Conclusion

My research identifies, and elaborates on, the *isomorphic* design decision. In my general introduction, I find its etymological origins as a metaphor for a way of reasoning about design in the work of English designers Norman Potter and Anthony Froshaug. They used the term to describe their ideal kind of reciprocal relationship between elements in a design process. Such elements might be material, procedural, technical, contextual, or structural. Applied in a communication design context these reciprocities are concerned with meaningfully "reinforcing" content, as Potter put it, through design decisions that might concern typography, imaging, formats, materials, processes, and distribution. I transpose Potter and Froshaug's isomorphism —inasmuch as I am able to articulate and reanimate it — to a context in which it seems to resonate: my own practice as a communication designer working in relation to contemporary art.

In the organisation of the general introduction around an axis of *reasonable*/ *unreasonable* design decisions, and expressly in the stylised prose of chapter one, I define the Potterian isomorph as requiring a kind of rigour whose implementation must necessarily exceed the bounds of merely *reasonable* communication design decision-making. This is an obsessive, fractal rigour, pursued by Potter with a religious conviction that is quite distinct from more moderate, contemporaneous notions of rationalism in design, evident in continental European design pedagogies and methodologies of the mid-twentieth century.

Building on the practice-based examples given in the general introduction — Condorelli, Hultén, and the self-initiated *Rare Bird Economics* — the transposition of the Potterian isomorph to communication design for contemporary art is negotiated in chapter two. The choice of Simon Starling as the subject of this chapter has dual purposes. Starling's bibliography is the immediate subject of the discussion, and constitutes a representative survey of the genre of publishing within which I have operated as a designer for the past fifteen years. Starling himself is also a key protagonist in my explication of the isomorph. Starling's unique form of orchestrated decision-making is implicitly concerned both with an interconnected, global purview, and with its metonymic, hyper-specific instantiation. Potter advocated such an outlook, calling it

"universals and particulars".[1] I consider Starling's work in contemporary art to fulfil potential that Potter's work in design could not. Where, in chapter one, I show Potter deliberately abstaining from perceived compromise, Starling is able to maintain artistic agency and navigate the complex, convoluted conditions entailed in the conception and execution of his works. My notion of the *unreasonable* echoes curator Mark Godfrey, who sees Starling's exhaustive range as a form of *absurdity*. Godfrey asks:

> "What, though, is the critical value of the absurd in Starling? Two possibilities here: first, that Starling carries out extraordinarily, absurdly wasteful, inefficient activities the better to underline the inefficiencies that characterise our everyday abuse of natural resources. Second, Starling's work releases a kind of poetry which allows those who appreciate it to imagine a new way of being in the world."[2]

To achieve just such an ambiguously excessive/poetic release is the intent of the isomorphic communication design decision as I figure it, and the motivation for the production of the teaching object *Rare Bird Economics*, discussed in the general introduction. *Rare Bird Economics* serves, in my argument, as a counterpoint to the discussion, in chapter two, of *Metamorphology*, the book on Starling published by MCA Chicago in 2014. The 'Production Colophon' included in *Metamorphology* describes material and technical details of the book's manufacture, and by doing so, claims to invoke and embody the isomorphic tendency in Starling. Its implementation, however, remains passive — decidedly *reasonable* — because it merely reflects, as opposed to animating, diverting and *orchestrating*, these details. An isomorphic design decision attends to the reasonable, ascends to the *unreasonable*, and exhibits, in this duality, its excessive/poetic release.

The overall relatively conventional nature of the Starling bibliography, exposed in chapter two, introduces a potential tautology into the transposition of isomorphism to communication design. While Starling practices isomorphism in his artistic decision-making, he seems to prefer more reasonable approaches to the mediation of his work.

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1 'Universals & particulars' is the first chapter of *Models & Constructs*.

