General Introduction: Isomorphism in Communication Design

0.0 – Some signposting would be a reasonable way to begin

0.1 – Isomorph: a reasonable etymology
Chemistry, mathematics, psychology, design

0.2 – Reasonably responsive to content
Modernity was rational, self-aware, consolidatory

0.3 – Unreasonably self-centred
Modernity was irrational, self-obsessed, fractal

0.4 – A comparison between *so convenient and reasonable* and *a little laborious and unreasonable*
Isomorph ≠ template

0.5 – Unreasonably illegible
Isomorphic decision-making in a hyper-specialised context

0.6 – A reasonable admission of having acted unreasonably
The "Paranoid-Critical Method", impersonation, punning

0.7 – An unreasonable amount of *research* will be required
'A bit of casual research' versus the rigorous titans of *ethnomethodology*

0.8 – A reasonable application of industry-standard imaging technics
Image workflow: visualisation, anticipation, comparison

0.9 – Reasonably recursive representations
Incidentally self-similar images in art history

0.10 – Unreasonably irradiated
Reconciling the isomorphic and the incidental

0.11 – A reasonable explanation ...
Isomorph and paratext

0.12 – ... for something quite unreasonable
Scope, a teaching object, duomining

0.13 – A reasonable structure for a dissertation

0.0 – Some signposting would be a reasonable way to begin

In this introduction I define *isomorphism*,[1] the central theme of the research, in relation to communication design.[2] The introduction is the main overview of my research. The specific enquiries made in the following five chapters of the dissertation are outlined in section 0.13, below.

The introduction initially traces an etymology in which the term isomorph originates in a mid-twentieth century "intellectually austere" English design culture.[3] I transpose the term to contemporary communication design with discussion of relevant works of art and design. I refer to two examples from my own practice (introduced in 0.4 and 0.6, below) throughout the introduction. These examples place an emphasis on digital imaging and print production. Isomorphism in typography is considered only briefly in the introduction, in section 0.2, but at length in chapter four.

I am trying throughout the dissertation to establish clearly, and with cultural specificity, what an isomorphic communication design decision is. The sections of the introduction are, accordingly, organised around a telling distinction between a communication design approach that gives a reasonable amount of conscientious consideration to content, and the decidedly unreasonable appeal to absurd content-specificity that I consider isomorphic. The motivation is not to sloganise or popularise this term, but to position my research *against* (or at

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1 In this document I observe Stuart Bertolotti-Bailey's orthographic convention for emphasis: "I sometimes use a pair of *bracketing asterisks* as a form of emphasis distinct from italics ... intended to insinuate something along the lines of a *knowing acknowledgement* — or at least something more winking and less vigorous than plain italic." Stuart Bertolotti-Bailey, 'Work in Progress: Form as a Way of Thinking', PhD Dissertation (University of Reading, 2014). I use italics for titles, but I also follow the convention of not italicising non-English words, as set out by Khairani Barokka: "I've come to understand the practice of italicizing such words as a form of linguistic gatekeeping; a demarcation between which words are 'exotic' or 'not found in the English language,' and those that have a rightful place in the text: the non-italicized." Khairani Barokka, 'The Case Against Italicizing "Foreign" Words', Catapult (2020). Via: https://catapult.co/stories/column-the-case-against-italicizing-foreign-words-khairani-barokka.

2 I use the more general term communication design in favour of graphic design throughout the dissertation, with the exception of chapters two and three, in which graphic design is more fitting to detailed discussion of book design. When describing individual practitioners, throughout the dissertation, I use whichever label they evidently preferred.

3 The "intellectually austere" description is from an interview with designer Richard Hollis, referring to his colleague Norman Potter, founder of the Construction School at the West of England College of Art in Bristol in the mid-1960s. Potter's work is the initial impetus for my research and is the subject of my first chapter. Hollis was asked "In what way was Potter a nightmare?", and his response was "He wasn't practical at all. The way he and his acolytes lived was intellectually austere, but manic. He had a boat on the south coast, and used to take students into the Channel when it was very rough, to test their mettle!" 'Christoper Wilson interviews Richard Hollis', *Eye* no. 59, vol. 15, Spring 2006.

least in critical relation to) a generic, content-agnostic, corporate software-automated, template-workflow-optimised approach to communication design.[4]

The term *isomorphic* is not part of any contemporary communication design discourse that I am aware of. Nor are any equivalent terms. Aside from the twentieth-century English examples mentioned above and detailed in section 0.1, and artist Richard Hamilton's "typotranslation" practice discussed in chapter four (section 4.8), I know of no other designers who apply this term in relation to their work. A communication design educator might talk about rigour or research, and praise an individual design decision for its communicative relation to content, but there is no context in which an overall concern for an *unreasonably* high degree of interpretive relation between design and content is valued. When I claim, particularly in chapter two, that a design decision is isomorphic, it is not necessarily reflective of the designer's intent.

My own approach, as a practitioner, has been informed by my being educated as an artist, and having practiced communication design exclusively in relation to, and as mediation of, contemporary art. As much as could be said of virtually any commercially-viable design practice in a Western, late-capitalist economy, this is a relatively independent and autonomous model. My work has been sustained by commissions from artists and publicly-funded arts institutions in Europe. As I have written elsewhere, over the past two decades, contemporary art has arguably replaced music as the field in which commissions are most coveted by graduates of progressive design schools.[5] As a consequence, conceptual approaches of the kind articulated throughout this dissertation are common currency in communication design for contemporary art. Even in this rarefied context, however, some of the examples of my own work discussed below can be seen as obscure in terms of the general applicability of their approaches in other fields. Despite this, or in response to it, a concern with applicability and transposition is a thread throughout the dissertation, addressed specifically in section 0.4, below, and in detail in chapter five.

My work and research have also been complemented by my position as a professor for communication design in a German university, where art and design education remains free for students, academic freedom is recognised, and

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4 I criticise this tendency more specifically in section 0.4, below, on the website design and hosting service Squarespace.

5 The exhibition *The Graphic Design of Tony Arefin* that I curated in 2012 historicised this shift, and included discussion of it in an accompanying publication: James Langdon (ed.), *The Graphic Design of Tony Arefin* (Ikon Gallery, 2012).

the effects of a neoliberalistion of education are, for the most part, resisted.[6] An elaboration of, and argument for, the potential of an autonomous, experimental, rigorous, and research-based model of communication design — of the kind made possible by such conditions and institutions — is a key second-order theme of the research.

0.1 – Isomorph: a reasonable etymology

An elementary concept in chemistry, mathematics, and Gestalt psychology, the word isomorph derives from a conjunction of the Greek iso, meaning 'equal', and morphosis, meaning 'to form' or 'to shape'.[7] The term is applied metaphorically in a design context here following the English designer, writer, and educator, Norman Potter (1923–1995) (FIG. 0.1.1).

Potter reports his first encounter with the term during the six-month prison sentence he served for refusing to carry an identity card, an expression of his opposition to the Second World War: "I had first met up with 'isomorphism' in my prison cell where I had Köhler's 'The place of value in a world of facts' as close-fitting intellectual company."[8] In 1944, Potter's friend and collaborator, the graphic designer Anthony Froshaug, established a publishing project focused on "science, technics, sociology and art" called Isomorph Ltd.[9] I am adopting

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6 Wherein 'neoliberalism' refers to no single political agenda, but a general tendency to "configure all aspects of existence in economic terms". Wendy Brown, *Undoing the Demos: Neoliberalism's Stealth Revolution* (Princeton University Press, 2015).

7 Isomorph also has specific connotations in scientific imaging and modelling, that are beyond the scope of my research, but were reviewed in the preparation of chapter five.

