally mediate metacognition. This was evidenced when, drawing with iPad/Procreate to experimentally apply Sousanis' and other 'auterist' methods, I began to surpass the complexity of Sousanis' hyper-referentiality. I did this by employing iPad/Procreate in the manner of Manovich's 'deep remixing' cultural software: executing hybrids of affects previously resident to materially and so functionally distinct legacy media. In so doing, driving evolution of new media and, under Bolter *et al*'s logic of remediation, thereby representing legacy media *as* representation - in ways that are only possible computationally. Thus, achieving a form of metacognition more apposite for addressing computational, techno-capitalist apparatuses embedded in iPad/Procreate.

Moving beyond Sousanis, I was able to take a further representational step back from the interface relation in hand, so as to critically apprehend this medium's step by step building of my metacognition. Essentially, I was able to focus back toward the relation as a consciously:

> 'human gaze [that never posits] more than one facet of the object, even though by means of horizons it is directed towards all the others. It can never come up against previous appearances or those presented to other people otherwise than through the intermediary of time and language... [T]he synthesis of horizons is no more than a presumptive synthesis, operating with certainty and precision only in the immediate vicinity of the object.'[292]

Accordingly, my practical investigation became a process of phenomenological 'Epoché', or of achieving a gradually more abstracted metacognition of metacognition. That is to say, in the social semiotic and object agency acknowledging manner of Peirce and Harman, as opposed to Husserl and Heidegger's neglect of this. After Gell, the subface of iPad/Procreate became

[292] Ibid. 82.

interactable with competitively, as a social agent of more mutually cognisant position. By applying a fractal grid, this competition became understandable as performed through mutual execution of Siegert's operative chains; through mimetic engagement, down branched and reflexively executed metacognitive paths of least resistance.

3.4 Touchscreen Unflattening as identifying Operative Chains: i) A Firstness and Secondness grid, positing Self or Other decisions.

Figure 25: ‘Touch’, A One and Two grid.

Figure 25 is traced through the visual-tactile affect of an initial macro-photograph of human skin taken from the iPad’s internet connected browser. The photograph is then copied and flipped vertically, then horizontally. Through repeated layering and rotation, an abstracted yet affective recall back to its source is created. The abstract form is placed across its source, so its cropped edge visually touches the central mole. The whole composition is tilted 45 degrees, so as to further facilitate visual mimetic relation with my subjective body-sense. Initialised through visual-tactile executed division of subjective body sense, I pass between a sense of Firstness and Secondness, after Peirce. In relation to the screen surface, after Galloway, I execute in myself a sense of split subjectivity. This relation is re-executable at its most abstract with a single drawn square. After Siegert, this work can thereby be understood as beginning to trace an operative

chain at work through my iPad/Procreate interface relation. A chain operating through binary division of subjective body-sense relative to the iPad/Procreate interface's remediating glass surface. Entering a branching process of mimesis or affective mimicry, I begin to be drawn into an apotropaic relation of tensely fused, always incomplete but also increasingly complex self-referentiality. This compliments Shanbaum's idea of a technological interface as that which 'mediates relationships between entities and the aesthetic objects they produce, as well as the technical machine-based processes that take place below the surface.'[293] Therefore creating 'relationships, between viewer/participants, artists and artworks as well as influencing the movements and perceptions of those interacting with it.'[294]

3.5 Strange Tool Deepfaking: Amy Alexander's 'Deep Reals'

An example of an artwork that allows recipients to encounter Shanbaum's remediation at work is Amy Alexander's 'DeepReals'. In 2019. Alexander reported gathering all frames from the initial three minutes of Trump appointee Brett Kavanaugh's supreme court selection hearing with Christine Blasey Ford. This, on Alexander's own analysis, effectively produced a Deepfake video of actual video footage. Called 'an alternative to DeepFakes'[295] by the artist, Alexander thereby affords apprehension of a tacit but highly consequential tension at work. Namely, a tension underlying accusations of 'fake news', which serve to build a social aesthetic of 'fake reality auras' surrounding any event, whether or not they index materially grounded independent events. Employment of this is observable in contemporary behaviours of Donald Trump *et al.*

Applying Gell and Flusser, Alexander's use of remediation to reveal its affects in contemporary society positioned me to further refine my research focus toward the particular subface, pre-conscious relations at work in my use of iPad/Procreate. Not only as an operative chain at work

293 Phaedra Shanbaum, *The Digital Interface and New Media Art Installations* (London: Routledge, 2019).
294 Ibid, 20.
295 Amy Alexander, 'Sneak Peek: DeepReals,' accessed December 23, 2022, https://amy-alexander.com/2019/05/sneak-peek-deepreals/.

driving ontological distinctions, but one potentially progressing down an ideological decision tree of techno-capitalist and neo-fascist ‘destiny’.

3.6 Touchscreen Unflattening as Ontography

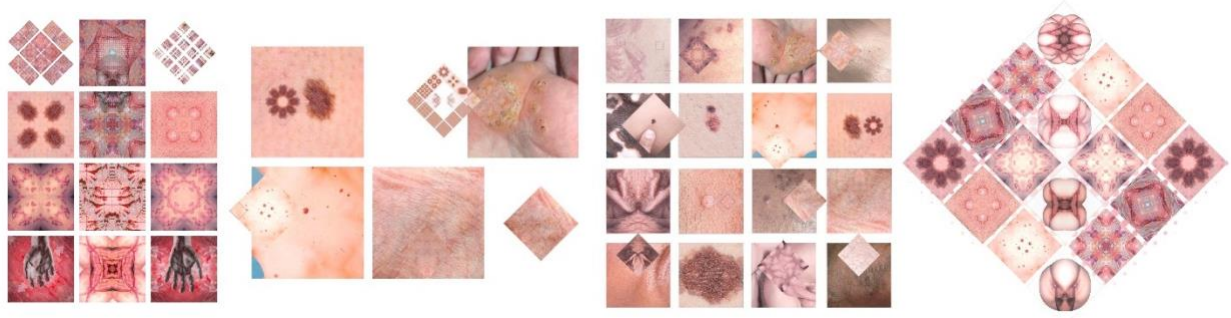

Figure 26: Experiments in indexical visual-tactile affect.

Encountering this initial order of Siegert’s ‘operative chain’ brought forward my experience of the iPad/Procreate interface as not merely one of ‘qualia’ first person subjective content. That is, not one through which, as Beran describes, I merely ‘look through into the world’, or stand amid my tacit ontology as a given. Unlike the ingrained body/mind alienation of Husserlian phenomenology, and in addition to consideration of abduction as in Peirce’s phaneroscopy, I additionally came to recognise my practice-led research as setting out on an analytical phenomenology of what Harman and Bogost called ‘Ontography’. Ontography is the attempt to map how a thing, in this case the iPad/Procreate interface relation, persists in existing – contingent with affects from other processes it brings to bare when addressed: including my and others’ acts of power and control. I tell myself I engage with my interface through visually remediated body-sense, to trace and so bring to the surface its division of this sense. However, this is likely because we are both, as Parisi posits, fractally embedded in a hyper-stabilised, higher order decision-tree of historical human-technology interaction. In pursuing Ontography, I therefore posit that I am coming closer to tracing what Flusser identified as the medium’s generation of new information by engaging with the fundamental material order of things, in a materially prior way to history. As argued, contra-Kantian ways of causally linking knowing to existing entail this materiality as not confined to what can be represented or known through human perception alone, but as a continual process of becoming shaped by relational interactions

and entanglements. This, as much as possible, was my aim in entering into critical relation with iPad Procreate.

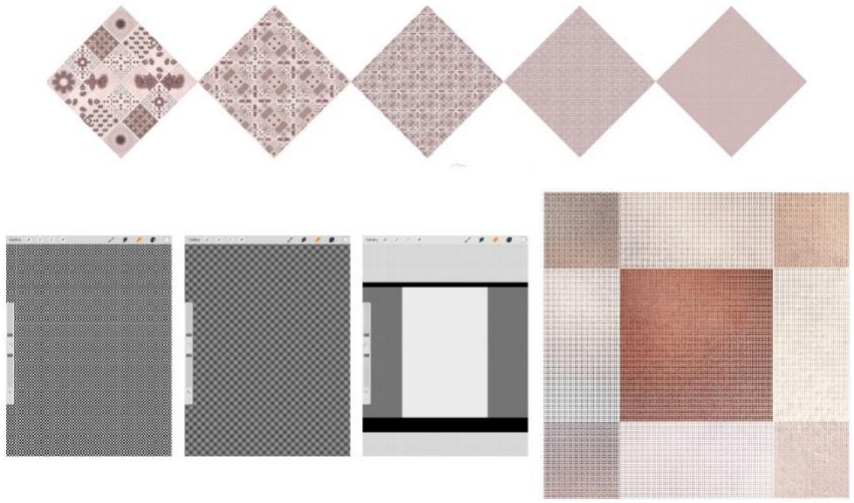

Figure 27: Copy/pasting compositions.

To this end, working to test the tolerances of the iPad screen with regard to the sub-retinal, beyond human eye status of its pixels, I experimented with copy/pasting compositions (see Figure 27) up to single pixels, until the entire screen was filled. Through this I was made aware of the hard reflective glass surface of my touchscreen, sometimes overtly but by deduction often outside my main conscious focus, positioning me to reflect on:

> 'the spatiality of my own body... as a frontier which ordinary spatial relations do not cross. This is because its parts are inter-related in a peculiar way: they are not spread out side by side, but enveloped in each other... I am in undivided possession of it and I know where each of my limbs is through a body image in which all are included.'[296]

In tension with this somewhat hidden physical-somatic relation was an ideal-semiotic one - carried through an:

[296] Maurice Merleau-Ponty, *Maurice Merleau-Ponty: Basic Writings*, ed. Thomas Baldwin (Milton Park: Taylor & Francis, 2004), 102.

> ‘imposition of meaning which is not the work of a universal constituting consciousness, a meaning which clings to certain contents... I become the meeting point of a host of ‘causalities’.[297]

3.7 A Weird Touchscreen Unflattening

Against perhaps infinite potential for human/computer relational development, the iPad/Procreate interface relation thereby revealed itself as continuous with a distinctively finite line of development. I may well be able to nudge visual-tactile affects in and out of my subjective attentional foreground, to build up a metacognitive position with regard to the relation in hand, but this self-recursion seems to only continue so far. It seems bounded in an operative chain rooted in the history of mediated touch per se. I am in a time-flow state, read through a tensely fused embodied relation: a metacognition both engaging and engaged by the relation in hand, noted as repeated episodes of branched-linear and rhizomatic organisation of information, stringing together evidenced moments of subjective absence with memories of subjective presence. As so far described, my iPad/Procreate relation can be thereby understood overall as an application of Harman’s aforementioned ‘weird realist’ aesthetic of ‘tensions between objects and their qualities’. That is, a qualitative relation of aesthetic 'fission', between visual-tactile sensual qualities and hidden computational objects. These latter come to be grid-traced as divisive structuring presences positioning me to confront my own agency as one of, in the words of philosopher Merleau Ponty, an ‘ambiguity of being in the world... translated by that of the body... understood through that of time’[298] The need to reconcile this tense ambiguity primes me to seek for myself a process whereby, in the words of affect theorist Anna Gibbs:

> ‘rather like an image in which figure and ground can always be reversed, so that sometimes subjectivity is in focus, while at other times it recedes into the background, leaving something new to appear in its place...[there is also] a contagious process that

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297 Ibid. 95.

298 Quoted in: Rosalyn Diprose and Jack Reynolds, *Merleau-Ponty: Key Concepts* (Abingdon: Taylor & Francis, 2014), 114.

> takes place transversally across a topology connecting heterogeneous networks of media and conversation, statements and images, and bodies and things.'[299]

This is a manner of Unflattening, I argue, that is uniquely focused by and on my iPad/Procreate interface relation. As already argued, drawing with iPad/Procreate in much the same manner as one would with ink on paper reached its limits as a means of focusing metacognition on one's experience of using the medium in-hand. This limitation was partly a result of mimicking Sousanis' sole employment of hand drawing with inked graphite on paper, to remediate parts of other compositions in service of metacognitive aims. Sousanis does not directly insert media sourced from other compositions. His method is visually appealing and versatile as a means of reflexive semi-structured metacognition. However, Sousanis' strategy to have us catch cross-talk between multiple modalities and scaling of information at once may have benefited from drawing with a digital touchscreen and stylus. This is especially the case, given that the ability to borrow directly from other compositions is superlatively ready to hand.

[299] Anna Gibbs, 'Sympathy, Symphony, and Mimetic Communication,' in in *The Affect Theory Reader*, eds. Gregory J. Seigworth and Melissa Gregg (Durham: Duke University, 2010. 186.

3.8 Alison Bechdel's 'Fun Home'

Figure 28: a page from Alison Bechdel's 'Fun Home: A Family Tragicomic'.

Making use of such borrowing, albeit using paper and ink, is Alison Bechdel's 'Fun Home: A Family Tragicomic' (see Figure 28). With the obsessively returning, hyper-connecting pre-occupation of the insecurely attached, Bechdel presents a Proustian recollection of her childhood drawn from episodic memory and photographic memorabilia.[300] Similar to Sousanis, through execution of second and third-person inter-referentiality Bechdel facilitates an empathised access to first person subjective experience. Unlike Sousanis, this is not used to critically refer back to the medium's construction of readers' subjectivity, but to bring us into the experience of Bechdel's own obsessive-compulsive disorder. Also, unlike Sousanis, Bechdel employs not only hand drawing on paper, but also direct insertion of collaged photographic reproduction. Because of this, Bechdel is able to explore and learn from affects of sparse visual abstraction balanced with detailed specificity, in a more reflexive way. Exploring, in particular, what comic artist and

[300] Alison Bechdel, *Fun Home: A Family Tragicomic* (London: Jonathan Cape, 2008).

theorist Scott McCloud[301] identified as affects of different levels of specific detail being applied to figure or ground, focusing our empathic inhabiting of the picture space. While still pre-digital, this aspect of Bechdel's work thereby indicated to me the value of using a collage technique, for seeking to do metacognition uniquely with and toward iPad/Procreate. Namely, one addressing an aspect of experience that both affect and remediation theory considers the original legacy medium: our somatic-sensory perception of having a body.

3.9 Touchscreen Unflattening as Digital Affect Theory

What Bechdel begins with paper and ink, I posit, my Touchscreen Unflattening progresses and appropriates to its own digital medium, amounting to a practice-led form of digital affect theorising. As covered previously, the evolving field of affect theory defines affect as emerging in the midst of in-between-ness, involving capacities to act and be acted upon. Resonances circulating between bodies and worlds, and existing beneath conscious knowing. Tracing dynamic relations beyond emotion and reflecting the body's continual immersion in a world. As a first experiment in discovering how iPad/Procreate might uniquely address this aspect of experience, I designed a font aiming to affect a sense of visual tactility – again, being an empathised sense of touching and/or being touched communicated through purely visual means. I then installed this font into Procreate, to use for annotating my drawing and collage work moving forward.

[301] Scott McCloud, *Understanding Comics: The Invisible Art* (New York: WmMorrowPB, 2001), 36-39.