2 Mark Godfrey, 'Simon Starling's Regenerated Sculpture', *Cuttings (Supplement)* (The Power Plant, 2008), A17.

Chapter two also applies STS scholar Janet Vertesi's notion of "drawing as" to a characterisation of Starling's artwork *Four Thousand Seven Hundred and Twenty Five (Motion Control/Mollino)*, in which a film camera, mounted on motion control equipment, encircles a chair, following pre-programmed spatial arcs that Starling derives from a series of iconic drawings made by the chair's designer, Carlo Mollino. Vertesi's fieldwork with the crew of the Mars Rover describes a related kind of embodiment that its operators develop with the impossibly distant vehicle that they are tasked with directing. Recounting how members of the crew refrain from post-processing the perspectival distortion in the composite images that they receive from the rover, instead learning to adapt their own perception in sympathy with the vehicle, Vertesi writes:

> "... they rarely use a corrective algorithm to digitally adjust the image to a more rectangular projection, producing a more familiar photographic frame. Instead, they learn first and foremost to acquire the robot's own native representation of Mars, as well as its own bodily orientation and apparatus."[3]

These notions of embodying and impersonating a machine inform the down-in-the-details approach of chapter three. This chapter shows, in minute detail, how an isomorph can be constructed from a single, pedantically reasoned disparity in the constitution of a printed colour. The chapter's organisation around a purely speculative question — "what does El Lissitzky want?" — hints at the essential contingency of any isomorphic approach to communication design. Its argument — suitably uncompromising, in a Potterian sense — employs archival research, analytical bibliography with digital microscopy, and — following Vertesi — a projected embodiment of colour separation and the modular logic of the printing press with a Lissitzkyan presence. The resulting figure, 3.5.12, isomorphically reproduces the cover of the book *Die Kunstismen*, edited and designed by Lissitzky, and in doing so makes a corrective gesture toward unconvincing reproductions of this work, and Lissitzky's work generally, in canonical volumes of graphic design history. Chapter three's analysis demonstrates something of a Potterian psychology, too. As I observe in the discussion of *Rare Bird Economics* in the general introduction, once things get *unreasonable* they tend to become fractal. Even figure 3.5.12 barely hints at the myriad possible isomorphic fidelities that could be pursued in its immediate context. As I write

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[3] Janet Vertesi, 'Seeing like a Rover: Visualisation, embodiment, and interaction on the Mars Exploration Rover Mission', in *Social Studies of Science*, 42(3) (2012), 397.

in section 3.5, “the exact type of press on which the 1925 original Die Kunstismen was printed could be sought out, as could the original inks, papers, procedures, and so on and on.” Having achieved the *unreasonable*, suddenly it seems inadequate. Unanticipated doubts surface. What would Potter do? Would Starling find this trivial? Recalling the anxious tone of chapter one, an inferiority complex defines the aspiring isomorphic designer’s mentality.

This concluding discussion must now begin to address the contribution of my research to the field of communication design at large. Recalling the example of the viral YouTube video, discussed in the general introduction, in which a helicopter appears to take off without its rotors moving (because their rotational frequency matches the frame rate of the camera recording the video), the isomorph might indeed be taken as an overly-deterministic dead-end in communication design methodology. Certainly Potter’s ‘hole-in-one’ example does nothing to dispel this suspicion. “That’s fine for helicopters whose rotors spin at six rounds per second, but what about …” one might legitimately ask. *Rare Bird Economics* responds to this pointed question, and in the hyper-specificity of its design decisions facilitates a structuralist discussion of how meaning is conveyed in communication design. With this publication in hand, it becomes possible to argue that *reasonable* communication design, in which content-agnostic design decisions are implemented using standard software presets, and produced and distributed according to optimised industrial workflows, actually reduces communicative bandwidth and conceals meaning beneath its overfamiliar formatting. As I argue in the general introduction, *Rare Bird Economics* could be construed as — and self-consciously admits — an absurdly excessive use of resources. And yet the geography of its production is entirely consistent with the economics of mainstream publishing in Europe and the USA. To take, for example, just one title from the Starling bibliography, consider the eponymous, English language monograph published in 2012 by Phaidon Press. This book was designed in London, printed in Hong Kong, and — presumably — shipped back to Europe and the USA (Phaidon has offices in London and New York) for further international distribution. These bibliographic details are not part of an *absurd* artistic ruse by Starling, they are routine elements in a global supply chain. Similarly, the absurdly specific and illegible equation of the speed of the printing press with the speed of the White-Throated Needletail in flight, as a signifier in *Rare Bird Economics*, seems in itself excessive to the point of redundancy: a gimmick not applicable to the representation of any content apart from other, equally fast-moving, objects. I argue, instead, that this appeal to hyper-specific likenesses actually sensitises