8 Norman Potter, *Models and Constructs* (Hyphen Press, 1990), 100.

9 In his two-volume monograph on Froshaug, Robin Kinross addresses isomorphism twice. In the introduction he writes: "The term 'isomorph' itself — identity of form or structure between two or more things — Froshaug could have picked up from chemistry or maths, and it was current also in Gestalt psychology, which he would also have encountered by then." Later, Kinross offers: "One could start a discussion of what he was striving for with the name that he took for his first enterprise: isomorph. To a cultural commentator now, this might sound like an echo of Isotype (Otto Neurath's work in visual communication) or Isokon (Jack Pritchard's furniture firm) and indeed like 'a backwash of the continental movement of the 1920s', but it does get at something real, besides which cultural commentary may just be talk. 'Isomorph' means a similarity of form or structure in different bodies. In designing, in Froshaug's aspiration, it would be the match between the meaning — the abstract structure of meaning — of a text, and the visual and material form that designers and makers give that text." Despite proof that Froshaug wrote about 'isomorphic' aspects of graphic design (for example in his 1975 essay 'Design is an exercise in analogy' and the speculative material that Kinross calls 'Notes for a book') and is almost certainly the first to have used 'isomorphism', as well as the fact that he was a graphic designer, I profile Potter here as his writing was formative in my own transition from an art education to practicing communication



0.1.1. Norman Potter (left) and George Philip in their workshop in Corsham, 1950s.
Norman Potter Archive.

(and adapting) the term to describe and interrogate a particular mode of communication design decision-making.

As a practitioner, Potter had no use for the labels ‘furniture’ or ‘interior design’. He referred to the output of the small commercial workshop that he operated in the English village of Corsham in the 1950s as ‘constructions’, implying a continuity of approach across scales of work, and emphasising kinship with the manual culture of making and building as much as the aspirational, intellectual sensibilities of designing.[10] In a significant mid-1980s essay, Potter wrote that “the existential and isomorphic modes of designing are the two that happen to interest me personally.”[11] A decade earlier, in a handout accompanying his major artistic work *In:Quest of Icarus* (1975) (FIG. 0.1.2), a performative combination of construction and poetry, Potter identified isomorphism as a central theme, offering a definition from chemistry: “similarity in unrelated forms; similarity in crystalline form combined with a similar chemical constitution”.[12]

Isomorphism was evidently an important and sustained concern in his work, but it is difficult to define exactly what he understood its relation to design to be. This may be because little of Potter’s work as a designer survives, for reasons of his lack of (and aversion to) commercial success, and his (not unrelated) disregard for documenting the output of the Corsham workshop: “Nobody ponces about in a dusty workshop with a camera.”[13] However, alongside his two books, *What is a designer* (1969) (FIG. 0.1.3) and *Models & Constructs* (1990) (FIG. 0.1.4), a substantial archive of Potter’s work as an educator and writer does exist. Since 2011, I have contributed to its consolidation, had unique access to it, and published several critical essays drawing on it.[14] This archive, my

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design. My motivation to interrogate isomorphism in design comes from my interactions with Potter’s work. Robin Kinross, *Anthony Froshaug* (Hyphen Press, 2000).

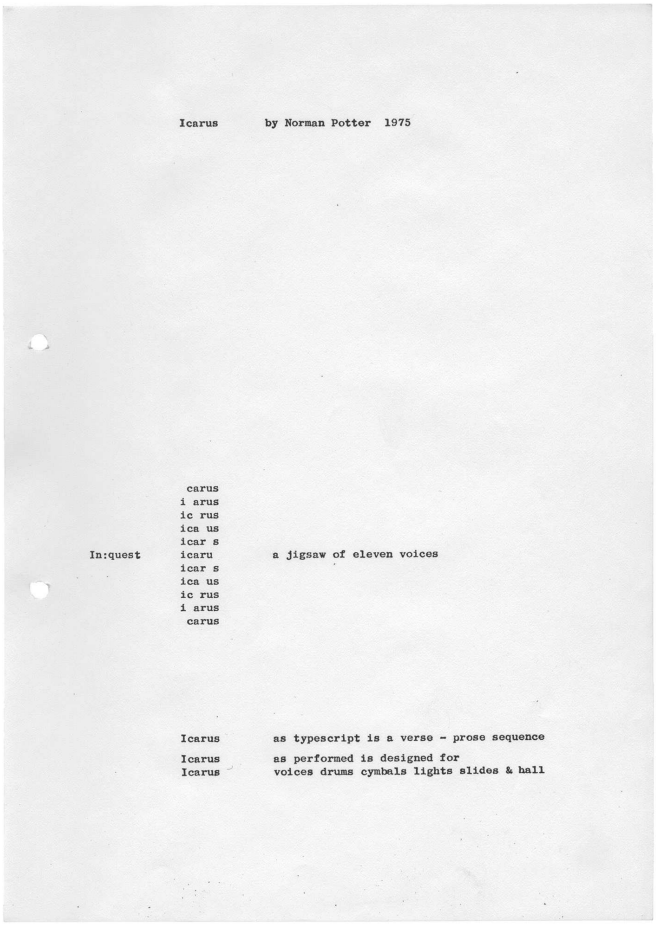
10 For example, *Norman Potter Constructions* is the name of a portfolio produced by Potter for the 1954 Milan Triennale, where a small selection of his work was exhibited.

11 Norman Potter, ‘On Screws and Screwing’ (unpublished manuscript, undated, probably mid-1980s). Despite it being unpublished, I consider it significant. In 1992, Potter wrote to Kinross: “By contrast ‘Models & Constructs’ is entirely about love, and loves, from start to finish and as an artefact an act of love in itself (for which reason perhaps I rather regret the loss of the Screws & Screwing chapter which thinks its way through some of that and seeks correspondences.)” Norman Potter Archive.

12 Potter attributes this to the *Chambers English Dictionary*. *In:Quest of Icarus* handout, (unpublished, 1975).

13 Potter, *Models & Constructs*, 91.

14 James Langdon, ‘Potter’s Lexikon’, *A Circular* no. 3 (2015); James Langdon, ‘Now in color’, *The Bulletins of The Serving Library* no. 11 (2016); James Langdon, ‘Norman Potter’s Teaching Spaces’, *One and Many Mirrors: Perspectives on Graphic Design Education* (Occasional Papers, 2020); James Langdon, ‘A Teacher's Presence’, Deschooling (2020). Via: http://deschooling.org.



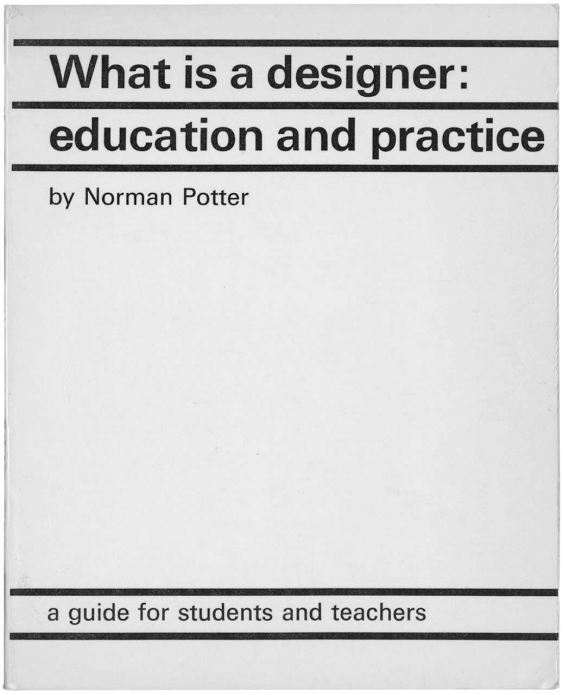
Icarus by Norman Potter 1975

carus
i arus
ic rus
ica us
icar s
In:quest icaru a jigsaw of eleven voices
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carus

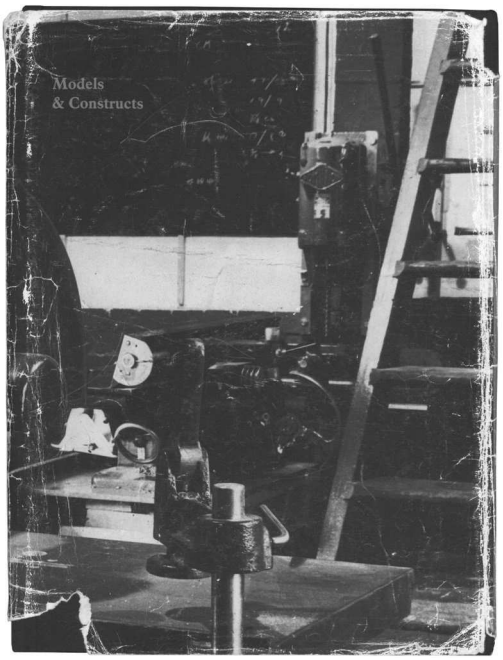
Icarus as typescript is a verse - prose sequence

Icarus as performed is designed for
Icarus voices drums cymbals lights slides & hall