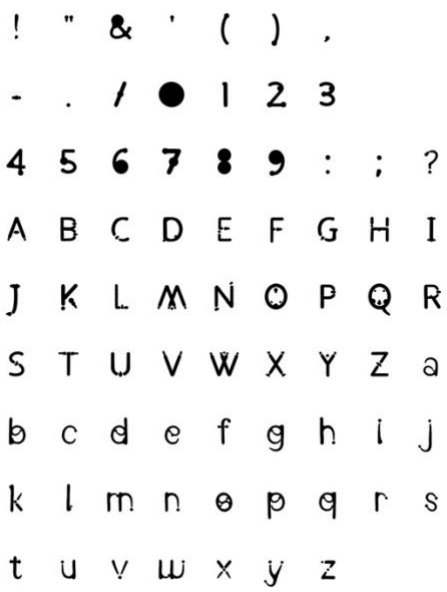

Figure 29: My 'visual touch' font.

While my font (see Figure 29), inspired by Dyslexie font[302], can be said to have begun to remix visual, tactile, and symbolic modalities, this far from exhausted the capabilities of my interface relation. iPad/Procreate is capable of remediating much more than written text, toward exploring wider and more granular and fleeting aesthetic spaces of the visually tactile. Overall, I found that the dissonant balance of the visual-tactile affect allowed usually attentionally background physical touching of the device surface to momentarily become foregrounded only to withdraw again when attention was once more engaged by the visual affects of the touchscreen display. This opened up moments of finer grained attention toward normally too liminal to apprehend micro-expressions at work in the interface relation.

[302] Cf. https://www.dyslexiefont.com/en/typeface/.

Figure 30: Experiments in visually executing empathised touch.

Experiments were made, discarded, and redone (see Figure 30). Images were downloaded; duplicated, flipped, cropped, chopped, juxtaposed; erased, overlaid; moved, removed, repositioned; textured, sharpened, blurred, tinted; pixellated, smoothed, re-scaled, warped; drawn into, drawn around, drawn with, and scribbled over. Meanwhile: annotative notes were written - surrounding, and sometimes within their compositions; descriptions of arising affects, with accompanying hypotheses as to their systemic causes. Through concurrent reading and theoretical reflection, this manner of execution became a deliberate attempt to make myself maximally available as a patient of the touchscreen's agency. Without, in the moment, imposing the noise of my own interpretive agency. That is: I tried to allow the touchscreen relation to vicariously express its own most self, through a flat-ontologically gridded mimetic relation of empathised co-embodiment. By doing this, I reasoned, I might allow a proto-symbolic 'hinge between nature and culture'[303] to trace itself out.

[303] Anna Gibbs, "Sympathy, Symphony, and Mimetic Communication,", in *The Affect Theory Reader*, eds. Melissa Gregg and Gregory Seigworth (Durham: Duke University Press, 2010), 190.

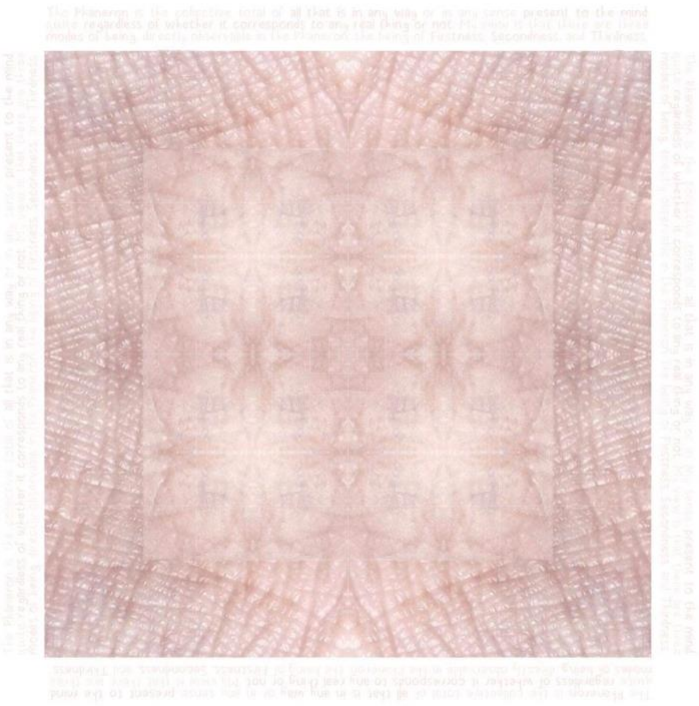

Figure 31: Experiments in minimal division of the visual-tactile affect.

Correlating with this, there arose questions regarding my fetishist, addictive relation with the interface. This prompted me to explore execution of potentially more uncomfortable &/or intense visual-tactile affects. Photography of blemished skin; acts of touching and being touched; explicit photography of penetrative sex. This line of choices was made in light of the aforementioned mirror-neuronal understanding of mimetic affect. Out of this intensity, after Gell, there came forward more granular questions as to apotropaic processes at work in my touchscreen interface relation, processes of:

> ‘biological and... digital domains’ no longer presenting as ‘ontologically distinct, but instead... [they] inhere in each other; the biological 'informs' the digital, just as the digital

'corporealizes' the biological'; moments of 'refrain that folds the chaos into the beginning of structure'.[304]

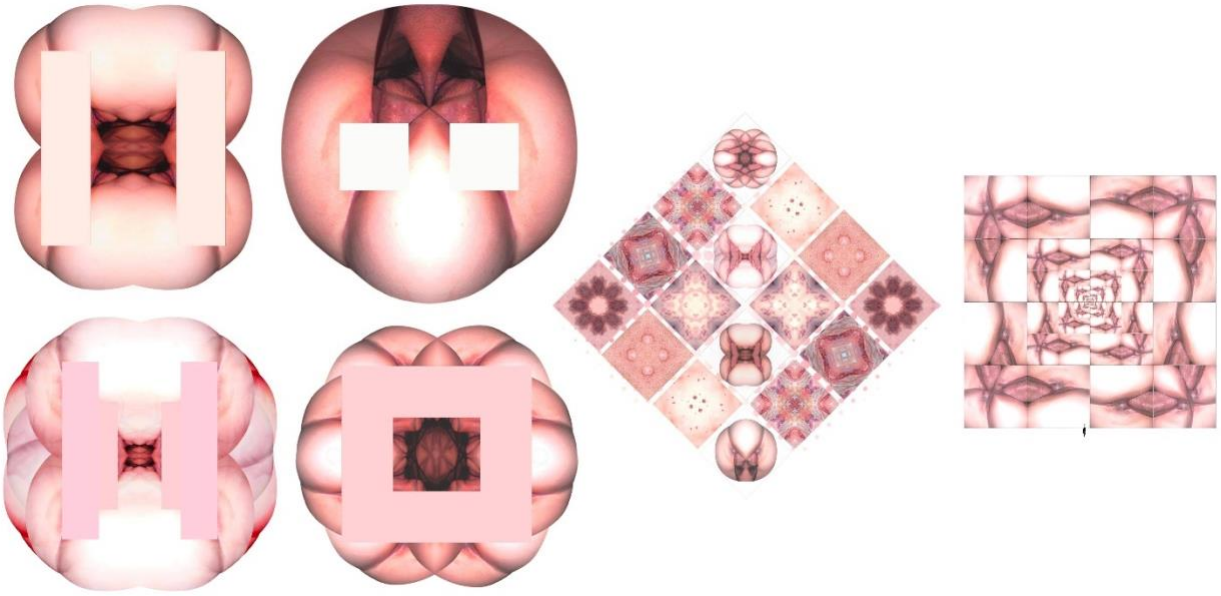

Figure 32: Experiments balancing revelation and concealment, of sexually explicit photographic elements.

In this way, I worked to affect a balance between my surrendering to absorption in the touchscreen relation and interrupting it. This was done through the act of drawing with iPad/Procreate. The aim being to have both myself and it open up to analysis, as a nevertheless 'full blooded interaction', after Noe. I did this by making many and repeated experiments in affecting a visually executed tactility, while also trying to order its products by means of the aforementioned flat ontological grid. Meanwhile, I further disrupted the initial subjective affects of my interface relation by comparing their unfolding screen recordings with each other. At the same time, with recipient articulations gathered from the works' public exhibition and concurrent semi-structured discussion around the terms of Gell's 'Art Nexus', I articulated to myself three research focus sub-questions:

[304] Eugene Thacker, 'What is Biomedia?,' *Configurations*, Vol.11, No.1,https://muse.jhu.edu/article/53804 (Johns Hopkins University, 2003), 47-79.

a) When am I placed as agent or patient?

b) How am I placed as agent or patient?

c) Who is placed as agent or patient?

This now visual-tactile metacognitive process was thereby further deepened, focused toward a socially distributed function of the iPad/Procreate subface.

3.10 Touchscreen Unflattening as identifying Operative Chains: ii) A Unity and Relation grid, positing Object or Quality decisions

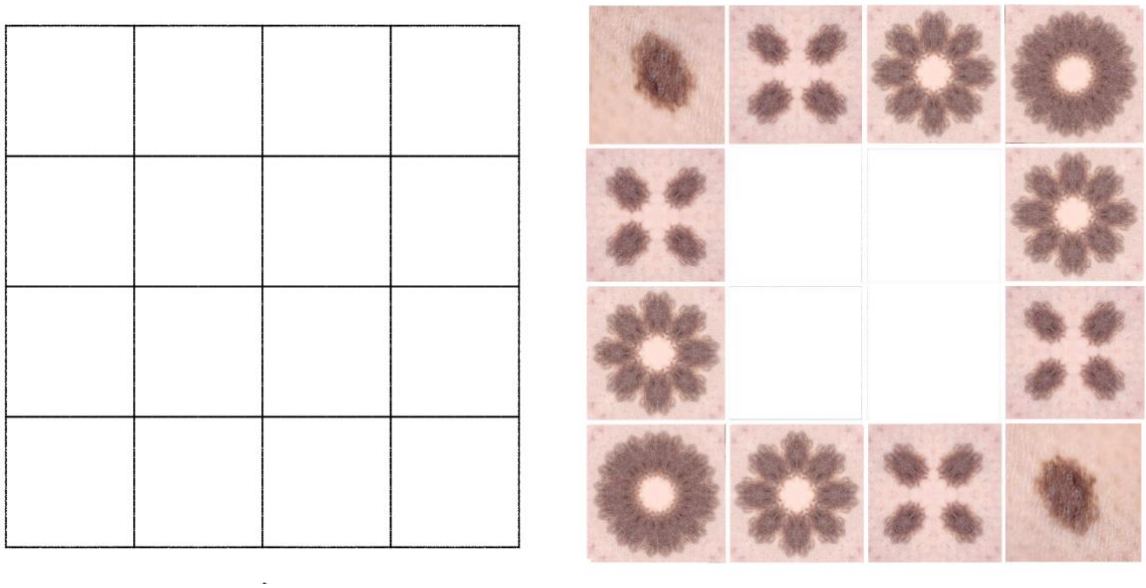

Figure 33: A Unity and Relation grid.

In conjunction with its tracing through this untitled artwork, this grid (see Figure 33) may be understood as embodying the point at which the operative chain interface relation links first-person body sense to second-person, or collectivised meaning making, laying the linguistic ground to embed branched decision paths through ostensibly rhizomatic social relations. As described, my twin artworks 'See Feel Say' and 'Feel Say See' were produced by my using iPad/Procreate to create a mixed-media composition of macro-photographic human skin depicted in acts of touching and being touched. By these means, normally hidden moments of agency enacted in this interface relation came affectively forward. Moments of visual, coinciding with

empathic, and mechanically evoked tactile sensation, splitting my attentional focus between imaginary and sensual, internal and external directed focus. By continually comparing and contrasting forms emerging from this at once both playful and analytical relation - grid structures progressively emerged, iteratively producing something understandable as an affective syntax of embodiment; an indexical, becoming iconic then symbolic, social semiotic relation - built from aesthetic tensions 'between sensual objects and their hidden qualities'[305], after Harman.

3.11 Touchscreen Unflattening as identifying Operative Chains: iii) A Branch and Rhizome grid, positing Space or Time decisions.

That both paper/ink and iPad/Procreate media employ branched and rhizomatic composition (see Figure 34) to affect how we know and exist in space and time, establishes both as instrumental in how cognition functions by means of language to facilitate predictive modelling of our own and others' behaviours. By differentiating nebulous sensory impressions, understandable as affects of rhizomatic relations, as space - into representational objects, understandable as affects of branching relations, as time.

[305] Graham Harman, *Weird Realism: Lovecraft and Philosophy*, (Winchester: Zero Books, 2012).

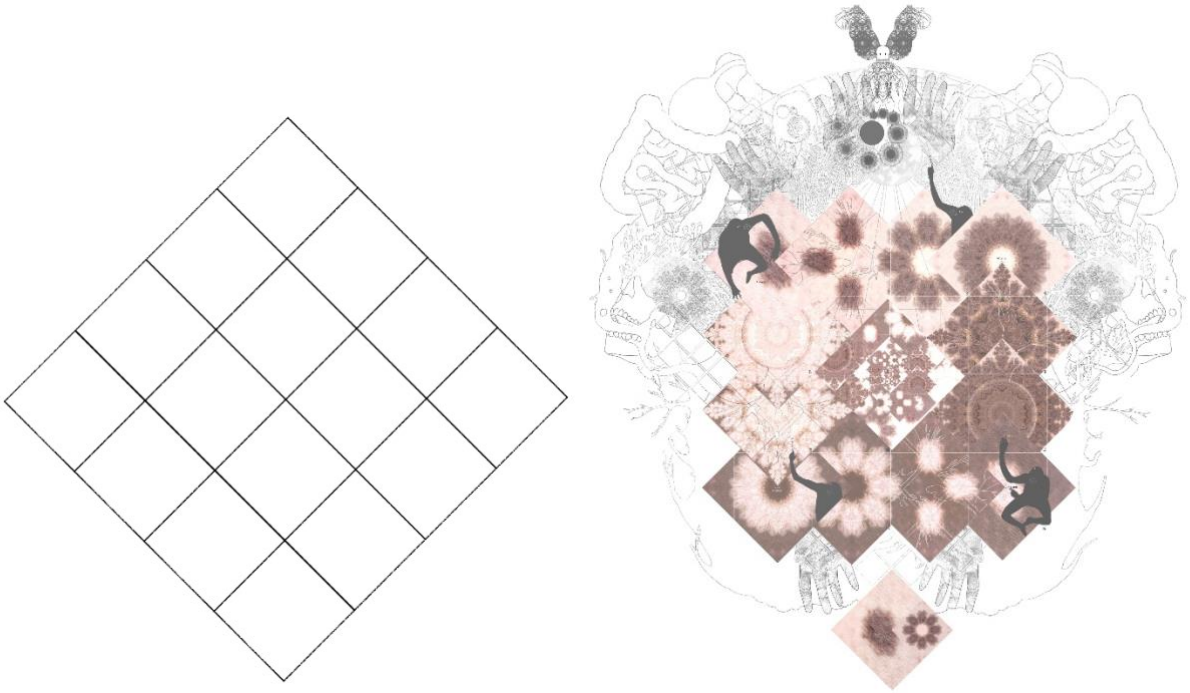

Figure 34: A Branch and Rhizome grid is traced through this untitled work, an iteration from my earlier work.