the book's publics — including those involved in its production — to the release of such poetics through communication design, even if they depend on metadata and paratext for their explication.

These contradictory dynamics — "universals and particulars" — remain in play as chapter four addresses general applicability in another register. In the chapter's comparison of Richard Hamilton's typotranslation of Marcel Duchamp, and Wayne Reed Porter's alternative to linear typography, Mutypograhy, the isomorphic alignment of typographic design decisions with content is framed as, either, demanding of Hamilton's exceptional tenacity and dedicated research, or, instead, as an unnecessary intermediation which, according to Porter, ought to be simply forsaken, by enabling authors to digitally encode such decisions into the basic fabric of their texts. These counter-positions are prefaced with a historical discussion of the line, in order to establish that many assumptions about the *reasonable* formatting of text need not be regarded as immutable in digital publishing contexts.

The intermediary politics of *impersonation*, taken as a virtue — an expression of hyper-specific design decision-making — in chapter three, here become suddenly suspect. While Hamilton's typotranslation is, unquestionably, the most representative and compelling historical example of a communication design isomorph discussed in the dissertation (and the only other identical use of the term in this context identified in the research), his impersonation of Duchamp is undeniably esoteric and overwrought. Hamilton's performance of the intermediary role is something akin to the ethnomethodological, as outlined in the general introduction. Such unreasonable levels of fidelity clearly resonate with the Potterian isomorph. Wayne Reed Porter's project, however, despite its technical untimeliness, approaches a generalised, unmediated implementation of isomorphism in typography whose unreasonable energy stems from the sheer audacity of its disregard for typographic history.

Porter's Mutypography tools would make the typographer's intermediary role redundant. Unlike the awkward, undesigned and user-configurable typography of a conventional electronic book, in Porter's workflow the author reinforces the syntactical structure of their writing by designating precisely how it should unfurl into its constituent meaning units. The resulting Mudoc contains, in advance, all approved permutations for the formatting of its text's structure, whilst accommodating a reader's preferences. The Mudoc could be immediately delivered to a reader, without the need for remediation by a designer, and gives no credence to the line as an archaic reading technology whose spatial economy

it considers irrelevant to the digital display of text on screens. A virtuous feedback would naturally ensue, in which the writer's imagination is conditioned only by their own conception of the meaning unit, and not a typographer's imposition of the line.

In the general introduction I claim that *research* — as a generic descriptor for the means by which a communication designer might inform their hyper-specific mediation of content — is an under-articulated term in the field. Avoiding epistemological disputes around knowledge production and the legitimacy of artistic research, in the examples that I gather in section 0.7, research is variously a kind of ambient, unintentional byproduct of the designer's contact with content; a heroic act of ethnomethodological rigour; or a side-practice through which the designer might establish sufficient autonomy to escape altogether the demands of a communication design context and enter a self-initiated, purely artistic, discourse in which they freely define content themselves.[4] Conforming to none of these models, in chapter five I argue implicitly for the communication designer as an *informed intermediary*, and suggest that such a research-oriented approach is a prerequisite for isomorphic communication design.[5]