0.1.2. Norman Potter, *In:Quest of Icarus* handout, 1975. Norman Potter Archive.



0.1.3. Norman Potter, *What is a designer*, 1969.



0.1.4. Norman Potter *Models & Constructs*, 1990.

interviews with former students and colleagues of Potter, and my collaborative, practice-based remakes of two of his works, inform the commentary here and in chapter one, below.[15]

In mathematics, an isomorphism is an equivalence. "Informally, an isomorphism is a map that preserves sets and relations among elements."[16] Its consequence is a productive redundancy: the mathematician assumes that what can be proven to apply to one element applies equally to all elements that are isomorphic with it. An economy of means is enabled. As a structural metaphor for a design process, this may have appealed to Potter.[17] An isomorphic design decision, then, would at once signal a "relation-seeking" mentality (Potter's expression, and consistent with the search for "similarity in unrelated forms" in his preferred definition from chemistry, above), and an economical "paring away to the bone" (as Potter described the design process of his elemental 'stick furniture', the subject of my first chapter).[18] This reading of isomorphism — seeking meaningful relations *beyond* the immediate, prosaic concerns of a design work, and articulating them minimally *within* that work — concurs with the following, written by Potter in 1969:

> "my work in design required that an object should function as a 'cut off strip' of the consciousness of our time, that energy should be seen to flow through it and beyond it, the object becoming a localised disturbance of an energetic field ('equation' was my key word), the principle of consistency of means, the principle that nothing should occur that did not contribute to the referential framework (no unseen bits, no arbitrary dimensions)."[19]

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15 Thanks to the Norman Potter Archive: Charlotte Potter, Sally Potter, Christopher Sheppard.

16 'Isomorphism', Wolfram MathWorld (2017). Via: https://mathworld.wolfram.com/Isomorphism.html.

17 The definition of a "structural metaphor" given by George Lakoff and Mark Johnson seems to accord with Potter's isomorph: "One concept metaphorically structured in terms of another." George Lakoff and Mark Johnson, *Metaphors We Live By* (University of Chicago Press, 1980).

18 The phrase "paring away to the bone" is from Potter, *Models & Constructs*, 123.

19 Potter continues: "Finally, there was that obscure article of faith that I came to know theoretically after I started teaching; namely, that the nature of the solution must be somewhere resident in the problem itself — hitherto, I had thought of this in terms of gestalt 'requiredness'. ... If this sounds an absurdly intellectual way of going on, I must point out that it wasn't like that at all. Life was hard work and debts, hardware catalogues were likely to be bedside reading, one was dusty and dirty all day and a large proportion of the work was straight joinery — anything that came in — to keep us alive and in business." Norman Potter, 'Box and Fox', unpublished notes for a lecture given at the Royal College of Art, London (1969). Norman Potter Archive.

The only work of Potter's that he explicitly described in writing as isomorphic is the stage design for *In:Quest of Icarus*, a plan view of the typewriter at which the play was written and designed.[20] The depiction of the stage in the script resembles concrete poetry. The performers, reading Potter's poems aloud, occupy the typewriter's spool, ribbon, and platen (FIG. 0.1.5). Abstract images, composed of graphic combinations of typed punctuation marks, are made into slides and projected onto the *paper* (a screen suspended above the stage), while the audience are seated on the *keys*, represented by repetitions of the capital U (as in the phonetic *you*) (FIG. 0.1.6). Of the graphic elements of the work, Potter wrote:

> "The abstract slides can be seen as a progressive concept-diagram for the design decisions required by the performance; adding up to the kit of parts and deciding their nature, discovering how best to strengthen signals by cutting out adventitious noise, and noting the isomorphic relations available to this end."[21]

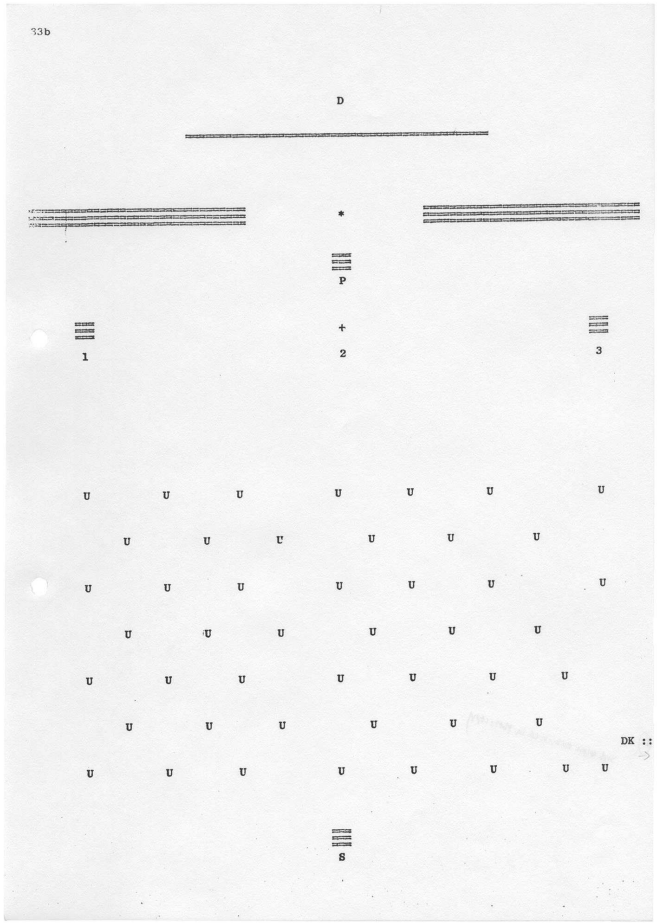
In light of the elaboration of the isomorphic design decision pursued in the following chapters, the *In:Quest of Icarus* stage is a rather unconvincing example, even according to Potter's own use of the term, as I understand it. Effectively an icon of the typewriter, it is stuck in an illustrative mode that seems to impose, rather than find, meaningful relations between the typewriter and its adaptation as a staging device. Potter's stated motivation to "strengthen signals" does, however, bring this brief etymology to its point: the use of isomorphism in communication, wherein the elements being related correspond to the *signifier* and *signified* of structuralist linguistics, or the *form* and *content* of everyday communication design parlance.[22] This is the basis of my own fascination with the isomorphic design decision, and it is in this register that my research has led me to reflect on a small selection of works from my fifteen years of independent communication design practice.