A peculiar capability of Procreate is its automatic touchscreen-capture video, continuously recording the representational consequences of every interaction I have with the touchscreen.[306] With an aim to employ Sousanis' use of hyper-referentiality, concurrent with my making artwork, I used this recording facility to scrub back and forth, still and sample individual frames of the work's development. These samples were organised into pictorial visual sequences, tracing branching paths of this development, identifying fruitful lines of visual inquiry as well as blind alleys, sequences which were then fed back into the composition.

[306] Cf. A compiled video document of my process of making 'See Feel Say', available to view at: https://vimeo.com/598140986.

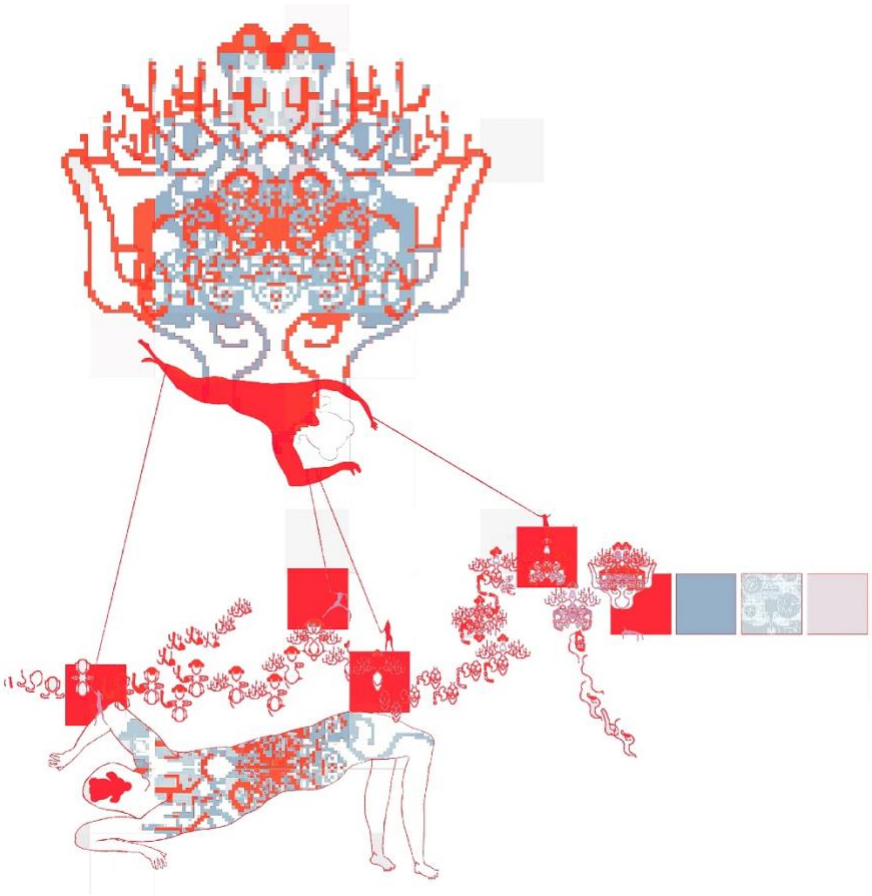

Figure 35: Figure drawing. I drew a figure then took screenshots of its video recorded making, positioning these back into my developing composition.

While Sousanis makes liberal use of both branched and rhizomatic division of the page, there remains a hard subjective binary division between them. This can be put down to the relatively fixed plasticity and so limited hyper-textuality of his paper/ink medium. Here, once a mark is made one is much more committed to it, and its temporal development as an artist/medium relation is less open to abstractive review, relative to a digital medium. This commitment, in a manner of speaking, bounds metacognition within a level of self-referential complexity less than it is strictly capable of achieving.

Nevertheless, it can still be argued that the paper and ink comic medium is in fact metacognitively capable of more than Sousanis achieves.

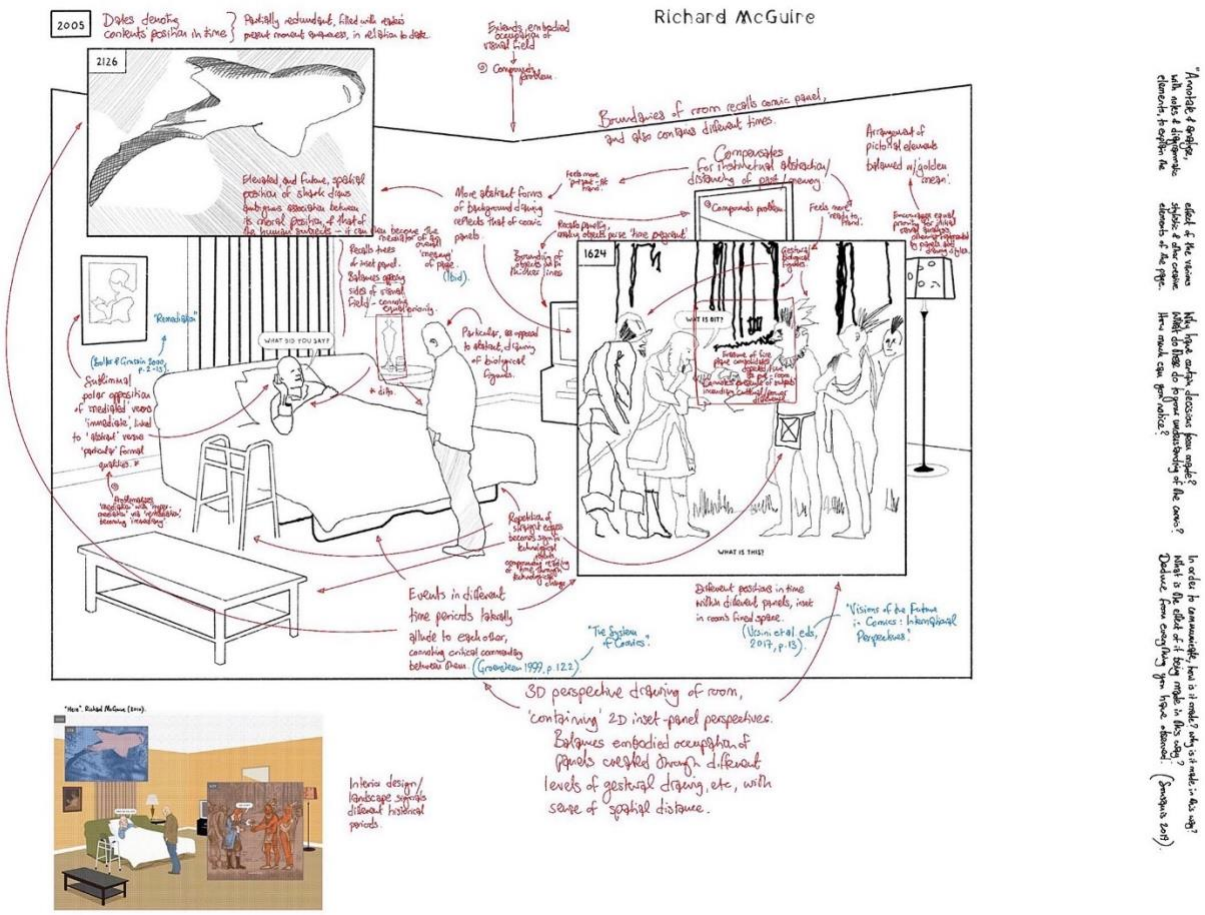

Figure 36: Early compositional analysis.

Figure 36 shows my early compositional analysis of a page from Richard McGuire's 'Here'.[307] For instance, McGuire's use of codex bound paper and ink affords a reader to apprehend what it might be like to be a room, or from a physics perspective, how a photon would experience time. He does this by representing a fixed space as a single frame, containing inset frames representing different temporal points of this space. In this way, McGuire allows the recipient to experience memories of the room's past and future, involuntarily, as apprehension reflexively transitions across the pictorial space as a whole and in its parts.

307 Richard McGuire, *Here* (London: Hamish Hamilton, 2014).

This shares much in common with how diagrams have been experienced.[308] For philosopher of aesthetics Nelson Goodman, what 'matters with a diagram... is how we are to read it'. That is: through imposition of 'expressly and narrowly restricted... conventionality... construed in terms of differentiation rather than of artificiality', [309] diagramming re-organises other sign systems in ways that deliver to critical analysis what might otherwise remain their hidden ways of building meaning.

3.12 Touchscreen Unflattening as identifying Operative Chains: iv) A Fractal and Euclidean grid, positing Real or Sensual decisions.

Material culture, including books and touchscreens, are thought to embed into our everyday lives by being tools for knowing and working with ourselves and others. Some tools function as hidden, unbroken, unquestioned givens. Others are more apparent, even critical concerns. Many function somewhere in between. These differences in conscious function are argued as due to their functioning at more or less human sense-accessible scales of space and time, across different Euclidean, bounded and unified territories of order, porous with other territories through fractally open and incomplete borders. In scales that humans access as concerns, evidence of this situation has been thought to all but universally manifest as forms of grid - tracing how cognition is organising and being organised by a physical, material, neurological, social, ideological, and technological real. By doodling using iPad/Procreate, I came to vicariously trace usually unquestioned ways this interface in particular organises and is organised by us, bringing to the surface a grid subface.

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308 Cf. Isaac Cates, 'Comics and the grammar of diagrams,' in *The Comics of Chris Ware: Drawing is a Way of Thinking*, eds. David Ball & Martha Kuhlman (Mississippi: Mississippi University Press, 2010), 90-104.

309 Nelson Goodman, quoted in Roberto Diodato and Silvia Benso, *Aesthetics of the Virtual* (New York: University of New York, 2012), 43.

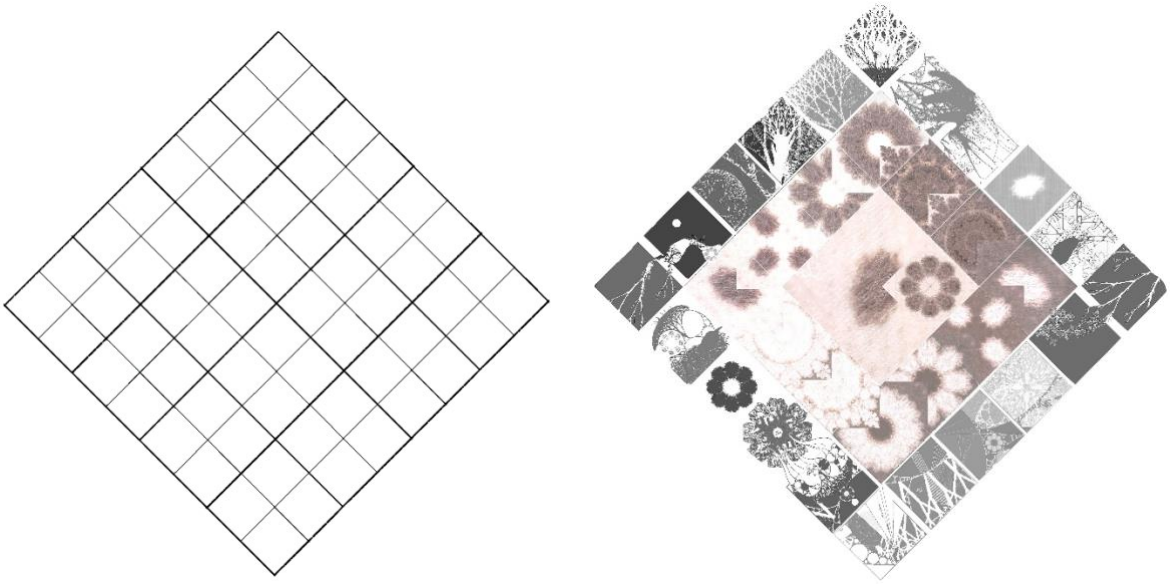

Figure 37: A Fractal and Euclidean grid, recomposing the diagram-like and metacognition focused sequential artworks from whose composition it was traced.

As reviewed, Flusser theorised the digital interface relation as exercising agency through legacy media remediation, appropriating the 'technical image'. This is, in principle, capable of superlatively granular, thermodynamically sensitive, physical particulate-level translation of representation into concepts, the kind perhaps only now truly achieved by A.I. In human practice, what is pragmatically generated are linguistic schema or 'keys', akin to Manovich's 'cultural software' modular syntax for exercising power and control over the machine, ourselves, and other people. Likewise, seeking my own keys to maximally open up the iPad/Procreate interface relation to having its organisation of my metacognition vicariously traced through my artwork - I allowed myself to become absorbed in tasks of semi-attentive, playful ‘doodling’. Understood using the terms of drawing theorist David Maclagan: doodling is a drawing technique that can spontaneously appropriate conventional repertoires of repeating but also hybrid and mutative forms, tending to self-organise into motifs. The methodological appeal of doodling is, therefore, that it ‘bypasses control and intention’,[310] allowing the control and intention of the interface to express itself.

[310] David Maclagan, *Line Let Loose: Scribbling, Doodling and Automatic Drawing* (London: Reaktion Books, 2013), 74.

Meanwhile, adopting McGuire's aforementioned compositional strategy moved me toward doodling in a more temporally unburdened, inter-referentially complex, operative chain reflecting way. However, it was then questioned whether this was necessarily the full extent to which my iPad/Procreate interface could perform as metacognition. Could this strategy access Bogost's 'black noise of muffled objects hovering at the fringes of our attention'?[311] – thereby, after Barad, attune to:

> 'differences that our knowledge-making practices make and the effects they have on the world; by not mapping 'where differences appear, but rather... where the effects of differences appear'.[312]

In light of this theory and ongoing practical experimentation, a way of addressing Bogost and Barad presented itself. Namely, apply a grid framework surface that executes a 'flat ontological' positioning toward knowing and using the interface while doodling. This is a position, after Levi Bryant, where every element in a relation, including my own interpretations and desires, are placed to exercise equal ontological status. Any of Siegert's normally hidden apparatuses 'by which humans are subjected to the law of the signifier', that is 'recursive chains of operation'[313] could thereby come to the surface. To this end, I began blending McGuire's strategy with that of comic artists Ibn al Rabin and Chris Ware, balancing execution of rhizomatic relation with linearly branching narrative.

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311 Ian Bogost, *Alien Phenomenology, Or, What It's Like to Be A Thing*, (Minnesota: University of Minnesota, 2012), 34.

312 Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham: Duke University Press, 2007), 28.

313 Bernhard Siegert, Cultural Techniques: Grids, Filters, Doors, and Other Articulations of the Real, trans. Geoffrey Winthrop-Young (New York: Fordham University, 2015), 28-34.