Neurovague, the practice-based project discussed in chapter five, while informed by conversations with a select group of neuroscientists, and by extensive background reading in that field, negotiates an autonomous, polemical position, distinct from the impersonations of El Lissitzky and Marcel Duchamp (with strictly faithful intent) discussed above. As I outline in the introduction to chapter five, from a neuroscientist's perspective, communication design only compromises credibility. It is my assertion, however, that the kind of communication design implicated in this statement is precisely the content-agnostic, conventionally stylised kind that I invoke in the discussion of *Rare Bird Economics*, above, and whose outlook I historicise in the general introduction with Emil Ruder's statement "it is not the typographer's business to interpret literature in his own way." If an *informed intermediary* approach is the prerequisite for isomorphic communication design, it is absolutely not about *having one's own way* with content. All of the exemplary isomorphs discussed in

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4 While my research is not concerned with the politics of competing notions of research, I found Tom Holert's *Knowledge Beside Itself: Contemporary Art's Epistemic Politics* (Sternberg Press, 2020) instructive in the preparation of chapter five.

5 This term requires its *asterisked* formatting more than any other in the dissertation. Its qualification and disambiguation follows.

the dissertation are primarily processes of negotiation. They depend on establishing permission from, and consensus with, the artists whose works are being mediated with isomorphic intent. In the design processes for the Condorelli book discussed throughout, and for the Eastside Projects overprinted image discussed in chapter five, I never explicitly used the term isomorphism during the negotiation of the approaches taken. These approaches did not instrumentalise the sensibilities of the artists represented in the production of isomorphs, rather they reflected meanings articulated by those artists. Unpacking the use of language to foster consensus in a design process is clearly beyond the scope of this research. For my purposes here it is enough to establish that the poetic release described above follows from a negotiation, not an imposition.[6]

So much for the summary of what has been said. What, from a perspective that Potter might call "outward-looking", is the consequence? How to figure the *informed intermediary* and the isomorph in the broader contemporary communication design landscape? It is first necessary to repeat the statement made in the general introduction: it is not the motivation of this research to sloganise or popularise isomorphism in the communication design lexicon. It should also be evident from the discussion of *Rare Bird Economics*, above, and from the fact that the dissertation has depended on so few practice-based examples, that the isomorph is itself a metaphorical rare bird. Not every item of content, nor every publishing context, is conducive to isomorphism. I consider, therefore, the most pertinent question for this conclusion to be not "what is the general applicability of the isomorph?", but rather "what, of general applicability, can be gleaned from the specific transposition of the isomorph from the context of communication design for contemporary art to the context of communication design for neuroscience?"

Despite the apparent tautology encountered in chapter two, I argue that communication design for contemporary art represents the most conducive conditions for the isomorph. This may be because of the pedagogical and professional adjacency of art and design discussed in chapter five, and attendant shared approaches to visual communication. A publication accompanying the 1979 exhibition *Dialogue/Discourse/Research*, at the Santa Barbara Museum of Art, frames its particular definition of artistic research in terms that are

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6 It is for this reason that I treat the Hultén example differently in the general introduction. Its compromised industrial design could be considered an *imposition*.

productive for this discussion of the *informed intermediary* and the isomorph. The exhibition's curator, William Spurlock, writes:

> "The artists presented here utilise the solid information derived from research on their topics to generate an environment, or an atmosphere, or a history on a topic whose lesson is truer to the human issues than attempts by others working within the confines of a single tradition. Their behavior as artists, deviant from traditionalists and specialists in art in other disciplines, allows them an overview of a situation and the ability to engage the issues straightforwardly. Although they employ traditional research methodology, they attempt to discourse with unbiased information by drawing it from varied sources. Through the process of 'inventive analysis' of the resources, they establish the foundations upon which their works are based. This process suggests a body of content for which a form is sought. What is important is that they allow these processes and the evolved content to lead them toward form."[7]