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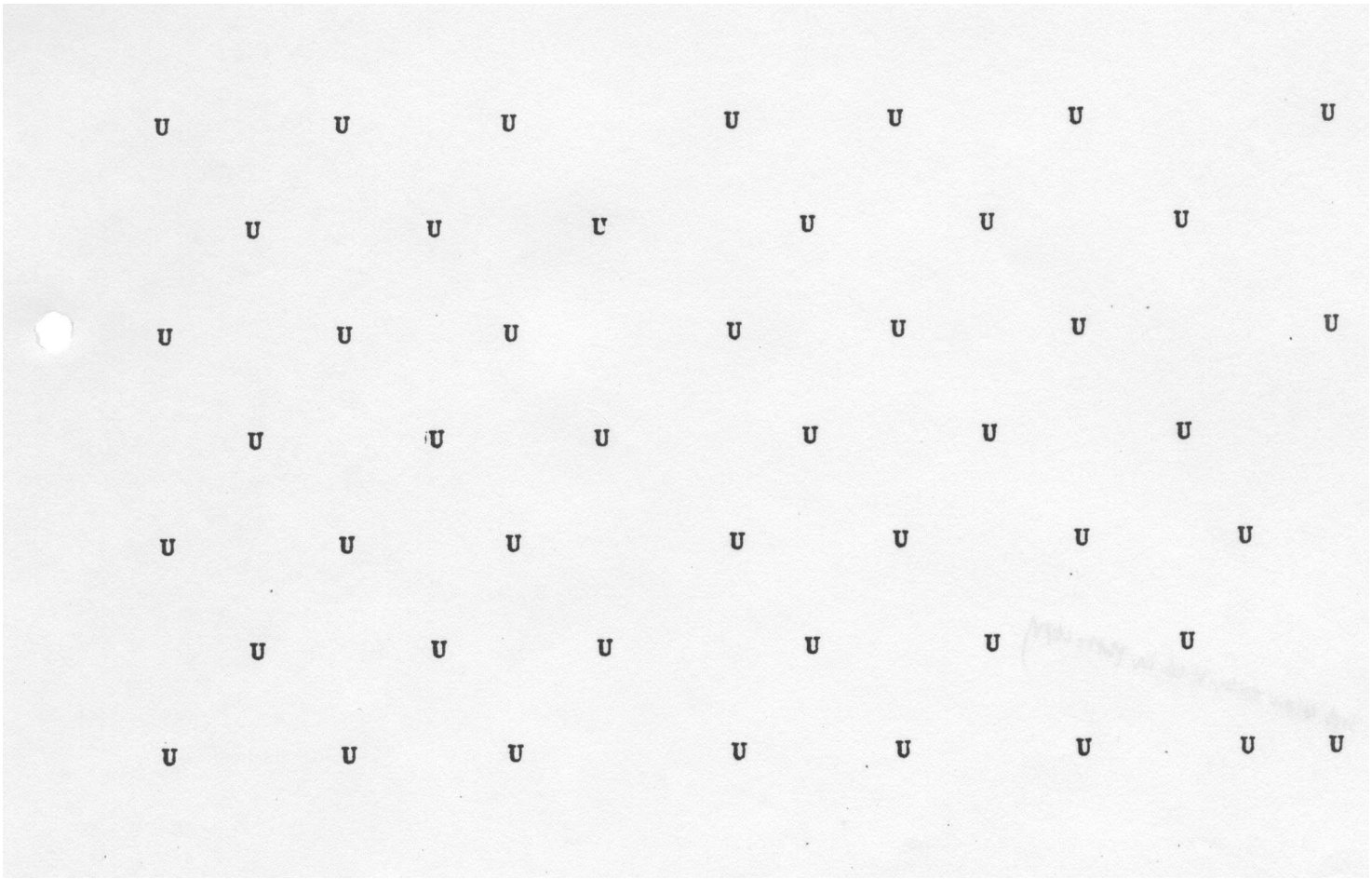
20 *In:Quest of Icarus* is perhaps better described as a poetry reading with scenography. Not to assume that he did not consider other works of his isomorphic. 'Designed' is the right term here, at least in the context of the visualisation of the stage in the handout. Potter was a master manipulator of the typewriter, and its features were central to his poetry and his practice of producing typographically intricate teaching documents. See Langdon: 'Potter's Lexikon'.

21 Potter, *Models & Constructs*, 282.

22 In *Fellow Readers*, Robin Kinross gives a critical overview of reference to structuralist linguistics (particularly Ferdinand de Saussure's *Cours de linguistique générale*) in graphic design and the early 1990s import of post-structuralist theory into the field. Robin Kinross, *Fellow Readers* (Hyphen Press, 1994).



0.1.5. Norman Potter, *In:Quest of Icarus,* handout, typed representation of stage. Norman Potter Archive.



0.1.6. Norman Potter, *In:Quest of Icarus,* handout, typed representation of stage, detail.

In the absence of further primary statements by Potter on isomorphism, I dedicate no more space here to speculative interpretations of his use of the term. In my first chapter, I profile Potter as a design decision-maker: his holistic purview, and his uncompromising, exacting reasoning of design through writing.[23] For my purposes, this is sufficient to establish a believable account of the isomorphic as Potter might have regarded it, which, in what follows, will be thoroughly transgressed.[24]

0.2 – Reasonably responsive to content

There is a vague consensus between practitioners and educators that contemporary communication design should have *something to do with* its content.[25] It should be appropriate, responsive, fitting. In communication design, it is assumed that design *attends* to content. Designers in the first decades of the twenty-first century inherit an array of formats, conventions, and tools, the contemporary digital incarnations of which promise to free us from mere technical problem-solving and the superficial stylising of messages, and enable us to engage in meaningfully conveying the *content* of those messages.

And yet, historically, such a consensus was emphatically not the case, nor, apparently, the goal.[26] The work that today we understand as 'book design', for example, is an agglomeration of a number of disparate practices, not primarily motivated by visual, or even necessarily communicative, outcomes.[27]

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23 I should also indicate that, while he is the source here, the point is not to argue for Potter's as an exemplary approach. Chapter one expands on the sense in which his uncompromising attitude produced a dead-end in his work.

24 It would not do to implicate Potter in this work without stating clearly at the outset that while the focus throughout is on nuanced, sometimes esoteric, practices of communication design, the political and existential connotations that Potter undoubtedly saw in isomorphism are constantly in play, and are elaborated in the conclusion.

25 I deliberately give no single point of reference here, this statement is gleaned from countless professional practice interactions with designers and design educators.

26 Here I am deliberately glossing any more general discussion designed things as inherently meaningful artefacts. As Kinross points out in *The Rhetoric of Neutrality*, Design Issues (1985): "nothing is free of rhetoric ... visual manifestations emerge from particular historical circumstances", and "ideological vacuums do not exist". In what follows I take these points for granted, in order to focus on the particular conditions which allow for communication designers to engage with content, and express interpretations of it. In the quick overview that follows, the main points are drawn from Leila Avrin, *Scribes, Script, and Books: The Book Arts from Antiquity to the Renaissance* (University of Michigan, 1991); Frédéric Barbier, *Gutenberg's Europe: The Book and the Invention of Western Modernity* (Wiley, 2016), and Richard Hollis, *Graphic Design: A Concise History* (Thames & Hudson, 1994).

27 The self-consciously reductive overview that follows maintains a rather disciplined account of

To twenty-first century eyes, the typographic organisation of early European printed books appears positively absurd. Consider the title page of Sir Thomas Elyot's 1531 *The Boke Named The Governour* (FIG. 0.2.1).[28] The letters comprising the book's five-word title are arranged in a crudely decorative fashion, the type starting oversized and becoming indiscriminately smaller as it proceeds down the page. The first word, 'THE', fills the width of the type area, dominating the layout, while the word 'GOVERNOUR', surely the most important in the title, is set drastically smaller, awkwardly hyphenated over two lines. This lumpen arrangement of letters is apparently aware that they are on display, but make no concession to their *content*.[29]

By the early-nineteenth century, the production and distribution of books was growing exponentially, but printers and publishers had not yet conceived of the notion of a singular design for the whole edition of a book that included cover and binding. Books were sold unbound and without printed covers, the external appearance of a single copy determined by the buyer's specifications, made to match the other books in the library (public or private) where it was to be kept. The culture in which the book could be appreciated as a unified literary, graphic, and industrial object had not emerged.

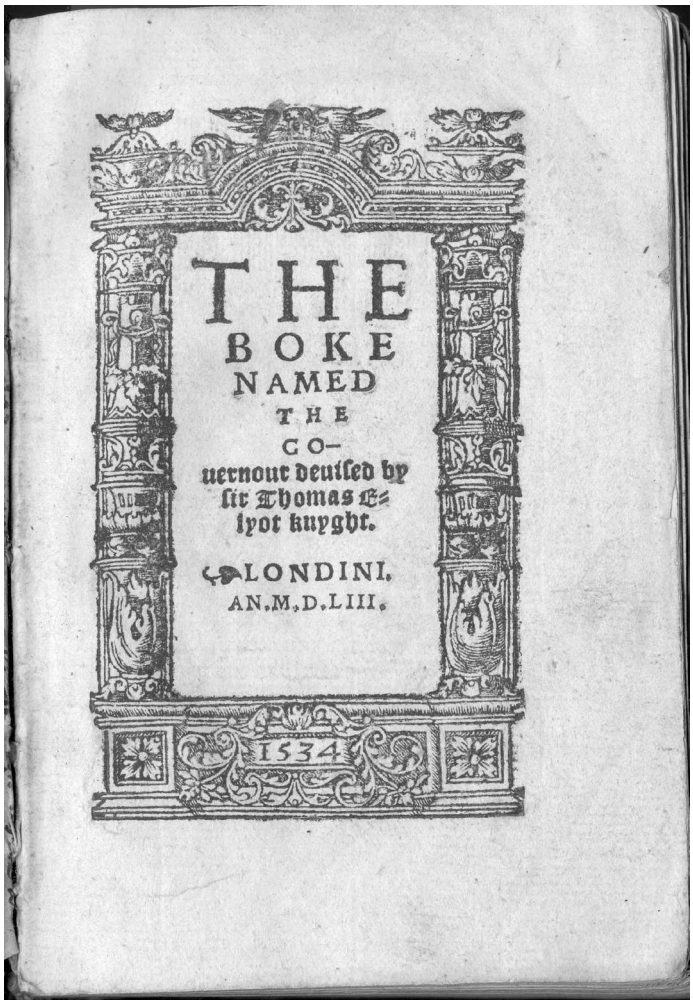
By the mid-twentieth century, the graphic designer had arrived to institute and capitalise on such a culture. But the demands of the (by then international) book-publishing industry had created powerful economic disincentives to designing in relation to content. Prominent European designers issued graphic