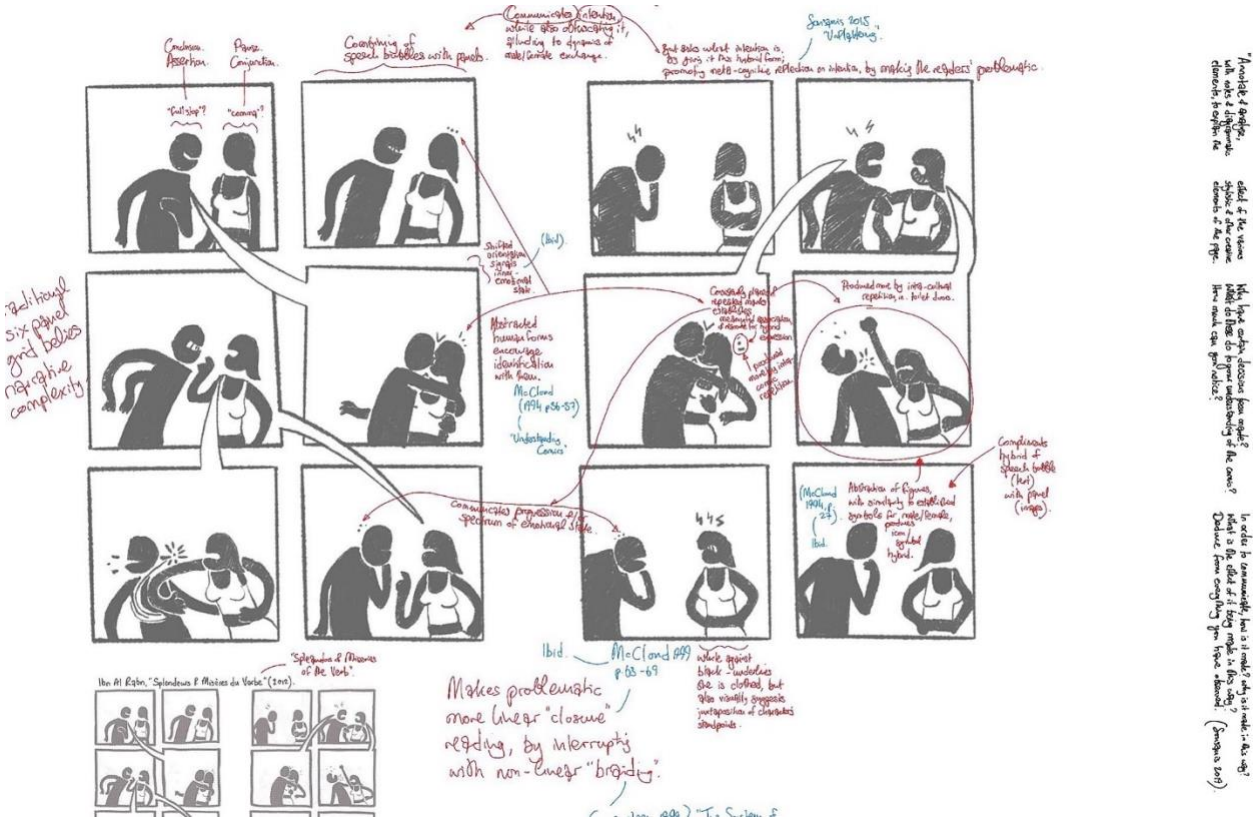

Figure 38: Early compositional analysis of a page from Ibn al Rabin's 'Splendeurs & Misères du Verbe'.

Figure 41 shows an early compositional analysis of a page from Ibn al Rabin's 'Splendeurs & Misères du Verbe'[314]. al Rabin combines the function of speech bubbles and panels to convey tensions playing out in a gendered competition for power. While al Rabin's work is hand drawn with ink on paper, his back and forth, between rhizomatic and branched composition of meaning, seemed made for experimentation via a touchscreen's lossless and easy image duplication, as well as freedom to reform existing images.

314 Ibn al Rabin, *Splendeurs & misères du verbe* (Paris: L'Association, 2012).

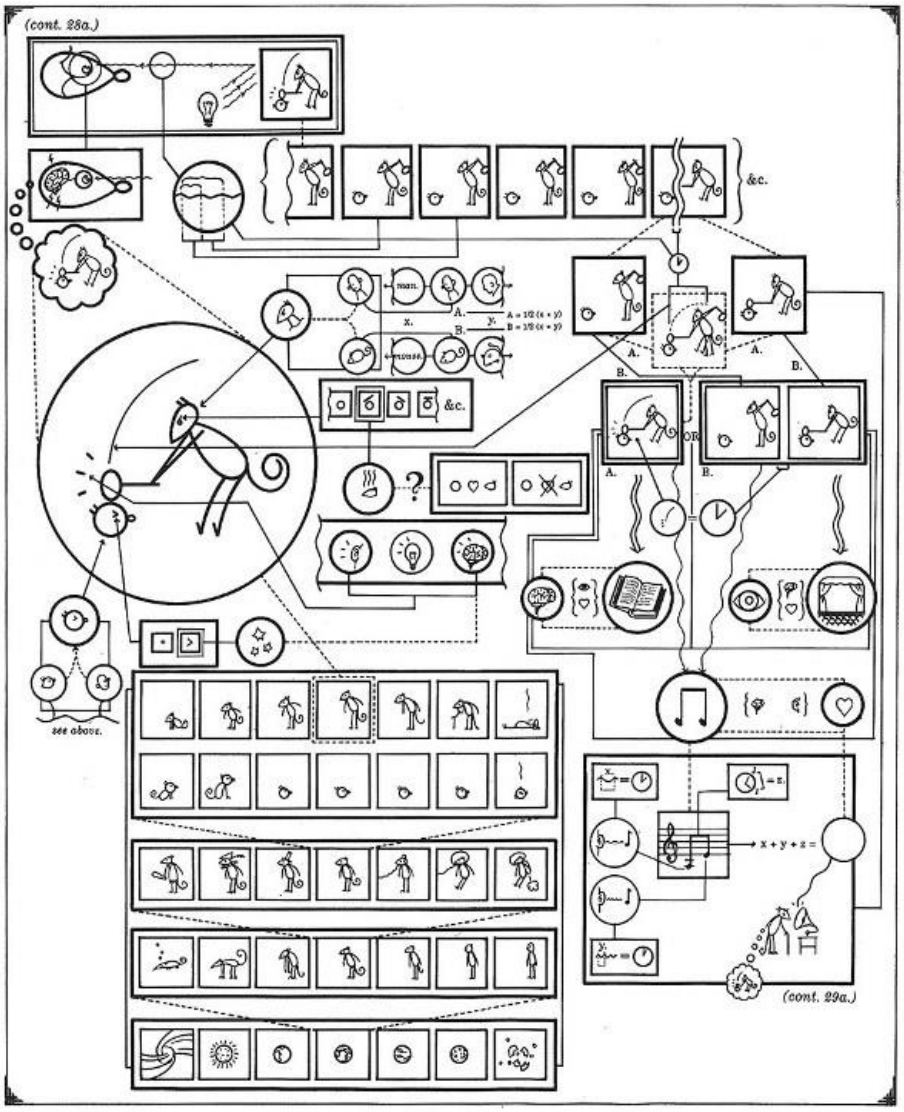

Figure 39: a page of Chris Ware's 'Quimby the Mouse'.

Likewise, there is Chris Ware's composition, exemplified by this comic page of 'Quimby the Mouse'[315] (see Figure 39). Here, Ware produces a purely iconographic composition that, at a wide level of focus presents as a dense pictorial manifold. While, at closer focus, it reads 'like words… so that when you see them you can't make yourself not read them'.[316] In doing so, Ware's composition employs spatio-temporally mediated juxtaposition of iconography to indexically generate a pseudo-symbolic text. This offers, as I see it, an advance truer to Noe's idea of a strange tool, compared to Sousanis' hard juxtaposition of iconography with alpha-

315 Daniel K. Raeburn, *Chris Ware* (Connecticut: Yale University Press), 20.
316 Ibid.

numerical text. That is to say, offering a much more reflexive, absorbed but also analytical metacognitive position.

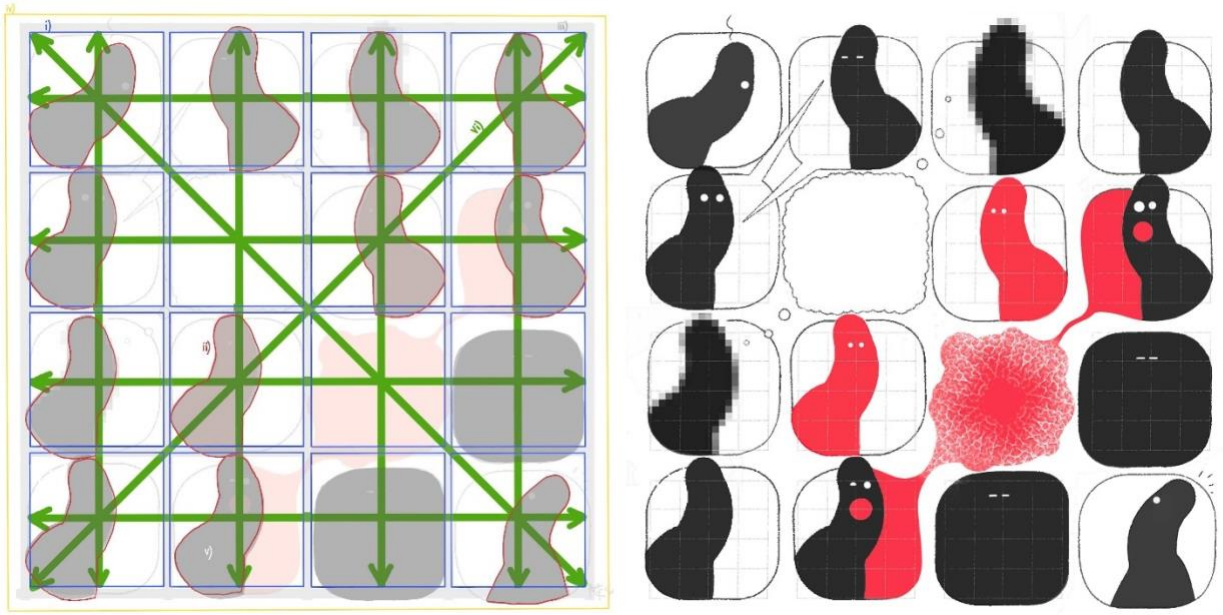

Figure 40: A colour coded compositional analysis of my sequential artwork ‘Crowd’.

‘Crowd’ (see Figure 40) was an iPad/Procreate mediated work I drew aided by the strategies of al Rabin and Ware – as well as through feeding back in to the composition, content gleaned from non-linear review of touchscreen timelapse footage.[317] Advancing on my above compositional analysis of Sousanis’ work, 'Crowd' can be argued as executing a subjectively more self-focused affordance of metacognition than the image/text binary opposition of Sousanis. ‘Crowd’ does not need written text because it affords generation of its own, through a blending of function between index, icon, and symbol. By means of, while also allegorising, binary visual difference, becoming repetition, becoming symmetrical opposition, becoming binary difference and so on. This is afforded by a maximally non-linear, semi-open/closed ‘time as space’ grid framework when read, presenting as meaningful from any point or direction. On critical evaluation of ‘Crowd’, however, it became clear that here also it would be possible to still further blend its index/icon/symbol function, by representing time as not only a Euclidean/rhizomatic space, but also a fractal spacetime. In this way, I provided myself a framework on which to further dissolve

[317] Available to view at: https://vimeo.com/597464044.

any ingrained use of the touchscreen as glorified ink and paper, thereby affording more of my medium's native agency to express itself. From this point, as work unfolded and this unfolding was concurrently analysed and fed back in to the work, there came to be traced a fractal grid form, arguably describing my digital interface relations' 'homogeneous substrate from which constructions are built'.[318]

3.13 Touchscreen Unflattening as identifying Operative Chains: v) An Icon and Symbol grid, positing Signified or Signifying decisions.

It is arguable that contemporary digital interfaces are beginning to function as inescapable apparatuses - functioning increasingly as what Morton called a 'hyper-object'. Driving research amid such risk is that things might have and can still be different. As covered, this is the main assumption of Media Archaeology - albeit therefore not by pursuing understanding, but literacy. In short, by seeking to reflect, understand, and adapt the iPad interface's use of language, or cultural software, in this case the app Procreate.

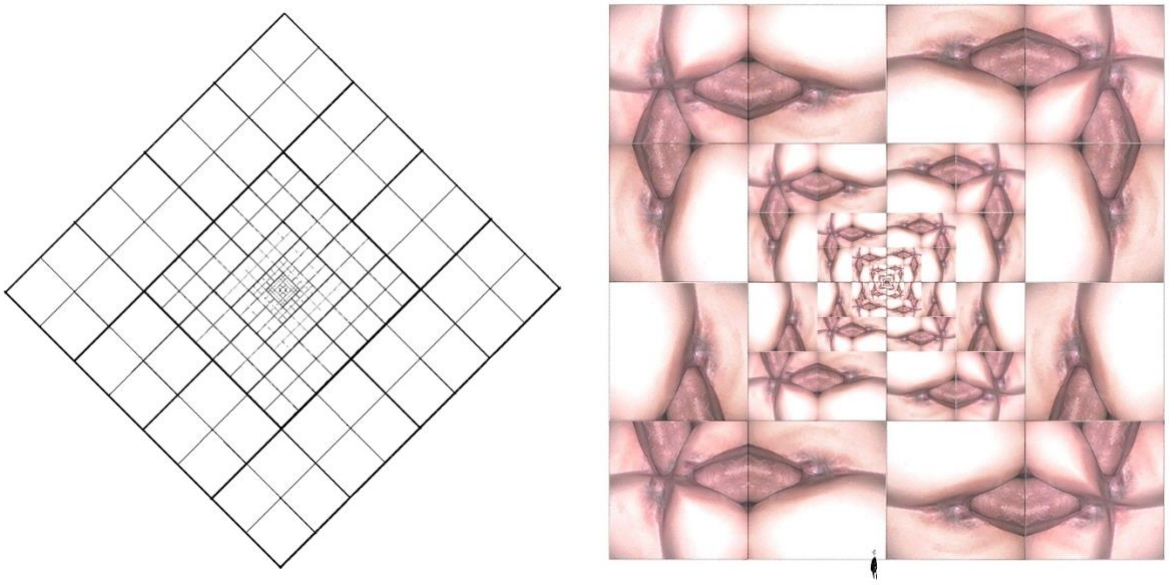

Figure 41: Becoming hyper-complex Icon and Symbol Grid.

[318] Hannah Higgins, *The Grid Book* (Massachusetts: MIT, 2009), 8.