Alex Coles (2012) uses the term "transdisciplinary" to label a small group of contemporary design practices whose work combines — in a single studio — multiple modes of art and design production.[8] Coles's articulation of transdisciplinary practice might superficially contravene the commercial organisation of the contemporary art, design, fashion, and music markets, but it proposes nothing more transgressive than the friendly, interdisciplinary exchanges that effortlessly permeate the departments of many European schools of art and design. Spurlock's formulation of artistic research, in contrast, offers a more fitting and imperative definition of transdisciplinary practice, in which it is the artist's prerogative to find, through "inventive analysis", a "deviant" position in relation to specialised and disciplined knowledge.[9] By refusing simply to solve any of the reasonable communication problems that the neuroscientists interviewed in chapter five had been themselves already able to formulate, the Neurovague project makes just such a deviant, transdisciplinary, move in a communication design context. It acknowledges, but is not bound by,

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7 William Spurlock '"Extending the Boundaries" as a Central Element in Post-Modermism', in *Dialogue/Discouse/Research* (Santa Barbara Museum of Art, 1979), 3.

8 Alex Coles, *The Transdisciplinary Studio* (Sternberg Press, 2012).

9 The roles of artist and designer are relatively interchangeable here, from my perspective, given that my design practice is based in contemporary art.

disciplined perspectives, assumptions about visual literacy, and professional obligations. This positioning might make its initial product — procedurally generated abstract images — unacceptable and unusable in any existing presentational context for neuroscientific research. These images, however, might yet prove to be sufficiently targeted in their implicit critique, and sufficiently pointed and resonant in their paratexts (of which extracts are included in chapter five) to prompt a transdisciplinary discourse and manifest conditions for the isomorphic visualisation of neuroscience that do not presently exist.

The practically interchangeable terms "speculative design" and "critical design" have been employed since the 1990s to describe typically non-commercial projects by designers that "interrogate the status quo in various ways, or which propose variously unorthodox future scenarios".[10] These terms and practices do not have any immediate bearing on the main tenets of my research, given that the majority of my practice-based examples belong in conventionally constrained — if admittedly niche — commercial publishing contexts; and my self-initiated examples, such as *Rare Bird Economics*, seek not freedom from such constraints or recourse to unorthodox scenarios, but rather *more*, and *more specific*, constraints.[11] Neurovague, however, operates in territory adjacent, but not identical to, speculative design. The disambiguation of this territory is pertinent to my articulation of the contribution that my research makes.

In *Caps Lock: How Capitalism Took Hold of Graphic Design, And How to Escape From It* (2021), Ruben Pater documents economies of communication design that are not dependent on the client/designer model.[12] Sceptical of critical design's subversive rhetoric, he writes:

> "... design methods, such as speculative design, were intended to criticize consumerism, but have also had the reverse effect. ... We

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10 Brad Haylock, 'What is Critical Design?' *Undesign: Critical Practices at the Intersection of Art and Design* (Routledge, 2019), 9.

11 I have explored these modes before in the practice, in the project *A School for Design Fiction*, mentioned in chapter five, presented at the GfZK, Leipzig, Germany in 2013 and as James Langdon, *A School for Design Fiction* (Spector Books, 2014). The project put forward a definition of design fiction that is not future-oriented and does not fetishise freedom from constraints. Rather, it sought anachronistic moments in design history in which points of disconnection between content and technics could be retrospectively *corrected*.

12 Ruben Pater, *Caps Lock: How Capitalism Took Hold of Graphic Design, And How to Escape From It* (Valiz, 2021).

> find that even design with good intentions can also be neocolonial and turn out to amplify the powers of capitalism ..."[13]

Pater designates categories according to variously antagonistic roles that designers might assume, including four roles that he labels "strategies that have emerged from the design discipline in response to capitalism".[14] These include "The Designer as Futurist", incorporating speculative and critical design, whose practitioners "imagine and visualise future scenarios that do not produce new products or tangible results, but act as discussion pieces to help long-term strategic decision-making"[15]; "The Designer as Philanthropist", who "donates time and skills to address social issues that benefit the public good, instead of selling more products";[16] and "The Designer as Activist", a paradoxical role in which the designer's efforts in "writing manifests, designing anti-capitalist campaigns, and political organising" are "easily appropriated by the forces of capitalism".[17] Neurovague's proposition is not adequately described by any of these roles, in that it does not seek to escape from financial or technological constraints, relational dynamics, or the attendant politics of the unfamiliar field of neuroscience; but rather to initiate a discourse that acknowledges and incorporates these conditions on specifically refigured terms.