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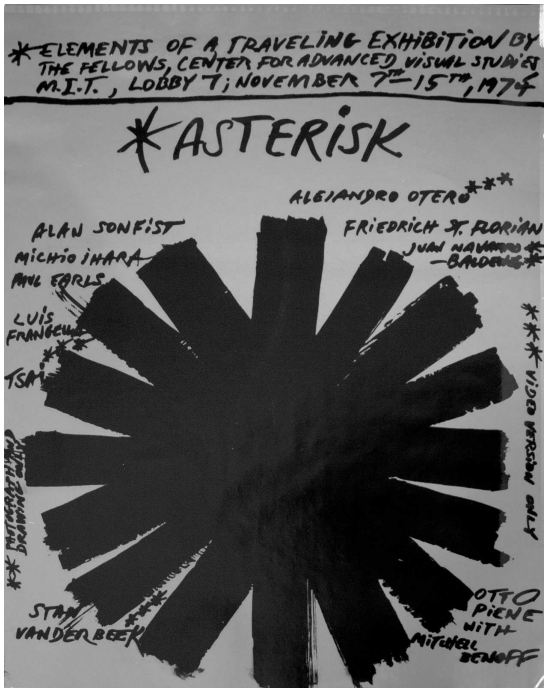
communication design (and specifically book design) practice. I must signal here my awareness of the fact that, by contrast, the field of analytical bibliography appraises the book as a contingent object whose meaning is continually renegotiated and revised according to the interaction of its editorial, graphic, and material properties with current practices in comparative literary criticism, digital forensics, and political history. Bibliographic studies such as Bonnie Mak's *How the Page Matters*, which documents extant copies (including manuscript, print, and digital formats) of a single fifteenth century text — the *Controversia de nobilitate*, by the Florentine humanist Buonaccorso da Montemagno — construct the book as an integrated object of study. Mak uses the term 'designers' with the broadest possible purview, to refer to "Scribes, printers, translators, editors, and booksellers". While, using this approach, Mak is able to identify sympathies between certain material presentations of the Buonaccorso text — such as its early appearance set in a contemporaneous humanist script — such a generalised notion of a book's *design* is unhelpful for my purposes, at least at this point in the argument. The isomorphic communication design decision, as I am historicising it here, depends initially on the position of the communication designer in a division of labour, and the increasing opportunity to engage explicitly with the interpretive mediation of content that was afforded to that position, during the historical development following Gutenberg's invention of printing in Europe to the middle of the twentieth century.

28 This passage is based on inspecting a high resolution digital scan of the title page of a fifth edition printing (1553) by request from the William Andrews Clark Memorial Library, UCLA.

29 I consider what might constitute isomorphic typography in chapter four.



0.2.1. Thomas Elyot, *The Boke Named The Governour*, 1531, title page. William Andrews Clark Memorial Library, UCLA.



0.2.2. Muriel Cooper, poster, Center for Advanced Visual Studies, 1974.

design manuals — Emil Ruder's *Typography: A Manual of Design* would be a canonical example — idealising generic, strictly gridded page layouts and *neutral* sans-serif typefaces intended to be suitable for any and all content.[30] In this context, making design decisions responsive to content was seen as inefficient, extravagant, or — far worse — as contravening a pseudo-ethical code which dictated that the designer should not be overly concerned with content. Ruder warns: "it is not the typographer's business to interpret literature in his own way."[31] The practice of communication design, shaped by its historical interdependence with craft and production, is naturally more often identified with form-giving and technical craft than any qualified expertise in appraising and mediating content.[32]

And what now? Reinfurt (2019), in *A *New* Program for Graphic Design*, describes a 1974 poster by American designer Muriel Cooper (FIG. 0.2.2) as "a tight and powerful synthesis of what is being said, how it is being said, and how what is being said is produced".[33] This synthesis of content, design, and *technics*, is a succinct statement of the isomorphic possibilities of communication design, as enacted by Cooper's poster.[34]

Of course, countless exceptions to this reductive overview can be found. In *Thinking with Type*, design historian Ellen Lupton uses the term "expressive typography" to describe an example of a historical design decision that specifically addresses — with the obvious intent to *reinforce* — its content. On the pages of an eighteenth century publication, *The American Museum, Volume 1* (1787), a heated argument between two protagonists is presented in type whose size increases dramatically with each escalation of the exchange. And even in a twentieth century, western Europe communication design context

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30 In *Graphic Design: A Concise History*, Richard Hollis writes "Modernism in Switzerland became a crusade in the years following the Second World War. Its assumptions became matters of faith." Karl Gerstner's *Designing Programmes* (Verlag Arthur Niggli, 1964), and Josef Müller-Brockmann's *Grid Systems in Graphic Design* (Verlag Arthur Niggli, 1968) — "a professional ethos: the designer's work should have the clearly intelligible, objective, functional, and aesthetic quality of mathematical thinking" — are other familiar titles. The sentiment probably originates with Jan Tschichold's 1928 *The New Typography*, (University of California Press, 1995) and its simple declaration that "All form must correspond with meaning and not contradict it."

31 Emil Ruder, *Typography: A Manual of Design* (Niggli, 1967).

32 'Vormgeving' in Dutch, 'Gestaltung' in German.

33 David Reinfurt, *A *New* Program for Graphic Design* (Inventory Press, 2019), 60. Cooper was founder of the MIT Visible Language Workshop and co-founder of the MIT Media Lab.

34 Design and content are absolutely everyday vocabulary for a graphic designer. Technics is more often 'production' but I prefer technics because, as will be explained, an isomorphic design decision can exploit technical characteristics that are not necessarily found in routine production processes.

— decidedly under the influence of an ideology such as that exemplified above by Emil Ruder — the German designer Anton Stankowski would write in 1981:

> "In order to find our line for graphics and advertising, and because it was interesting, we dealt with each topic very intensively. We had to experience and understand things first in order to be able to put them in the picture. Mostly in the factory with the camera and also through technical literature, as well as through conversations. What is injection moulding? What is electricity? How is a nail made from wire? Cement has granules. What is made from coal? How is butter made from peanuts? To find a good motif for a vegetarian poster, it was probably right to live as a vegetarian for a period of time."

What explains how this notion — a deliberate and meaningful relation of design and technics to content — endures, despite more than 500 years of apparently unsympathetic discourse and practice?

Kinross (1992, 2004) accounts for the transformation of the manual culture that produced *The Boke Named The Governour* into the design culture that produced *Typography: A Manual of Design*.[35] Kinross argues that "modern" typography is not synonymous with any visual style, but with "the attempt to work in the spirit of rationality".[36] The focus of his argument is a historical milieu, emerging around 1700, in which previously disparate printing practices underwent a self-reflexive awakening and rationalisation across Europe:

> "Printing becomes modern with the spreading of knowledge about itself: with the published description of its practices; with the classification of its materials and processes; with co-ordination of dimensions of materials, enabling their exchange and better conjunction; with the establishment of a record of its history. These things, which one begins to see in the late seventeenth century in (especially) England and France, are realisations of the implications of the process of printing: they follow from people using the means of printing to discuss that process itself. With the publication of manuals and histories of

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35 Robin Kinross, *Modern Typography: An Essay in Critical History* (Hyphen Press, 2004).

36 Synopsis, *Modern typography: an essay in critical history* (2020). Via: https://hyphenpress.co.uk/products/books/978-0-907259-18-3.