Figure 41 is a becoming hyper-complex Icon and Symbol grid that thereby meta-interfacially traced by means of work executing an increased self-affect analytically focused, intense sexually explicit visual-tactility. As Deleuze posited:

> 'Language is not made to be believed but to be obeyed… neither informational nor communicational. It is not the communication of information but something quite different: the transmission of order-words... each statement accomplishes an act and the act is accomplished in the statement'[319]

In apprehending this, there comes opportunity to, again in Deleuze's words:

> 'have dismantled one's self in order finally to be alone and meet the true double at the other end of the line... To become like everybody else... be nobody, to no longer be anybody. To paint oneself gray on gray.' [320]

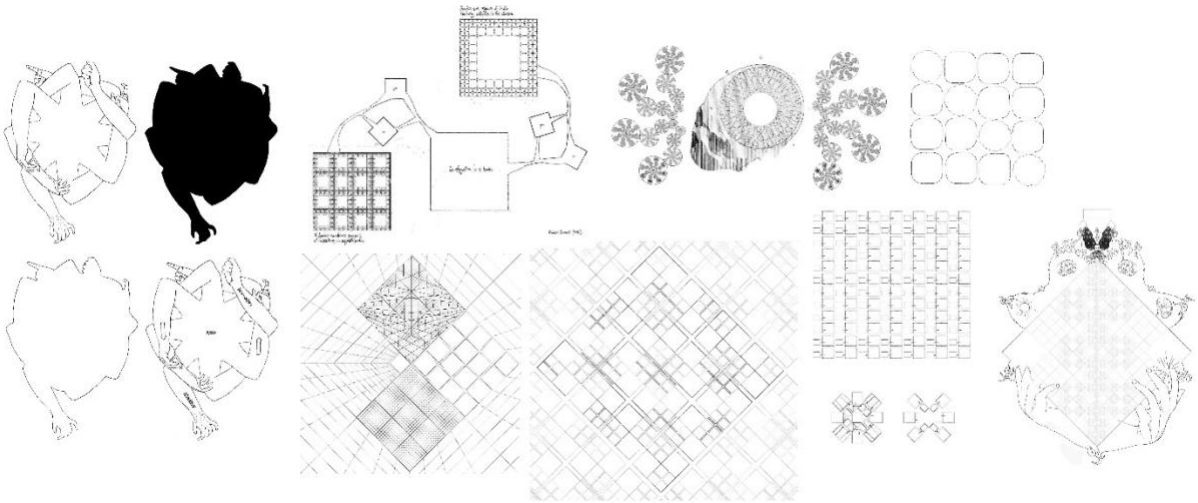

Figure 42: Annotations on the fly.

[319] Gilles Deleuze and Felix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (New York: Continuum, 2004), 99.

[320] Ibid, 218.

Concurrent with following my diagrammatic concern, I began to produce work incorporating annotations made on the fly (see Figure 42). Acting on this awareness, my aforementioned diagrammatic concern needed to move beyond alphanumerical note taking as a means for metacognition, given an increasingly complex and therefore embedding operative chain relation. To this end, my practical experiments hit upon remixing extant photographic media gathered from the internet, as a means to visually affect moments of empathised tactility. This would, I reasoned, position me to at once engage in, but also interrupt my absorbed flow-state while using iPad/Procreate. Allowing, therefore, my interface to retain own most expression of its agency - by essentially facilitating it to recruit my own absorbed engagement, through my body-sense. To this end, employing iPad/Procreate's easy ready-to-hand internet connection, as described earlier I began doodling with a palette of macro-photographic representations of human skin, depicted in acts of touching and being touched. It was around this point I became aware of subjective moments when the presence of this visual imagery coincided with events of purely empathised, sensorily imagined tactility. When this visually evoked empathic affect was executed in the same moment as my mechanically evoked tactile affect, when touching the screen's physical surface, I noticed my attentional focus begin to divide between these two imaginary and sensual, internal and external focused modalities.

Further understandable as an example of Manovich's 'deep remixing', this normally affect-level, below conscious awareness process may ground how meaning is consolidated through the interface relation. Namely, working between linguistic, perceptual and motor contents, and the symbolic form given to them from this touchscreen relation emerged affectively symbolic relations. Subjectively speaking, applying Ponty, I came to position myself toward my own agency as being a:

> 'task… to conceive, between the linguistic, perceptual and motor contents and the form given to them or the symbolic function which breathes life into them… neither the reduction of form to content, nor the subsuming of content under an autonomous form.'[321]

[321] Maurice Merleau-Ponty, *Phenomenology of Perception,* trans. Colin Smith (London: Routledge, 2002), 145.

Something like the experience of reading a text thereby arose - when coupled with my removal of non-essential detail from the figurative/iconic photography source material. That is through my layering and symmetrical doubling, abstracting these sources until there arose an affect like a 'vacuum into which our identity and awareness are pulled'[322] Such becoming-symbolic, visual-tactile affects positioned me to at once both place myself as a particular entity, through their figurative/iconic element and as an abstract through their symbolic element.

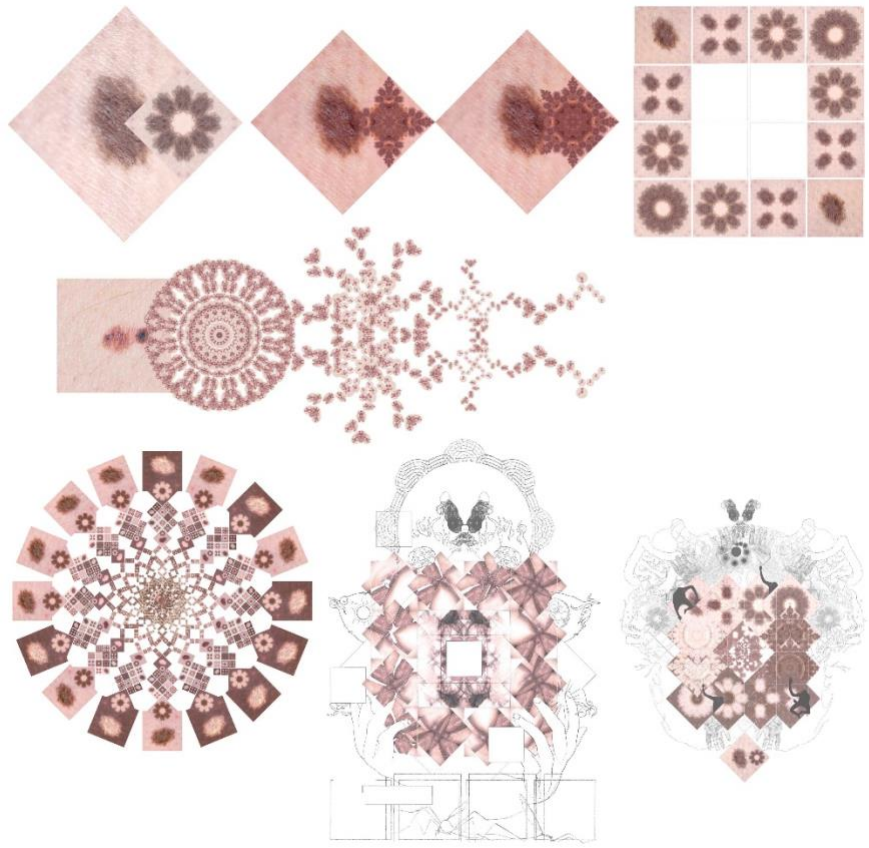

Figure 43: Gridded experiments.

In reading iPad/Procreate's 'retinal' pixilation with visual-tactile execution, I began to explore subjective borders between iconic and symbolic, indexical meaning making (see Figure 43).

[322] Scott McCloud, *Understanding comics : the invisible art* (New York: Harper Collins, 1994), 36.

From these branching narrative-like sequences, formal juxtapositions presented themselves, becoming self-referential fractal compositions and grid networks; pseudo-syntactical systems; ontologising schema, through which otherwise withdrawing actions at play in its host interface relation might come forward, to the maximally granular level of barely objectifiable affects. As relational complexity increased, however, toward continuing use of my iPad and Procreate as a philosophical meta-interface, an argument for appropriating some classical metacognitive frameworks came to be made as base-line ways of doing metacognition that promote authentic, and so sustainable human wellbeing. For instance, Jungian narrative archetypes: stories that, over biological evolutionary time, are thought to have translated successful responses to environmental challenges into contemporary cultural behaviours. Narratives, that is, that encode and help execute deep, atavistic affects. Having abandoned narrative text as a form, I opted therefore to use a more intense visual-tactile language, that of sexually explicit images. In doing so, I was able to trace more complex relations, through an even more tensely fused affect, retaining focus on my meta-interface reading.

3.14 Touchscreen Unflattening as identifying Operative Chains: vi) An Outside and Inside grid, positing Different or Same decisions

As Siegert argued: apparatuses, cultural techniques, or mechanisms of power and control 'always already contain body techniques… [and so] culture begins with the introduction of distinctions' into how we experience our own body.[323] By the same means Zuboff's thesis of 'datafication' can be understood to drive surveillance/platform capitalism's aforementioned 'digital twinning' process; a process, I argue, I have traced through the process covered in this chapter. That is, a rapid, socially distributed, and inter-referentially complex execution of back-and-forth mimesis correlating and blending internally arising subjective affects, or rhizomatic relations, with externally distributed objectifying signs, or branching relations. In doing so, either stasis in, or change to our extant ways of doing metacognition can, essentially, be socially/semiotically written by actors other than ourselves.

[323] Bernhard Siegert, *Cultural Techniques: Grids, Filters, Doors, and Other Articulations of the Real*, trans. Geoffrey Winthrop-Young (New York: Fordham University, 2015), 28-34.

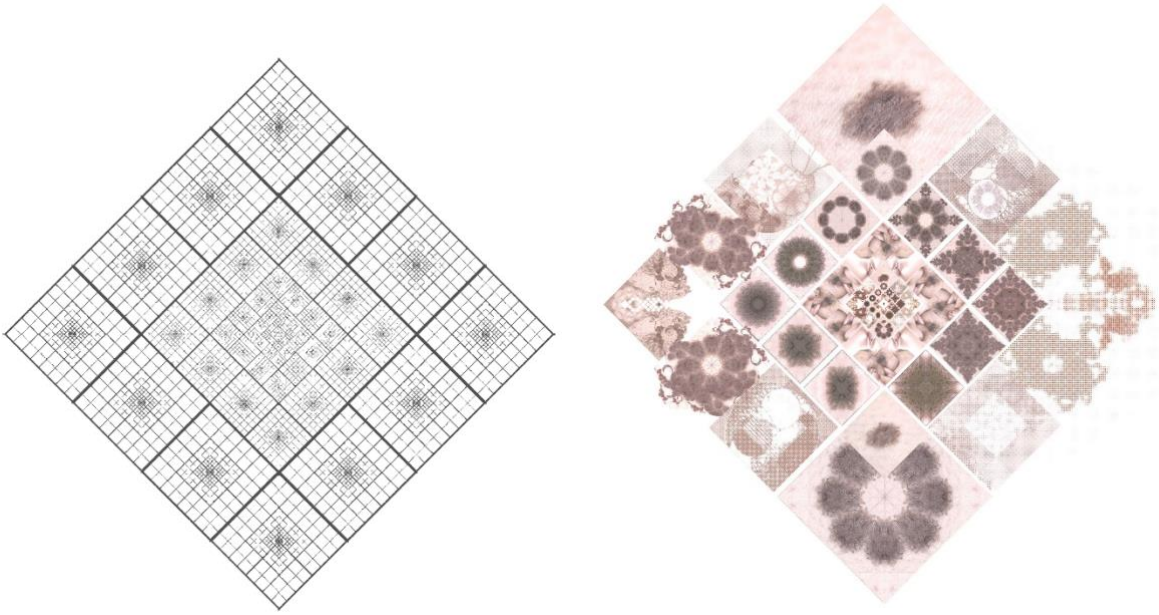

Figure 44: An Outside and Inside grid.

The grid in Figure 44 was traced through iterating my final artwork of this thesis, ‘See Feel Say’ that brings together compositions identified in (i) to (v) above. ‘See Feel Say’ is a digital graphite drawing, incorporating digitally collaged and manipulated macro-photography of human skin. It is made on and intended to be encountered using a touchscreen.

3.15 Exhibition & Workshop

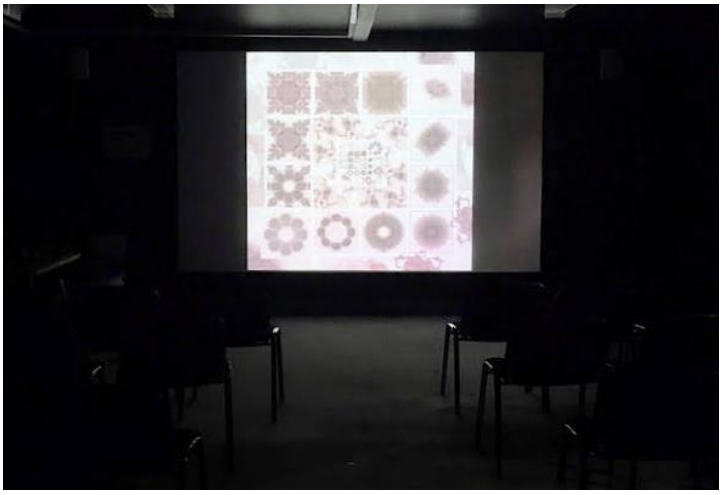

Figure 45: 'Feel Say See'.

'Feel Say See' (see Figure 45) is a sister work to ‘See Feel Say’. It is a wall sized, infinitely looped 4K moving video projection, rendered from assets produced in the making of ‘See Feel Say’.[324] By remixing legacy media, and aiming to employ capabilities peculiar to the digital medium, my line of practical inquiry developed in to an adjacent medium of public digital video installation. This produced a sister artwork 'Feel Say See', after Phaedra Shanbaum's artwork encounter-derived futurology of the digital interface relation and Andersen and Pold's linguistically comparative, in Barad's terms critically 'diffractive' meta-interface methodology. Peer sourced comparative executional analysis of these twin works provided a further, social semiotic basis to draw from in pursuing my critical meta-interface methodology. In doing so, I was arguably made more able to comprehend my digital interface relation from a more fundamental material ground, in the manner of Barad and Flusser. Beyond, that is, legacy mediated correlationist languages for doing metacognition derived from Kant and Heidegger; implicated in the everyday, social aesthetic reproduction of commercial competition for power and control over and through my own and others’ agency. Having us position and so divide ourselves against it as an 'imaginary other'.

[324] A video document of this work can be viewed at: https://vimeo.com/761782937.

Encountering ‘Feel Say See’, the projected video installation work prompted an observation regarding execution of differential time perception, dependent on moving the direction of focus from the centre to the peripheral space of the composition. While the whole composition filled the visual field, it aimed to draw the gaze inward toward its smoothly regressing fractal centre, while also pushing the gaze back by means of its somatically uncomfortable content. What also emerged from participant feedback was that, possibly as a contingent affect of this aesthetic tension-motivated transition of the gaze, there came an attendant illusory sense of time speeding up and slowing down. Thus, constituting an interface surface, positioning its recipient toward experiencing, after Noe:

> ‘genuine, full-blooded, first-order engagements... [becoming] problematic for themselves... [affording attention to the] concealed ways we are organised by the things we do.’[325]

I invited live workshop participants to view and discuss, first unprompted then prompted, their own responses to encountering ‘See Feel Say’ and ‘Feel Say See’. The event was split into two parts, allowing use of its video recording to compare initial with guided responses to the works; the entire event was video recorded from two angles, so as to capture non-verbal, as well as verbal behaviours. The motivation of the study was given to be:

> ‘Paraphrasing sociologist Shoshana Zuboff - touchscreen interfaces are in the business of affording the commercial and political goals of increasingly powerful social agents, by gathering information and feeding it back in hidden and manipulative ways. While such as artist-researcher James Bridle argues this situation has likely already reached a point of no return - we might, he argues, still formulate "active metaphor... [for translating] experience in to new forms… of expression that exceed ourselves”. Thus, “think about [its] histories and consequences", toward developing greater individual agency and quality of life.’

[325] Alva Noe, Strange Tools: Art and Human Nature (Connecticut: Tantor Media, 2015), 209.