The transformation, in recent decades, of the pedagogy and practice of the curator is another instructive point of comparison in the elaboration of the *informed intermediary* in communication design. The curator, traditionally a dedicated, museological role concerned with the intellectual 'care' of artworks, through contextualising their display and ensuring their canonisation in academic discourse, has become, in the twenty-first century, a model of nomadic knowledge work. Curators of contemporary art, typically not constrained by the fixed and finite contents of an institutional collection of artworks, are expected to be familiar with a breadth of global art production, and to author diverse programmes of temporary exhibitions that address both art historical knowledge and questions of societal relevance.[18]

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13 Pater, *Caps Lock*, 9.

14 Pater, *Caps Lock*, 399.

15 Pater, *Caps Lock*, 399.

16 Pater, *Caps Lock*, 421.

17 Pater, *Caps Lock*, 447.

18 The practice of Anselm Franke, curator of visual art and film at the Haus der Kulturen der Welt since 2013, would be a prime example. Franke, and his team, have curated exhibitions and edited publications including *Parapolitics: Cultural Freedom and the Cold War* (2021), *Love and Ethnology: The Colonial Dialectic of Sensitivity (after Hubert Fichte)* (2020), *Ape Culture* (2015), *The Whole Earth: California and the Disappearance of the Outside* (2013), among many others.

This transformation has come at the cost of detaching curatorial practice from the manual cultures of art-handling and exhibition-making. Curatorial moves, in this way, come to depend on collaborative work between curators and technicians reminiscent of Lorraine Daston and Peter Galison's "four-eyed sight" metaphor, discussed in chapter five, in which conceptualising and executing become separate functions. The Neurovague project explicitly refuses this separation, attempting to occupy both the informed, critical role that an STS scholar might take — for example Anne Beaulieu, the principal critic of fMRI's presentational aesthetics quoted in chapter five — and to be technically able to actually manifest an alternative proposition, in the form of what Wendler called, in his discussion of *Molecular Biology of the Gene*, with which I preface the discussion of Neurovague, "tentative concretisation". Neurovague makes a critique of neuroimaging and neuroscience's presentational modes, in the form of an alternative, and alternatively formatted, image.

Anthropologist Anna Tsing economically defines what might be a fitting ethics for the communication designer as *informed intermediary*:

> "When I did ethnographic research in the Meratus Mountains of Kalimantan, Indonesia, I worked hard to develop a working knowledge of Meratus Dayak language, history, and culture ... This did not transform me into a Meratus person, but it did allow me to attune myself to what was going on enough to get some significant glimpses of local dynamics."[19]

Although Tsing's notion of attunement appears sympathetic with ethnomethodology, when she disclaims the limits of her engagement with the Meratus people, she draws the line differently to ethnomethodology's principal proponent, Harold Garfinkel, who I quote in the general introduction referring to his student Eric Livingstone's work on the ethnomethodology of mathematics with the categorical claim that "Livingston's findings are mathematical results." Tsing and Livingston do, however, unequivocally share a basic, transdisciplinary, proposition. She writes:

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19 Anna Tsing, 'When the Things We Study Respond to Each Other: Tools for Unpacking "the Material"', Penny Harvey (ed.), *Anthropos and the Material* (Duke University Press, 2019).