> printing, with the introduction of common systems of measurement, then the 'black art' is illumined: a process that still continues."[37]

For Kinross, it was the "discussion, description and ordering of practice, rather than mere practice and mere products" that defined modernity. Modernity thus established a thoroughly *reasonable*, pragmatic mode of self-reflexivity that emphasised a distinction between typography and printing (*design* and *technics*, in the terms of this discussion) and, through standardisation, ultimately enabled the prospering of an industrialised print culture, fulfilling the historic potential of Johannes Gutenberg's invention of the printing press.[38]

0.3 – Unreasonably self-centred

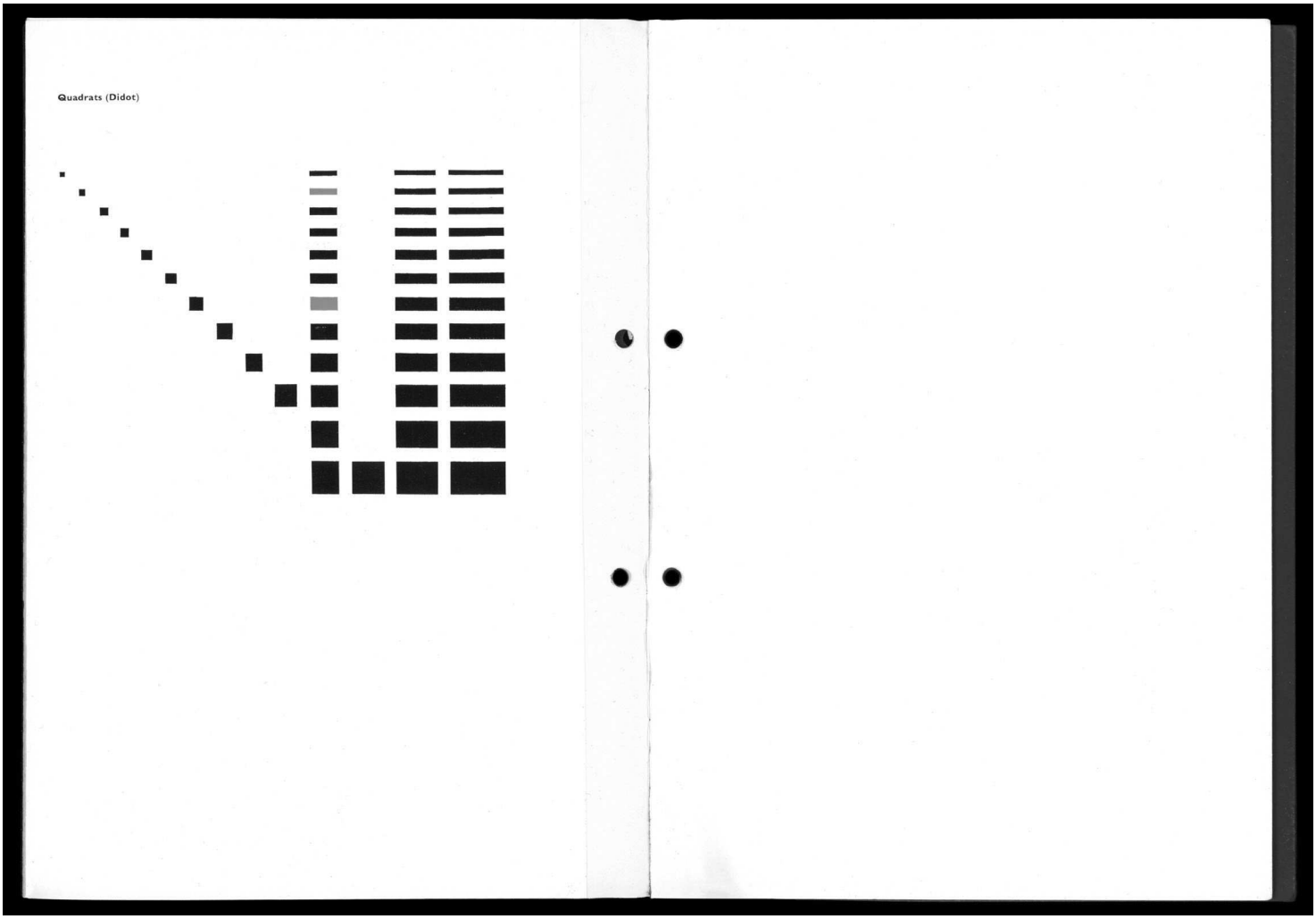
A latent, *unreasonable* impulse is lurking in Kinross's phrase "using the means of printing to discuss that process itself". Hinted at in Reinfurt's "tight and powerful synthesis" formulation, perhaps it is also what Potter meant by "a localised disturbance of an energetic field". This quality is suggested in the awkward doubling of the appellation *printed printing specification*, or in Potter's circuitous procedure for making a graphic self portrait *of* his typewriter by typing *on* his typewriter. *Printing about print*. *Typewriting about typewriters*. Such practices exhibit a punning tautology. Printing manuals, type specimens, and other technical publications, in this way, exemplify the potential that arises when design and technics are in *synthesis* with content because they themselves *generate* or comprise content.

One significant example here is Potter's collaborator Anthony Froshaug's 1964 publication *Typographic Norms* (FIG. 0.3.1, 0.3.2), an A4 pamphlet issued as one in a series of graphic design ephemera produced and commissioned by The Kynoch Press in Birmingham and the Designers & Art Directors Association in London. At face value, it is a rather minimal, matter-of-fact, *reasonable* variation on a printing specimen, helpfully comparing the Anglo-American and

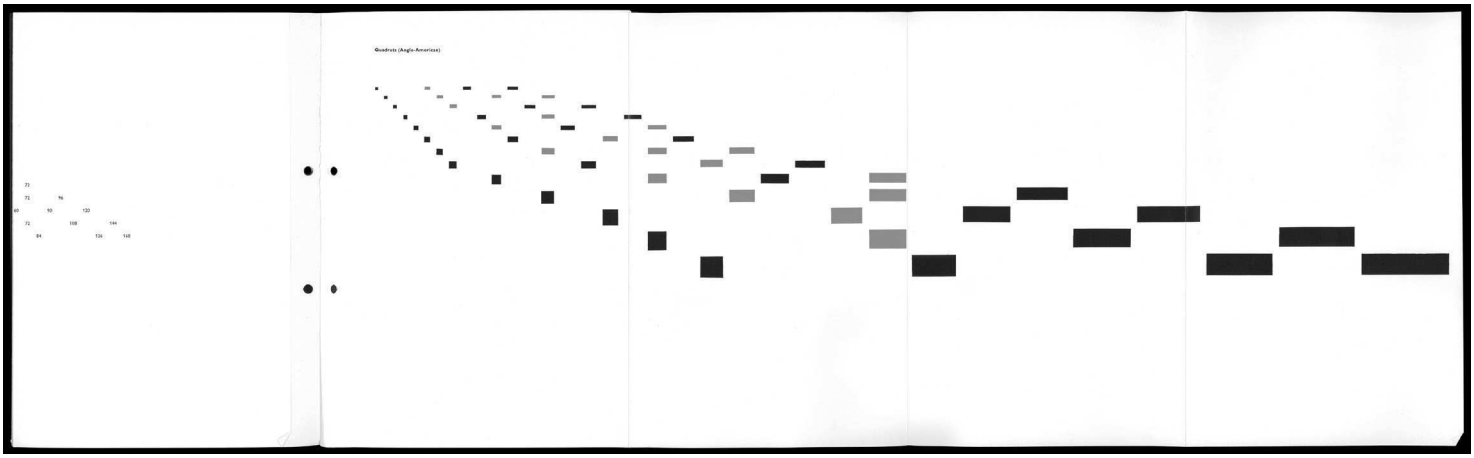
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37 Kinross, *Modern Typography*, 16.

38 Gutenberg's invention actually comprised the adaptation of a number of small, intermediate materials and techniques required to construct and operate the printing press. (These particulars are covered in chapter four.) I use the word "fulfilling" here to suggest that Gutenberg's historical significance comes not from the singular brilliance of his invention as such, but from the consequent modernisation of printing, as set out by Kinross. Given that Gutenberg's specifically European influence is under discussion here, I am not covering the invention and adoption of printing in China, which predates Gutenberg.



0.3.1. Anthony Froshaug, *Typographic Norms*, 1964.



0.3.2. Anthony Froshaug, *Typographic Norms*, 1964.

French Didot systems of typographic measurement. On closer inspection and reflection, it reveals itself as an obstinate, *unreasonable* exercise in allowing such a comparison to play itself out as "visual analogues on a scale of 1:1", producing a rational but excessive layout in which multi-page fold-outs are required to exhibit the expanding parameters of typographic order at actual size.[39] The apparatus of typographic measurement is transformed from unseen supporting hardware into perfectly synthesised, self-evident, and self-expressive *content*. This transformation produces a conceptual and graphic purity, uncompromised by having to adapt itself to the vicissitudes of *real*, messy, unforeseen content.