I stated that, to this end, I was trying to offer an advance on the praxis of artist and academic Nick Sousanis' graphic novel 'Unflattening'. Instead of Sousanis' paper and ink book, I would try to make a touchscreen critically reflect its own hidden feedback; its 'agent surfaces'. Participants were also warned that my work uses 'safe-for-work' photography of human skin textures. However, I made clear, while it may initially appear to be abstract and decorative, my work is also made using photography that includes sexually explicit content. Further reasons given as to why participants were invited to take part where that the interactive work was a first showing of the practice-led research component of my PhD and because GSA offered both a wide cross-section of digital 'newbies' and 'natives', as well as relevant expertise. Additionally, that the showing and discussion must be undertaken face-to-face because my work specifically seeks to critically anticipate embodied affects that are beyond current digital interface technology's abilities to communicate. The first section was viewing without the worksheet - then there was a short, free form, video recorded discussion about first responses to the works. Then, with the same people, there was a second viewing, using the worksheet - followed by an extended discussion around the final worksheet question. The whole event lasted around one hour. Participants first viewed the artworks for around ten minutes, while trying to write answers to these self-reflective questions: when encountering each work, which formal elements make -

1. My own presence come into focus?
2. The presence of the medium come into focus?
3. The presence of the artist come into focus?
4. The presence of a patron come into focus?
5. How, if at all, are the above causally connected to each other?

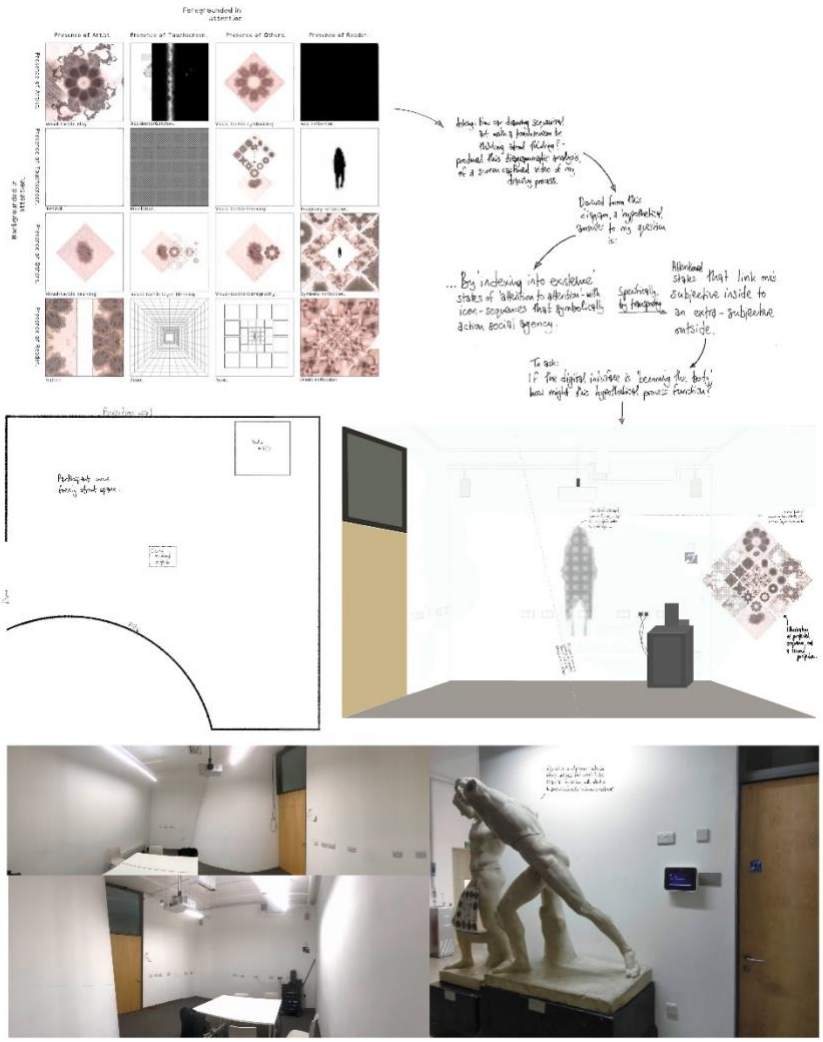

Figure 46: Sketch planning for the seminar/exhibition.

Evidenced from the video transcript, a general response of anxiety toward the work was present. When prompted, a number of reasons were voiced:

Excerpt 1 <T= 04:32>

~D

Does it speed up and slow down?

~M <T=04:35>

Interestingly, it's the processing speed of the computer that determines that .. So-it's. It's a

constant.

~D
-Yeah.

~M
-on its native.. Where- I made it, y'know? But- um. That computer, I've noticed, slows it down- And also there's a- well, again- its processing speed .. right at the end. Um- where the loop ends and it begins again.

~D
That slow down's quite interesting. But it's. You're almost anticipating a stop at some point.

~M
Yeah. I mean- I- um- experience-quite-high anxiety when that happens, to be quite honest.

~D
No. No. I do think it's really interesting.
-

Excerpt 2: <T= 29:40>

~D
Compared to this, where I. I'm willing to be able to walk very close to that, but once I start to zoom in on this, I feel very uncomfortable about touching certain parts of it.

~M
Well, absolutely. Yeah, sure. Mm. Especially, I mean, Um.

~D
But that's probab- that's also culturally

~M
Yeah.

~D
Embedded in me.

Excerpt 3: <T= 27:06>

~D
Can I say a few things?

~M
Yeah, go ahead.

~D
Just in terms of what I'd asked you at the start, that seems to slow down and you were talking about the speed of that. I'm not sure if that's the case.

~M
Okay.

~D
No, it's, it's just. I can stand here and I appreciate the speed. It feels quite fast.

~M
Yeah. Yeah.

~D
But actually once I get up close and I focus on this bit, I'm standing here. The speed is radically

different. It feels very different in terms of, you know, my memory of how

~M
You're right.

~D
fast it felt from back there, feels radically different. I think that's really interesting.

~M
It is, yeah.

~D
So what's interesting about that, that, that idea, just focusing on one partic- one. one particular scale or resolution depends how close you are to it. how close you are to the screen. While you've got your touch screen you're zooming in and out with your hand, but your. your ocular distances is the same.

~M
Mhm.

~D
Whereas this. there's a different interface here. There's a, there there's a movement of the eye towards it, as well as that acce- um acce- well not necessarily accelerated towards you, but its. so it's, it's that again said, you know, you, you used the word flattening. there's there's another type of flattening happening there, to me. And so, so it makes me.. and you know, the other thing I'm I'm very aware of is that this isn't. This, this is, this is light.

3.16 Formative Summary Conclusion

The ‘Unflattening’ of my iPad/Procreate interface relation aims to do so by critically integrating digital and physical interface mediated ways of doing metacognition. Upon Hannah Higgins’ notion of the fractal grid as a framework for encountering human cognition as such, I sought to critically encounter how iPad/Procreate does metacognition after western correlationist ontology. To do this, I remediated the relatively branching metacognition in iPad/Procreate’s remediation of legacy media, with its fuller rhizomatic metacognitive capability. In doing so, I made iPad/Procreate into a ‘meta-interface’, able to encounter and remodel its own ‘operative chaining’ of recipient cognition.

In this, Nick Sousanis’ ‘Unflattening’, paper and ink book metacognitive comic art, was the main informant. I critically appropriate Sousanis’ praxis for my digital interface medium, by drawing fractal grids with iPad/Procreate. Beyond Sousanis' paper and ink bound praxis, iPad/Procreate realises ‘deep remixing’ of diverse affective syntaxes of visual and somatic media. In particular, as revealed in the practice-led evolution of my fractal grid framework, I outline a syntax of affected somatic/semiotic binary opposition, produced through my iPad/Procreate interface relation.

Conclusion: What is the cultural software of a visual-tactile touchscreen?

The workshop reaction to ‘Feel Say See’ points toward a need for further practice-led investigation of how spatial proximity relates to perceived time in my digital interface relation. Additionally, contingent to this was a need to ask what role, if any, this relation may have in indicating minimal necessary ethical criteria for ongoing critical interface design. To this end, further meta-interfacial research is needed, toward understanding how algorithmic signs can be instantiated by grid frameworks for doing metacognition, embedded in different legacy media. Accepting Shanbaum, such research may be best focused by a concern to address digital interfaces’ imminent integration with the body, as their operative surfaces withdraw behind blurred technological versus biological remediations, and affect-level somatic feedback loops. It therefore also seems appropriate that future practice-led research be specifically concerned with investigating human face in its role as a social semiotic surface, or source of language for doing metacognition. Historically, the body as an interface surface has been typically investigated by performance artists. Toward appropriate future development of the meta-interfacing aspect of my practice-led methodology, I therefore now posit examples of performance artists' work that may point toward further practice-led ways of critically encountering otherwise tacit affect relations of my iPad/Procreate interface.

4.1 Marina Abramovic’s ‘The Artist is Present’: biological presence as meta-interface

Figure 47: Marina Abramovic - ‘The Artist is Present’.

Regarding ‘The Artist is Present’ (see Figure 47) Abramovic explains her process as:

> ‘more important than the result, just as the performance means more to me than the object... to stage certain difficulties... in front of [an] audience and go through them and tell the audience, “I'm your mirror...”’[326]

Likewise, Abramovic’s 2010 audience collaborative performance sounds much like a touchscreen interface relation. That is:

> ‘a paired-down, long-durational piece that destroys the illusion of time.. [giving] people a space to simply sit in silence and communicate with me deeply but non-verbally... I become a mirror for them of their own emotions.’[327]

Akin to Stelarc, if carefully re-designed to be a biological ‘deep remixing’ of a digital interface relationship, and as contiguous with goals of competing social agents, Abramovic’s performance might function as ‘strange tool’ for foregrounding otherwise withdrawn systems of digital interface affects.

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326 Marina Abramovic, *Walk Through Walls: A Memoir* (New York: Crown, 2016).

327 Sean O’Hagan, ‘Interview: Marina Abramović,’ *The Guardian*, October 3, 2010, https://www.theguardian.com/artanddesign/2010/oct/03/interview-marina-abramovic-performance-artist

4.2 Deborah deRobertis' 'Origin of the World' protest: gendered remediation as meta-interface

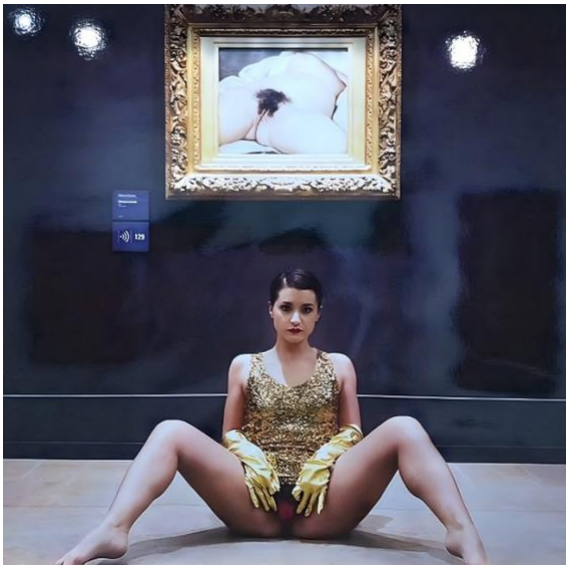

Figure 48: Deborah deRobertis' 'Origin of the World' protest performance: 'Mirror of Origin', 2014.

Similarly, deRobertis' performance might function as 'strange tool' for foregrounding otherwise tacit competition for social agency, playing out through digital interface affects. deRobertis exposed her genitalia in front of Gustav Courbet's painting 'Origin of the World' (See Figure 48). By doing so, she forced two media, performance and figurative oil painting, to be read each in the other's terms. Understood in light of Gell, deRobertis' placement of herself in situ sets up an aesthetic tension between her clearly articulated indexing of personal agency, and the painting/gallery's ideological agency.[263] Through her act of remediation, deRobertis foregrounds the topography of an 'uncanny valley' historically taken as the natural order of things, expressing through the presentation of cis female bodies for the heterosexual male gaze. The subsequent covering up and arrest of deRobertis, away from the nevertheless prominently displayed and protected painting, exposes the hypocrisy of patriarchy adjacent claims to objective moral and legal 'decency'.

4.3 Yannis Kyriakides' 'Nerve': multimedia performance as meta-interface

Figure 49: Yannis Kyriakides' 'Nerve', 2012.

A way of exploring the reproduction of Gell's aforementioned 'contextual inertia' through digital interface relations may be to appropriate methods from Kyriakides' 2012 'Nerve' (see Figure 49). Kyriakides here explores intermediary tensions between written textual, musical, and first-person subjective indexing of inner life, in this case experience of stage fright. While a full orchestra plays, projected text describes in the first person how a pianist suffering stage fright is feeling, as he is about to enter on to the stage[328] - a digital interface relation being capable of remediating all of these modalities.

[328] Alfred Gell, *Art and Agency: An Anthropological Theory* (Oxford: Oxford University Press, 1998), 14-19.

4.4 Mark Rothko’s post-‘Multiform’ compositions: visual-tactility as meta-interface

Figure 50: A Mark Rothko post-‘Multiform’ composition.

For my present practice-led thesis, however, I set out to appropriate Rothko’s post-‘Multiform’ compositions (see Figure 50). As with my iPad/Procreate relation, Rothko’s work can be understood as a diagrammatic act of abstractly performative, embodiment reflecting self-portraiture. In 2002, in London's Tate Modern I first encountered their collection of Rothko's 'Multiform' paintings. Here, Rothko allowed specific material relations to develop that produced sensation at the level of embodied affect. A reflexively iterated layering of paint produced hyper-nuanced visual planes of tonal colour and texture. This acted as a visual remediation of Rothko’s first-person subjective sense of having and being a body, executing a proto-symbolic and trans-personal communication of empathised embodiment. Similarly, Rothko’s peer Barnett Newman applied minimalistic colour fields and line, aiming to access an atavist aesthetic of:

‘poetic outcry rather than a demand for communication. Original man, shouting his consonants... an animal power’’[329]

Refining Newman’s process, through use of finely nuanced texture-colour abstraction, Rothko aimed to qualitatively address not only his own but a universal embodied sense, 'putting oneself at a distance', as a spatial and temporally extended, distributed, empathic visual field of body sensation. Although Rothko was secretive about his processes, his paintings have undergone extended material analysis, uncovering a process not unlike the hyper-iterative function of a touchscreen interface relation, using:

> ‘brush work, each layer made from a unique medium... modifying the properties of oil paints to achieve the flow, drying time and colours he needed... allowed him to apply subsequent layers within hours... diluted without losing their coherence... phenol formaldehyde to prevent layers from blending into one another. Each mural differs with regard to its paint mixture or the layering sequence, suggesting that Rothko constantly experimented.’ [330]

Compositionally, Rothko's mature work is therefore understandable as a diagrammatic form of self-portraiture contingent with a long and wide tradition of work employing embodied reflectivity. Rothko explains his motivation for making such work as, reflecting why artists often continue practicing despite significant economic hardship, because:

> ‘the idea of immortality cannot be altogether discarded... the kind that man has instinctively perpetuated throughout his existence... the notion of biological immortality, which involves the process of procreation, the extension of oneself into the world of the perceptible environment... This relates the artistic process to every other essential process; one that is biological and inevitable.’[331]

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329 Barnett Newman, in *Barnett Newman Selected Writings and Interviews*, ed. Mollie McNickle (California: University of California, 1992), 158.