> "It is fascinating to me that so many STS scholars refuse to learn anything *themselves* about the research objects of the scientists they study."[20]

It won't do to use this conclusion to reductively claim research as an aspirational, under-utilised aspect of communication design without confronting the attendant complexities of communication in a digital, globalised context. This conclusion has already deployed the words 'impersonation', 'undisciplined', and 'representation' with unequivocally virtuous connotations, but this vocabulary is also potentially problematic.[21] Contemporary notions of identity and subjectivity are becoming ever more concerned with *authenticity*. In 2020 the feminist type design collective Alphabettes issued a directive encouraging type designers to refrain from including glyphs from scripts with which they are not natively familiar in their typefaces:

> "We need to discontinue the practice of designing for scripts we did not grow up reading and writing for custom/client projects. Getting this work can be due to factors like our geographic or financial privilege or prominence within our industry. Whenever we get such opportunities, we should pass the project on to those that have the prerogative to take on the work as native users and designers of the script, and yield our position of power to those otherwise marginalised. Whether we are able to do justice to the design of this given script or not is outside the point of this post, however, we do encourage reflection on whether research on a script is the same as a lifetime of being immersed in it."[22]

The potential for the *informed intermediary* communication designer, through deviant, transgressive, practices, to reformat disciplined knowledge in productive ways must be tempered with an ongoing revision of the ethics of communication design. Communication design must concede the contingent, politicised nature of its devices and effects. The intersection of these politics

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20 Tsing, *Anthropos and the Material*, original emphasis.

21 I acknowledge that the word research itself can be given a problematic connotation. "From the vantage point of the colonised, a position from which I write, and choose to privilege, the term 'research' is inextricably linked to European imperialism and colonialism. The word itself, 'research', is probably one of the dirtiest words in the indigenous world's vocabulary." Linda Tuhiwai Smith, *Decolonizing Methodologies, Research and Indigenous Peoples* (Zed Books, 1999), 1.

22 'It's time to act', collectively authored article, Alphabettes website (June 2020). Via: http://www.alphabettes.org/its-time-to-act/.

with the negotiated, relational aspect of the practice-based isomorphs in this discussion are of great significance to the implications of my research, but their further exploration is beyond its immediate scope.

Technological change also presents highly contradictory challenges to some of my assumptions about what, in the general introduction, I term *technics*: knowable elements of a communication designer's workflow that might be deployed isomorphically. From one perspective, the advent of so-called synthetic media threatens to subvert the very notions of representational fidelity on which my research depends. From another, antithetical perspective, blockchain technologies, cryptocurrency, and decentralised organisational models may transform foundational precepts of communication design, such as the persuasive appeal to authenticity, and the rhetoric of institutional credibility. These possibilities, among others, suggest diametrically different futures for the meaning of the word *technics* in a communication design context. In such an unpredictably reshaped communication design landscape it is equally conceivable that the role of the *informed intermediary* might be either completely redundant, or elevated and fetishised.

I am compelled to comment on how the role of the communication designer as *informed intermediary*, and the demands of constructing hyper-specific, isomorphic fidelities to content — requiring undeniably more labour, in undeniably more privileged and difficult to access contexts — might be reconciled with the general economic precarity of independent, autonomous, communication design practice on which they may, ironically, depend. This concern is built into the premise of the research, incepted as it is by Potter's career, and expressed, in chapter one, by his dismissive, stoic refrain *nobody starves*. Potter's complete lack of concern for personal success in the marketplace of commercial design have made his uncompromising personal politics a source of inspiration for some, but have surely lessened any enduring influence he might have had as a designer. In chapter four I noted how, between 1961 and 1999, desktop publishing drastically simplified the graphic labor required for Richard Hamilton to realise his typotranslation of Marcel Duchamp, and enabled Hamilton to assert, independent of typesetters and other technical intermediaries, a previously unattainable level of nuance in his isomorphic decision-making. In 2021, that effect is accelerated exponentially. The computerisation of a *reasonably* professional form of communication design, and its repackaging in conveniently accessible services and templates — hinted at in the discussion of the in-browser website design and publishing provider Squarespace in the general introduction — transforms *professional*

communication design aesthetics into digital commodities readily available to, and primarily deployed by, the *amateur*. The landscape of communication design appears, consequently, increasingly factionalised. The highly educated (and likely debt-burdened), professional communication designer finds themselves obligated to differentiate themselves and justify the value of their work over the affordable, but ubiquitous, template. The consequences of these technological shifts are characteristically postmodern. Complex, graphically labour intensive aesthetics abound. The emergence of small, autonomous, research-led design practices, briefly mentioned in the general introduction, is just one, albeit encouraging, tendency in this factionalised landscape.