As I am transposing it to a contemporary communication design context, the isomorphic design decision might channel this *unreasonable*, insistent quality of *Typographic Norms*, but is not only concerned with such self-similarity. I am interested in the outward-looking (or "relation-seeking") synthesis of (absurdly) specific similarity with content. In this formulation, the isomorph is a metaphor for the orchestration of a reciprocity (of a graphic, procedural, technical, or material nature) between the *content* of a work of communication design, and the moves — in design and technics — made in visualising that content.

Two assumptions follow, prequisites of the isomorphic. Firstly, a thorough appraisal of content on the part of the communication designer must inform any isomorphic design decision. There are no incidental isomorphs. In order to know what might be essential or meaningful in a piece of content, the designer must become intimately familiar with it. This requires engagement with content and content-producers, and *research*, a word whose meaning in contemporary communication design practice is under-articulated, and which is confronted in 0.7, below. Secondly, the designer must maintain a comprehensive working knowledge of technics: formats, procedures, materials, distribution platforms, and other opportunities for conferring meaning whose characteristic effects might suggest their potential to represent a particular piece of content — to "strengthen signals", as Potter put it.

0.4 – A comparison between *so convenient and reasonable* and *a little laborious and unreasonable*

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[39] Anthony Froshaug, *Typographic Norms* (Kynoch Press, 1964). The original has no page numbers. Its text also appears in Robin Kinross, *Anthony Froshaug* (Hyphen Press, 2000), 182.

The hyper-condensed historical overview in 0.2, above, should not give the impression that isomorphism — such as it has been defined at this point — represents some optimal conclusion to a contested period of reasoning about how content and design ought to be related. Far from it. In fact, the virtue of having something to do with content still tends, even in contemporary practice, to manifest as a vague, ambient concern, policed according to notions of professional refrain directly descended from Emil Ruder's dogma "it is not the typographer's business to interpret ..."[40] To convey this point, an isomorphic design decision might be contrasted with a more generic approach to content.

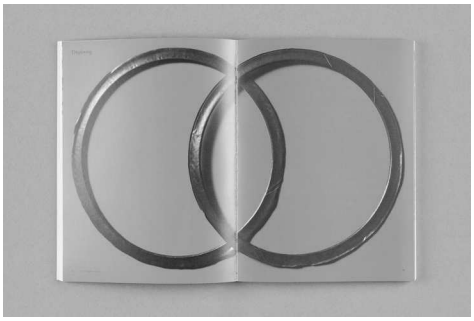
In *bau bau*, a 2017 monograph that I designed for Swiss-Italian, UK-based artist Céline Condorelli, published by Pirelli HangarBicocca and Mousse Publishing (both in Milan) (FIG. 0.4.1), a "note on the design" is included in the colophon, in which I account for one of the book's design decisions as follows:

> "The photograph on page 68 of this book [FIG. 0.4.2] shows a fragment of rubber compound collected by Céline during her engagement with the process of tyre production at the Pirelli factory in Settimo Torinese in 2014. Its blackness is elementary. This fragment, amongst others, was later presented on a metal display structure coated with RAL 3000 red paint, in the exhibition 'bau bau' at Pirelli HangarBicocca.
>
> The photograph, made using a Canon EOS 5D Mark III digital camera, describes these two original colours — the black of the rubber and the red of the paint — by way of three others. Red, green, and blue comprise the RGB colour gamut, a standard for separating an image into 'channels' using red, green, and blue light filters, in order (amongst other applications) to display it on a screen with red, green and blue pixels. Printing the photograph on the pages of this book would typically involve a further transformation, from a three channel RGB file to a four channel

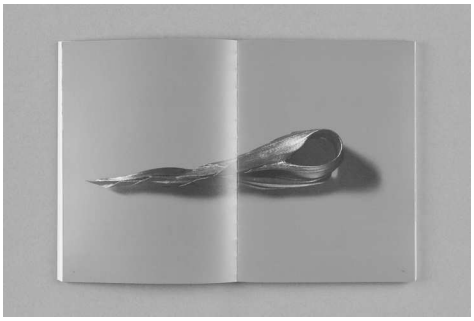
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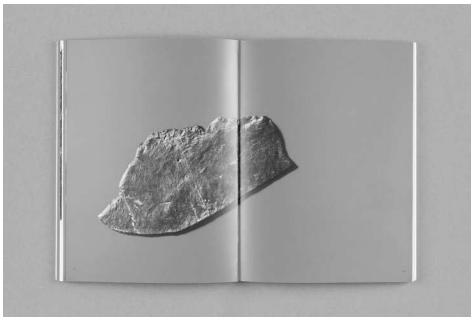
40 The nature and implications of this *professional refrain* are discussed at length in chapter two. The argument here is artificially focused on the idea of mainstream consensus views in practice and the divergence of the isomorphic mentality from such consensus. My own first encounters with graphic design, as a painting student in a provincial UK art school, came with the arrival of *Typography Now 2: Implosion*, published by Booth-Clibborn editions in 1996, in the school library. The book's editor, Rick Poynor, had compiled there examples of graphic design whose abstract-painterly sensibilities immediately appealed to me. In this context, the idea that the designer had a responsibility to read the text that they were typesetting was treated as needlessly conservative and limiting, like some old-fashioned misconception of duty.