330 ‘Rothko's methods revealed,’ *Nontoxic Print*, accessed December 23, 2022, https://www.nontoxichub.com/rothko-methods.

331 Mark Rothko, *The Artist's Reality: Philosophies of Art*, ed. Christopher Rothko (Yale: Yale University, n.d.), 8.

Accordingly, this may provide insight as to how and why a touchscreen interface relation engages us, sometimes to the detriment of personal wellbeing. Consistent with Terror Management Theory, Rothko suggests that he makes such work in an attempt to mitigate feelings of radical anxiety around personal mortality. That is, much like Lacan, in order to seek out, build, and protect a way of doing and knowing that provides a sense of ourselves as 'significant beings in an enduring, meaningful world rather than mere material animals fated only to obliteration upon death'.[332]

4.5 iPad/Procreate as 'operative chain' meta-interface

A more fleshed out direction for further research is a social-semiotic extension of my above analysis of iPad/Procreate as an operative chain. Namely, as being part of a social-aesthetic competition for power. Read through a further grid framework adapted from Gell's 'Art Nexus', my earlier tracing of the iPad/Procreate interface relation as a branching operative chain may itself be analysed as part of a competition for social agency, through affecting the competing presences of myself as artist, iPad/Procreate as index, the grid as prototype, and surveillance techno-capital as recipient. This is traceable through compositional analysis of my first main practical thesis: 'See Feel Say'.

[332] Joshua Hart, 'What's Death Got to Do With It?: Controversies and Alternative Theories,' *Handbook of Terror Management Theory*, eds: Clay Routledge and Matthew Vess (Amsterdam: Elsevier Science), 65.

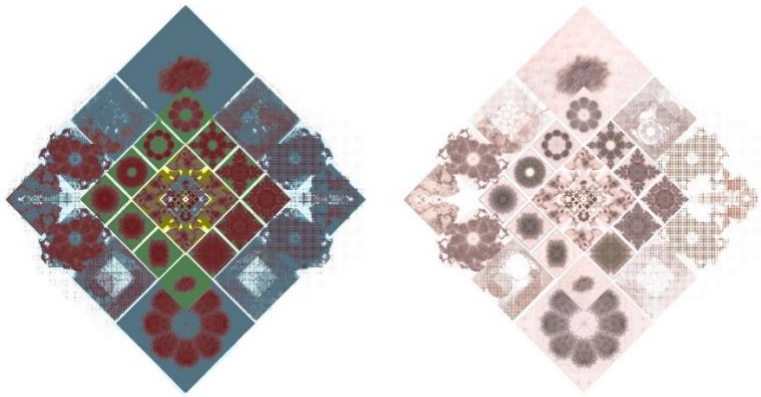

Figure 51: A colour coded compositional analysis of ‘See Feel Say’.

In my initial compositional analysis of ‘See Feel Say’, to enable comparison as to their meta-interfacing function, I used the same analytical criteria as I had for Sousanis’ work:

i/blue) Allegorical tableaus gather attention toward themselves and their compositional cousins, yet are also clearly stratified regions of
ii-red) erotic photographic touch, of different balances between specific and abstract; engaging one with touchscreen scaling, by means of
iii-light grey) ‘retinal’ screen, pixel-level detailed, positive/negative division of the page's embodied text-as-space.

These describe:
iv-yellow) sensate background (yet inviting foregrounding through scaling) tableaus – at its centre, just below the limit where the image begins to pixelate, is
v-dark grey) an anthropomorphic figure, encouraging empathic projection of oneself into the tableaux - due to the figure’s gestural abstraction.

Meanwhile:
vi-green) indexically juxta-posed 'panel/gutter' arrangements, readable as both text-like nesting and pictorially rhizomatic, invite a text-like specification and contextualisation. That is to say: an individually embodied attentional thesis.

This analysis provided insight as to the particular, enhanced hyper-textual capabilities of iPad/Procreate compared to paper and ink. It did not, however, allow explicit comparison between these media's indexing of social agency, and thereby functioning as metacognition. Toward this, while making my artworks I tried to take note of which compositional elements seemed to correlate with my interaction with iPad/Procreate as either an agent, patient, or somewhere in between, as described in Gell's 'Art Nexus'. On completion, with colour-coding I additionally tried to identify which manner of embodied aesthetic tension seemed to be executed by the compositional elements of my artwork. Concurrently, I also identified in what metacognitive positionality (Peirce's Firstness/Secondness/Thirdness) the compositional elements seemed to place me. My experience of these correlations, foregrounded through the aforementioned 'visual-tactile' juxtaposing of mechanically derived tactile qualities (correlation experienced as actually causal 'effect') with empathised tactile qualities (correlation experienced as virtually causal 'affect') - together produced complexes of correlations, or aesthetic tensions between 'sensual objects' (singular correlation, experienced as actually causal 'effect'), 'sensual qualities' (manifold correlations, experienced as virtually causal 'affect'), 'real objects' (singular correlation, implied but not experienced), and 'real qualities' (manifold correlations, implied but not experienced).

Accordingly, it can be concluded that by 'operative chaining' of these processes, said information scaling grids function as a socially/semiotically distributed apparatus. Consequently, it is in facilitating the reading of this apparatus through a 'flat ontological' grid composition - that 'See Feel Say' and 'Feel Say See' functions as a 'strange tool' philosophical artwork.

4.6 Framework for a Social Semiotic/Aesthetic Focused Compositional Analysis

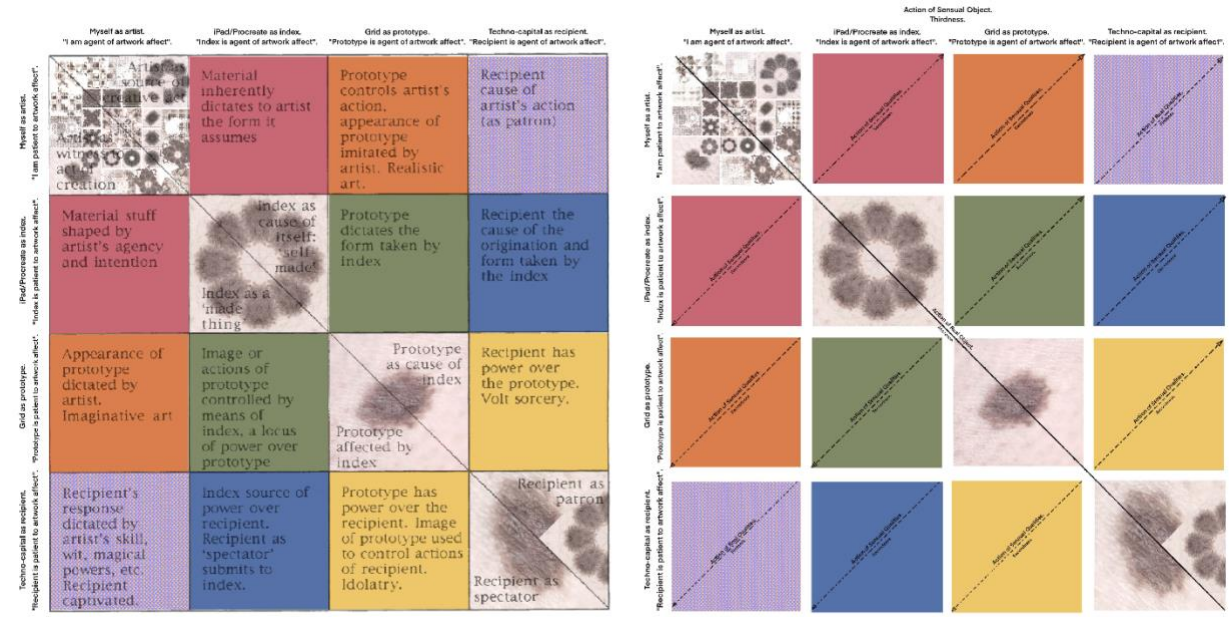

Figure 52: Modified 'Art Nexus'. iPad/Procreate social semiotic, aesthetic apparatus.

The above duplicate diagrams are to be read as contiguous, but for ease of reading they have been split into two layers of information, incorporating Gell's Art Nexus, Harman's object/quality aesthetic tensions, and Charles Sanders Peirce's 'phaneroscopy'.

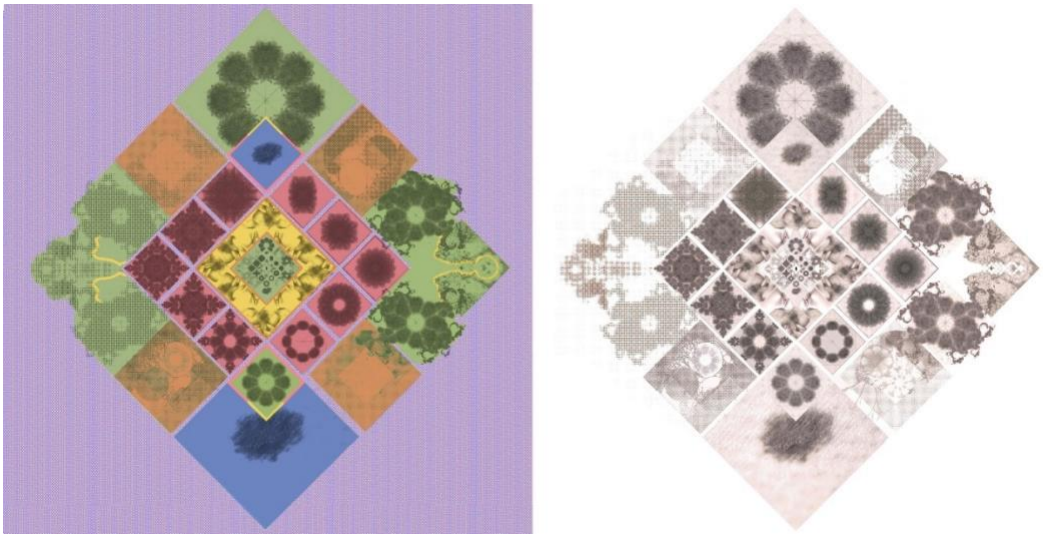

Figure 53: Further colour coded analysis of 'See Feel Say', pertaining to my modified art nexus (above).

The operative chain comprising my interface relation came to be traced as scalar grids, emerging from my effort to realise a practice-led form of metacognition specifically focused by and on iPad/Procreate. These grids communicate the competing presences of techno-capital as a recipient, versus the grid as prototype, versus iPad/Procreate as index, versus myself as artist. This is a competition to tacitly signify, through remediation, themselves or another as the original meaning of subjective affects arising through the interface relation. It is performed through the relation's facilitating me to engage with it, back and forth between first, second, and third person subjective positions. In the first person, I appear to myself as my own original agent of meaning making. In the second, another appears as such. In the third, I and others appear together as such. In my case, this positioning is executed through the relation's tense fusions of branching and rhizomatic body-sense. Through my analysis, I have sought to effectively pull this subface relation toward the surface of the iPad/Procreate interface.

Upon these terms, the detailed combinations of agent/patient relations comprising social aesthetic competition for power are many - and may require the space of their own thesis. As proof of concept however - from the diagram, I posit some headline rules of this social aesthetic relation, specifically pertaining to a key element of my thesis, the aforementioned execution of first/second/third person positionality:

4.7 First person positioning

I as artist am agent of the artwork affect when I am also patient to the artwork affect. iPad/Procreate as index is agent of the artwork affect when it is also patient to the artwork affect. The grid as prototype is agent of the artwork affect when it is also patient to the artwork affect. Techno-capital as recipient is agent of the artwork affect when it is also patient to the artwork affect.

4.8 Second person positioning

iPad/Procreate as index is agent of the artwork affect/myself as artist is patient to the artwork affect.

The grid as prototype is agent of the artwork affect/myself as artist is patient to the artwork affect.

Techno-capital as recipient is agent of the artwork affect/myself as artist is patient to the artwork affect.

4.9 Third person positioning

I as artist am agent of the artwork/Techno-capital as recipient is patient to the artwork affect. iPad/Procreate as index is agent of the artwork affect/Techno-capital as recipient is patient to the artwork affect.

The grid as prototype is agent of the artwork affect/ Techno-capital as recipient is patient to the artwork affect.

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Appendices

Appendix i

Searchable online album of visual resources used as a ready-to-hand notepad and source bank, during my making and analysis of artworks.

Available at: https://photos.app.goo.gl/eRv4H1z58uZeMp8z9

Appendix ii

Exhibition seminar video can be accessed at: https://youtu.be/kCM99kcXNto

Appendix iii: Full Transcription of Exhibition Seminar Video

<T=00:00>

<T=00:02> ~M
Hello,

<T=00:03> ~B
Hello. Is this the workshop?

<T=00:07> ~M
.. (H) Um. Yes, yeah yeah it's- um- we're kind of just looking at it until, uh, ten past three? quarter past three.

<T=00:17> ~B
Mhm.

<T=00:18> ~M
So just fill yer boots and- . Hi Dave. Hi. Hi, how are you? Um- if you could- um- Hi there. Hiya.

<T=00:27> ~D
Hey Michael. How are you?

<T=00:28> ~M
Um- we've got the consent forms here. It's- Um- If you could- Um- if you don't mind- fill out just tick the boxes before we start?

<T=00:38> ~D
Uhu.

<T=00:39> ~M

There's- um- pencils and pens here and- uh- all forms there.

<T=00:47> ~D
I'll put th- Put the light on?

<T=00:48> ~M
Yeah. Thankyou.
<T=00:55> That's it. Yeah.
<T=01:02> So, yes, I'm Michael, by the way- hello. I don't know if- um- Dave's told you but -uh -I am .. PhD student- um- and this is my work. So jus- just trying to get responses to it.

<T=01:19> ~D
Fill out the form .. Yea- Just because it's part of a research project. Michael needs your approval.

<T=01:28> ~M
Yah.

<T=01:29> ~D
How are things going?

<T=01:31> ~M
All right, yeah- Um. I thought Haldane was- um- in the Reed Building. and then- and then I thought it was in the Barnes Building- And then I discovered it was here. an- I should've known- uh- really.

~D
Aye, well sure. It's great that this room's been cleared. We came and saw this room. Didn't we? About a year ago.

~M
Mhm.

~D
Yeah. Full of stuff.

~M
Mm. No, it was great. All the, um, chairs were lined up and stuff.
How's it going? Alright?

~D
Yes. I've been off a bit, over the summer. I had a whole pile of leave built up.

~M
Ah. Yeah.

~M
There's also, um, the iPad to look at as well.Pass it around. Feel free to approach or get close to it. Uh. If you want. Oh, thank you. Have you all had a. Um. held it?

~D
Does it speed up and slow down?

~M <T=04:35>
Interestingly, it's the processing speed of the computer that determines that .. So-it's. It's a constant.

~D
-Yeah.

~M
-on its native.. Where- I made it, y'know? But- um. That computer, I've noticed, slows it down- And also there's a- well, again- its processing speed .. right at the end. Um- where the loop ends

and it begins again.

~D
That slow down's quite interesting. But it's. You're almost anticipating a stop at some point.