Finally, the transposition that I make in chapter five is predicated on the fact that there is not presently a culture of including communication design within the grant-funded operation of a typical neuroscience research laboratory. All of the scientists interviewed (as well as others with whom I've had conversations not documented in my case studies) either prepare their own presentations, or delegate this work to junior members of laboratory staff, also untrained in communication design, who, in turn, depend on stock photography providers, or the internet at large, for their visual material. As discussed in the chapter, this is attributable not only to economic factors, but also to a general scepticism of communication design and its effects on scientific credibility.

The contribution of this research is in the framing of the *informed intermediary* as a distinct position in the factionalised landscape of communication design. This position takes the communicative potential of *isomorphic* fidelities to content — channelled from Potter, via the approaches discussed throughout, in the context of communication design for contemporary art — and seeks to intelligently apply them to other fields of knowledge production. This position is distinct from each of the notions of research-led communication design considered in the dissertation. It is deliberate, not ambient, nor innocent. It assumes a design practice in which research is a core competence. It may or may not be self-initiated, but it does not depend on defining its perfect conditions by any kind of escape from the vicissitudes and constraints of design processes toward a perceived freedom in the art world. It seeks genuinely transdisciplinary engagements, not convivial interdisciplinary exchanges. It might solve problems — even emphatically — but it is not limited to problems already framed by the existing conditions and protagonists in the fields it engages with.

The Neurovague project brings forth a number of clear directions for future research, and applications of the research, some relevant to my own practice, others beyond its immediate scope. This particular transposition — from contemporary art to neuroscience — is difficult and confronting, given the statements that I make above about neuroscience's existing culture of scepticism toward, and lack of institutional resources for, communication design. This confrontation led me, with Neurovague, to de-emphasise the Potterian isomorph — uncompromising and inflexible — in favour of other, more open, and imaginatively-reasoned, isomorphic approaches. In order to develop, and apply, these approaches in neuroscience (for example), future work must first address the visual literacy of that field: the culture, values, and shared assumptions around visual communication that condition what is possible in an applied context. Neurovague's insistence on abstraction, for example, supported by its paratexts and informed provocations, is a first step in this direction: a conversation starter.

Regarding the context for such conversations, this research is well placed to take advantage of current developments in online, blockchain-native community models. These models show a tendency toward undisciplined, issues-based organisation, or "public goods". As a decentralised autonomous organisation (DAO), Neurovague might be configured as an online discussion group for neuroscientists and communication designers. Such a community, whose initial participants might be drawn from this research, could be focussed around establishing a new visual literacy that acknowledges abstraction, and circumventing — through a tokenised, cryptocurrency-based constitution — existing economies of commodity stock photography and commissioned design services.

The statement of contribution above includes one self-conscious *understatement*. To seek to make research a core competence of a design practice is to radically reconfigure the ways in which communication design work is commissioned and undertaken. In my own case — with Neurovague and beyond — I see writing as an essential element of this reconfigured practice. Language and story-telling are key, both to the negotiation of potential isomorphic design approaches, and to the initiation of any transdisciplinary exchange, of the kind proposed here, whatever the economic model on which it ultimately depends. Writing — be it undisciplined, provocative, or critical in intent — can be used to signal, to a practitioner in another field (scientific or otherwise), the communication designer's engagement with *their* concerns. Establishing research and writing as core competences can enable the

communication designer to make meta-level, non-antagonistic approaches to protagonists in other disciplines, such as “this is a call for uncertainty and abstraction in the visualisation of the human connectome”, and not merely problem-solving approaches, such as “it is recommended that you recolour your slides for consistency.” I consider fostering these approaches to be a priority in my work as an educator, and in the field of communication design pedagogy at large.