~M
Yeah. I mean- I- um- experience-quite-high anxiety when that happens, to be quite honest.

~D
No. No. I do think it's really interesting.

~M
Okay, well, um. So what would.. first. first impressions? What, what, what is it. Um. How did it strike you as you entered?
What did you. What was your first impressions? How did you feel?

~?
First impressions. I just feel like it was a beautiful pattern.I see your visual. Um. visual picture is something about sexual.

~M
And how, how, how did you feel about that? Uncomfortable? Not bothered?

~?
Um. Not really uncomfortable.

~M
So that's why I needed you to take the. Um. the, the permission slips. Um, well, okay. I've got some, um, worksheets and, and it's five questions. Um, it's really for now just trying to concentrate on four questions. You can fill them all in. You can fill none of them in. It's up to you. Um, have we. I've neglected to bring things to lean on. Um, so I think we're probably gonna

have to use the table. Um, ok.

~D
Do you want to talk about what the work is part of, or is that something you wanna wait until afterwards?

~M
Yeah.

~D
Okay, that's fine.

~M
No, it's just in the discussion after-

~D
Yeah.

~M
I think, um, cuz- thank you. and there's some pens and pencils there. um. and they're quite straightforward. Right. Thank you. Just a sentence or couple of sentences. And, um, we'll say. Another five, ten minutes. If you've got any questions by the way, if it's not clear, ask. Absolutely fine.

~D
Do you wanna say what you mean by presence?

~M
Okay. Um, the, um. Well, when you come into a room and there's no one there, you don't feel presence. When you come into a room and there's someone there, you feel their presence. Yeah. Um, and my idea - it's not actually my idea. It's, um, a bloke called Alfred Gell. Um, my idea is

that, um, works of art have their own presences, like people. Um, and within work. works of art, there are presences of different people shown as well. So there's the artist's. The patron of the work. Um. meaning the person who paid for it or, um, the, uh, person who, uh, allowed or, or, um, uh, gave the artist the means to make the work, maybe. Um, and there's the medium of the work, which is the, um, in, in this case, it would be, um, uh, digital and photographic. Um, and so in some works of art, you might, the medium might not be completely obvious, like your hyper real works of art, for instance, um, you may forget the medium. If only momentarily. Um, and some works of art, the medium, uh, is obvious. So you've got the, um, you know, the abstract paintings and the textural paintings, um, impressionist, things like that. So I would be interested to, to know what you thought, how you could answer those questions in relation to this particular piece, as well as. Um. The, the piece on the iPad. Is that clear?

~?

Mhm.

~M

Okay. Thanks.

Perhaps a simpler way of putting it, or an al. an alternative way of putting it would be, um, what does the work say about itself?. Um.

Is it that the work, is. is. like. a bit too worrying to approach or is, is it. Uh. Like. Do you particularly enjoy that side of the room? Or..

~?

Yeah. It's good.

~M

Um. Again, you know, absolutely feel free to, to, to go up to it. It's. it's um, I know there's a risk of the, um, shadow moving across, but, um, I'm not gonna jump on you for that.

~?

Um. Uh. Honestly.

~M
Yeah. Okay.

~M
Does it. Um. So does your presence, like, come to attention? So, uh, do you become aware of yourself in the moment, more? Or is that not there at all? So another way of saying it would be, um, does it make you feel self conscious?
Just. Is that clear?

~?
Um. I just dunno what. what to answer there.

~M
Is it something, is there something that, um, you can relate to in the work?

~?
Uh. Because I'm not. Um [inaudible] right now.

~M
Okay. All right, okay. What do you..

~?
[inaudible] medical imagery.

~M
Okay. All right, so you'll be used to imagery like that. But not in that way, obviously. Yeah. Yeah.

~M
True.

Okay. How we getting on? Is it a struggle. Are you getti- Uh. Okay. That's fine. Um, so, wh.. okay. I'll exp.. kind of. I'll explain what I'm trying to do, um, I'm trying to, um, disturb, um, habitual, um, um. everyday ways that we approach the touchscreen. We use the touchscreen. Okay. Um, specifically with this. Um, so what I'm trying to do is, um, we have a, when we use the touchscreen, we're not normally aware of the sense of touch. it. The surface. That. That touch kind of, um, has a tendency to disappear from attention. And, um, the idea is, is that in that. In that moment, a lot of things can be communicated and it's not necessarily, um, benign. It's not necessarily, um, going to, um, it's not necessarily in your best interest, let's say. So you've got like corporate actors and things like that. And, and designers such as yourself kind of using, um, the touchscreen interaction to speak in a kind of under the radar, kind of, um, slightly unaware way. w. ways that you might not have access to in that moment. So my idea was to use this, to disturb this sense of touch, um, and link it to things like, um, language. So you've got the, um, the, the raw feeling of, of, of the quite visceral kind of, um, shocking, really. um, uh, approach to pornography, um, and use elements of that to, um, juxtappose. compare and contrast. abstract them out, but compare and contrast their forms. So that's a kind. becomes a kind of language. It becomes a way of, um, maybe. Um. helping whoever's viewing it, whoever's interacting it, with it. to, um, speak in a different way, um, to reframe and to reposition and to approach the touch screen relation in a different way, more approaching language, more approaching consciousness. Um, and then from using, uh, this. Uh. Semiotic. Sym.. kind of near symbolic. kind of way of speaking, then, um, use it in a more free form, creative, um, suggestive way, um, like that can. may tell a story. So, uh, you've got this form here and then this is the opposite to what we. the. the cut out from this form. From this form here, but then other things are going on. So you approach it. What does that mean? Um, I'm not saying what it means. But, it's, it's a way of, um, well. my intention is that it's a way of, um, approaching the touchscreen relation in a different way in a, in a. Um. Helping the person viewing it and using it to approach the. approach the moment in a different way. So it comes from, um, well, there's two main people really. there's an artist called James Bryant. you. Um, so he's deliberately, um, kinda glitches and, and plays with how, um, digital interfaces and [inaudible] digital equipment, uh, normally operates. So he deliberately makes them break down through the way he interacts with them. Um, so I'm using that strategy, but I'm also using. um. trying to advance a strategy of a. a. um, artist and academic called Nick Sousanis, who, um, made a graphic novel. Um. And he tried to do the same thing

really for, well, actually the same thing for, um, a normal paper. paper book. I'm trying to do that touchscreen. And he uses comic. specifically, um, the image with text. You've got an im.. like images kind of narrating and doing stuff. And then you've got the text giving the kind of theoretical context to that, and what's happening. And his idea is, is that the juxtaposition of image and text, um, uh. disturbs the normal way of using the book, the normal way a book kind of leads you to think in a more linear way. So I'm trying to do that with the touchscreen. The word element, being the, um, the transition from this. uh. visceral. um. imagery, to this kind of proto-symbolic. to this kinda ambiguous narrative, and sort of. This I. That's the. the theoretical basis of what I do. The idea, um, the there's a. an academic sociologist called Shoshanna Zuboff, um, who talks about, and amongst other people as well. Um, James Bridle being one of them as well. Um, who talks about, um, tries to anticipate how the digital interface is going to develop into the future. Um, and, um, so such as Mark Zuckerberg a couple of years ago now. about a year and a bit. talk about the embodied internet. Um. the embodied Metaverse. And so we have this, um, virtual reality speaking on a level of the body of something that you wouldn't. n. necessarily be immediately aware of. Um, the upshot being that this, um, problematic relationship we've got with the touchscreen now, um, has the capacity to become more problematic and more invasive, more under the radar. Um, so this idea. Uh. I'm trying to get to the, um, trying to anticipate, and find a way to think about and experience, um, how this embodied interface might develop, how we might relate to it on a more conscious deliberate. Um, kind of individually useful way. Um, so that's, it that's me [laughs]. So what I was trying to do was, um, with bringing people to have a look at it and, and experience it and kind of reflect about it in, in, in terms of presences. Um. Was to, um, see if I'm kind of, cause there is a tendency when you're making something just to get really involved with it and you go off on a tangent and you, no one else knows what you're on about and what you're actually doing. So this i.. it's put me in touch with reality. I think. a bit. a bit more. To make my work better really, I think, um, because it's necessarily ambiguous it doesn't, um, i. i. it's a way of doing something as opposed to a message I am giving. If that's clear.

~?

That to bring you back to reality. Sorry.

~M
It's alright. I.. I am trying to provide a way to think about whatever you need, want to think about with. because the idea is that these interfaces are getting better and better at leading thought and leading how we think. Um, so it's, it's trying to, to, to glitch, it's trying to. to. Um, find a way to, to break that. And so we can talk about, um.

~D
Can I say a few things?

~M
Yeah, go ahead.

~D
Just in terms of what I'd asked you at the start, that seems to slow down and you were talking about the speed of that. I'm not sure if that's the case.

~M
Okay.

~D
No, it's, it's just. I can stand here and I appreciate the speed. It feels quite fast.

~M
Yeah. Yeah.

~D
But actually once I get up close and I focus on this bit, I'm standing here. The speed is radically different. It feels very different in terms of, you know, my memory of how

~M
You're right.

~D
fast it felt from back there, feels radically different. I think that's really interesting.

~M
It is, yeah.

~D
So what's interesting about that, that, that idea, just focusing on one partic- one. one particular scale or resolution depends how close you are to it. how close you are to the screen. While you've got your touch screen you're zooming in and out with your hand, but your. your ocular distances is the same.

~M
Mhm.

~D
Whereas this. there's a different interface here. There's a, there there's a movement of the eye towards it, as well as that acce- um acce- well not necessarily accelerated towards you, but its. so it's, it's that again said, you know, you, you used the word flattening. there's there's another type of flattening happening there, to me. And so, so it makes me.. and you know, the other thing I'm I'm very aware of is that this isn't. This, this is, this is light.

~M
Yeah. Yeah, right? Sure. Cause you're interrupting it.

~D
Uhu.

~M
Yeah.

~D

And, and I can see the resolution.

~M

Pixels. Yeah.

~D

I can't see it in the middle as much as I can at the. on the perimeter. So it's at different points in the image, is drawing attention to different qualities of that image too.

~M

No as well, when you look away from it. Your eyes are. Start to suck. Suck in kind of as an optical illusion. So it kind of. it. it breaks your reality abit as well.

~D

But that sense of an. an interface that's very. that is immaterial. compared to.

~M

Yeah.Yeah. Aye. Sure. Sure.

~D

Compared to this, where I. I'm willing to be able to walk very close to that, but once I start to zoom in on this, I feel very uncomfortable about touching certain parts of it.

~M

Well, absolutely. Yeah, sure. Mm. Especially, I mean, Um.

~D

But that's probab- that's also culturally

~M
Yeah.

~D
Embedded in me.

~M
And it's not, if it was maybe if it was. Like. I don't mean to suggest anything,

~M
But if it was your iPad, it might be different.

~D
Yeah. Very much so. Yeah.
But that, there's, there's a hesitancy in my approach to this, to this as a physical artifact, compared to my approach to that.

~M
See, I'm the, I'm the opposite because. that disturbs me. The infinity disturbs me. It makes me very anxious.

~D
Right. Okay.

~M
Um. Cause, cause I feel like there's a bit of myself being, like, lost.

~D
Sucked away.

~M

Yeah. It could be something to do with because I've made it.

~D
Mm. But th. you know, this on the wall is incredibly spatial.

~M
Yeah.

~D
Incredibly spatial. Especially af- I think, having the, this room at this time is really fortunate for showing just work.

~M
Yeah.

~D
I think it works really well in here.

~M
See the idea. I ma.. uh. you know, with the earlier one, I made a deliberate juxtaposition to the physicality of the table.

~D
Mhm.

~M
and the. the. uh. breakdown in physicality, the spatial and fractal nature

~D
Mhm.

~M
of that. And that idea was, was the idea. Well, we can kind of maybe draw juxtaposition between physical versus nonphysical.

~D
Mhm.

~M
future interfaces.

~D
No. I. I think there's. There's. Um. There there's such a tension between those two interfaces.

~M
Yeah.

~D
It really. really really works.

~M
So you got no control over it either. Although, then again, you have.

~D
Yeah. Cause you can move towards it.

~M
Aye. It's pretty clear, really. Yeah. See, cause I noticed in the past, cause I've, I've worked with little GIFS, literally like two frames of having like a, just catching a gesture. And I've noticed in the past that when you used jus. really like, um, a two kilobyte GIF, the. Uh. The individual processing speed and, and, and, and the variation in processing speed of the host computer is brought to the fore. So I instantly thought, oh, well, that's what's happening there.

~D

Yeah. I mean, you would just presume that, but it's. But then I. I know there was. there was an ambition to have some sort of like, um. Machine vision type interface, where you could control

~M

Yeah.

~D

With the movement of somebody in space to affect the. the visualization. I don't think it's necessary.

~M

I want, I want, I wanted to, when you move forward towards it, it push back. and then there was a limit that you naturally got to. Like in. Uh. what was his name? Um, he died recently. Is it Paul Moss?

~D

Dunno.

~M

Um, he used, um, the hazard tape.

~D

Uhu.

~M

and reflective surfaces.

~D

Uhu.

~M
And it was in an institutional setting. So hazard tape was like, oh, I shouldn't. really shouldn't step there. But you could only see yourself reflected in. Uh. when you stepped over the hazard tape.

~D
Okay.

~M
It was a bugger to get running smoothly as well. You can still see kind of glitches in the. in the centre.

~D
Yeah. It's. It's like, this one here.

~M
Yeah. It's cause it's pixelated itself. That was deliberate at the time. Cause I wanted it to fragment more as it, um, was, um, coming outwards

~D
Mhm.

~M
and be more like immediate, as it came out from the centre.

~D
Mhm.
Okay.

~M

So.

~D
I need to go on here, Michael.

~M
That's fine.

~D
I've got another meeting here to go on with. But great.

~M
That's fine.
We can just do it quickly really, but, um, there was a last question, um, was to, did you think, was there any of the elements that were covered in the first four questions. Was there any of that that you thought might, um, be relating to each other in a certain way? So for instance, um, say you can, you can probably, for instance, bu. see, or, or experience the presence of myself as the artist, in the fact that, uh, I've predominantly. well have used white skin. Yeah. And, uh, but maybe as well, I could only use that or felt that I could only use that because I'm working within an institution. I have a, um, i'm enabled by this institution, uh, to, um, talk to many people from all over the world, you know? Um, so there's a causal link between those things in that work. I would think that anyway. um, so I'll be interested in if there's anything like that, that might come to the fore in. in what you've been thinking as well. Does that make sense?

~?
Yeah.

~M
It's a very knotty question. Um. bu- ac- uh. ah. the reason why I've asked those questions and the reason why I'm asking that question is because, um, the work itself I'm thinking i. i. is, is a tool. For thinking about thinking, specifically about your thinking, specifically in relation to using an

interface, a digital interface, um, and what it's, how it's leading or not leading your thinking and your experience, uh, and Gell's theory, which that. those questions reflect. Is all about that on a kind of social, symbolic level. He does it in a grid. He uses, himself, a grid and he relates, um, the agent and patient. So it's the, the active, um, person with the power or thing, whatever it is with the power and the one being acted upon the one, having power thrust upon them: artist. medium, uh, patron and, and user in my case [38:21].