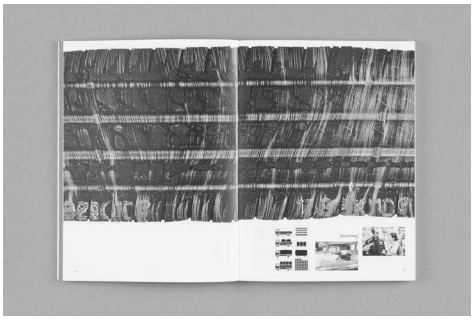


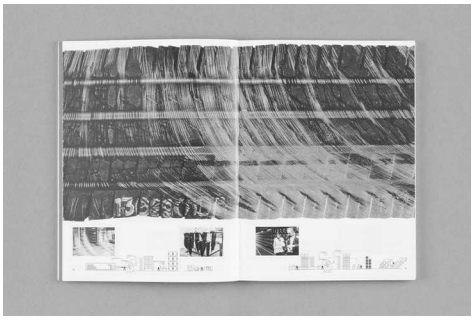






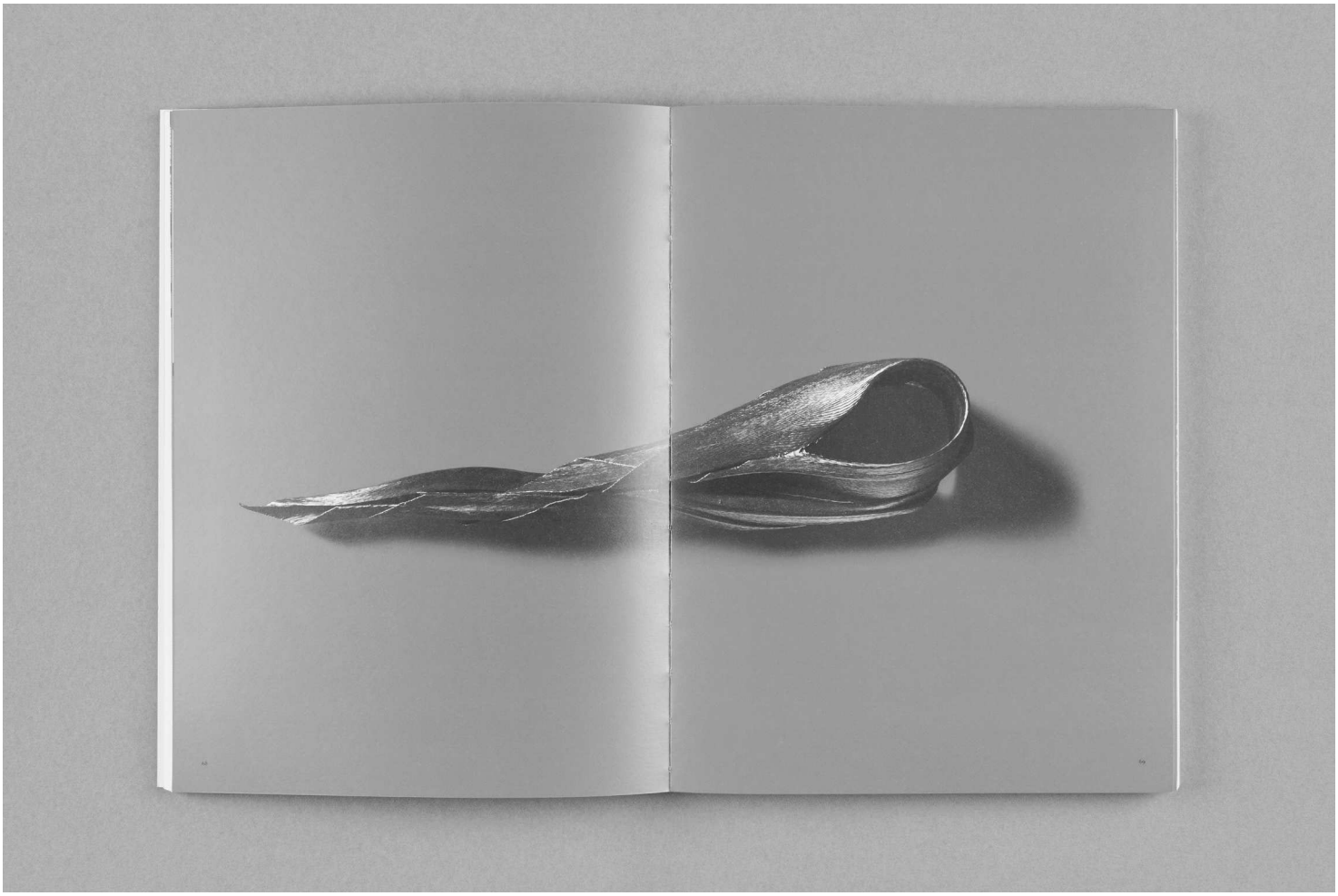








0.4.1. Céline Condorelli, *bau bau*, 2017, pages from two-colour printed section.



0.4.2. Condorelli, *bau bau*, pages 68–69.

> CMYK file. Cyan, magenta, yellow, and black (or 'key') are the colours of printing ink that historically have been combined to present the most believable appearance of an image in pigment on paper.
>
> On page 68 we chose instead to reproduce the image in only red and black inks. This choice resists the software-automated procedures of colour separation described above. Instead, considerable — excessive — labour is spent in the preparation of the image to preserve the metaphor of elementary colour. If you inspect these reds and blacks under a printer's magnifying loupe, they do not fracture into a matrix of cyan, magenta, yellow, and black specks. They remain simply red and black."[41]

Taking this as representative of isomorphic reasoning, a contrary approach to content might be summed up by the 'Beaumont' template available at the website design and hosting platform Squarespace.[42] Squarespace is a venture-capital funded, New York City-based, software-as-a-service provider operating globally. At the Squarespace website, individuals and businesses can choose from pre-designed website templates into which they insert their own content through an online interface. No software other than a web browser is required. The service is offered as a subscription-based, all-in-one tool to rapidly produce professional-looking websites. With a Squarespace website, design and technics are sublimated into a one-dimensional list of permutations that are interchangeable and reversible. There are no individual design decisions with their own particular friction or consequence. Every visual element of the website can be instantly and infinitely revised by simply changing the template to which it is subordinate:

> "Select from any of our industry-leading website templates, designer fonts, and colour palettes to best fit your personal style and professional needs."[43]

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41 Céline Condorelli, *bau bau* (Mousse Publishing, 2017). A related case study of isomorphism in colour reproduction comprises chapter three.

42 Squarespace is one of a number of such services, but its name seems to have entered a popular vocabulary. I have chosen 'Beaumont' as, at quick inspection, it seems the most banal, but any of the available templates would do. Other types of comparison would also be possible. For example, in early 2021, logos and corporate identities are being sold online as non-fungible tokens, described, in one instance, by designer Ben Pieratt as "pre-branding" assets. Via: http://pieratt.com.

43 Marketing text, Squarespace (2020). Via: https://www.squarespace.com.

Sample websites are embedded into the main Squarespace website as showcases for the various templates.[44] ‘Beaumont’ is presented in the guise of a portfolio site for an eponymous fictional ceramicist, Hollie Beaumont. Slick photographs of Hollie’s *works* are shown in minimalist layouts with abundant *white-space* and an inoffensive colour palette. At the sample About page, the designer’s biography reads:

> “Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Pellentesque diam volutpat commodo sed egestas egestas. Diam donec adipiscing tristique risus nec feugiat in fermentum posuere. Bibendum est ultricies integer quis auctor. Convallis tellus id interdum velit laoreet id donec. Vestibulum lectus mauris ultrices eros in. Eget nunc scelerisque viverra mauris in aliquam sem fringilla ut.”

Of course, the sample website should not be *too* convincing. The prospective user of the template is being invited to imagine their own images and text here. But what more telling admission that content is mere generic matter than Lorem Ipsum, the most insidiously generic of placeholder texts.[45]

There are presumably tens, maybe hundreds of thousands of active websites using the ‘Beaumont’ template, and reportedly 2.5 million websites presently on the Squarespace platform.[46] By contrast, an isomorphic design decision is conceived to be absolutely singular and content-specific. The preparation of Condorelli’s rubber fragment image for printing in two, rather than four, colours requires graphic labour that has no potential to be reused for anything else. While it might take a few minutes to prepare the image for printing in four colours — using the predefined tools and workflows in Adobe Photoshop — to prepare it for two colour printing took several hours and required the experimental development of a novel workflow. To repurpose this design decision, and the work required to implement it, in any other context would immediately undermine its claim to be isomorphic with Condorelli’s artistic proposition.[47]

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44 Templates are periodically refreshed, but legacy templates continue to function.

45 Lorem Ipsum is the default in Adobe Indesign under the menu heading ‘Fill with placeholder text’.

46 The number of websites is over 4 million, including those that historically used Squarespace but no longer do. Via: https://trends.builtwith.com/cms/Squarespace.

47 Again here are implicated factors that concern not just the notional ‘legibility’ of an isomorphic design decision, but its commercial viability. The isomorph connotes esoteric, obtuse, precarious,

0.5 – Unreasonably illegible

Walter Isaacson's 2011 biography of Steve Jobs, the co-founder of Apple Computer, includes the following anecdotal insight into Jobs's notoriously hard-to-please disposition:

> "From his father Jobs had learned that a hallmark of passionate craftsmanship is making sure that even the aspects that will remain hidden are done beautifully. One of the most extreme — and telling — implementations of that philosophy came when he scrutinized the printed circuit board that would hold the chips and other components deep inside the Macintosh. No consumer would ever see it, but Jobs began critiquing it on aesthetic grounds. 'That part's really pretty,' he said. 'But look at the memory chips. That's ugly. The lines are too close together.' One of the new engineers interrupted and asked why it mattered. 'The only thing that's important is how well it works. Nobody is going to see the PC board.' Jobs reacted typically. ... 'When you're a carpenter making a beautiful chest of drawers, you're not going to use a piece of plywood on the back, even though it faces the wall and nobody will ever see it. You'll know it's there, so you're going to use a beautiful piece of wood on the back. For you to sleep well at night, the aesthetic, the quality, has to be carried all the way through.'"[48]

Jobs's comparison betrays a rather manic interpretation of equivalance. It might be more reasonable to compare the back of the chest of drawers to the underside of the computer's exterior case. Or, the other way around, to compare the layout of the circuit board to the finishing of a piece of joinery inside the chest that would require its disassembly to be seen. Regardless, this is a clear statement of the idea that some design decisions are made — and this applies even in a communication design context — without an explicitly communicative intent. It does not necessarily follow that such decisions are not meaningful, only that their meanings are not on display.

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anti-social; while the default is economical, corporate, workflow-optimal, *social*. This point will resurface in chapter one and the conclusion.

[48] Walter Isaacson, *Steve Jobs* (Simon & Schuster, 2011). In chapter one a similar concept is discussed in Potter's work.

The double page opening of pages 64–65 in Condorelli's monograph (FIG. 0.5.1) are a junction between two sixteen-page signatures of the book's binding. Page 64 is the final page of a signature printed in full-colour CMYK (FIG 0.5.2). Page 65 is the first page of the two-colour signature designed to achieve the isomorphic effect described in the previous section (FIG. 0.5.3). A single image is placed full-bleed across this opening, from the same series of photographs showing fragments of rubber compound from the Pirelli factory. A straightforward inspection of this image would not reveal that it was printed on two different printing presses and prepared according to two completely different technical workflows.

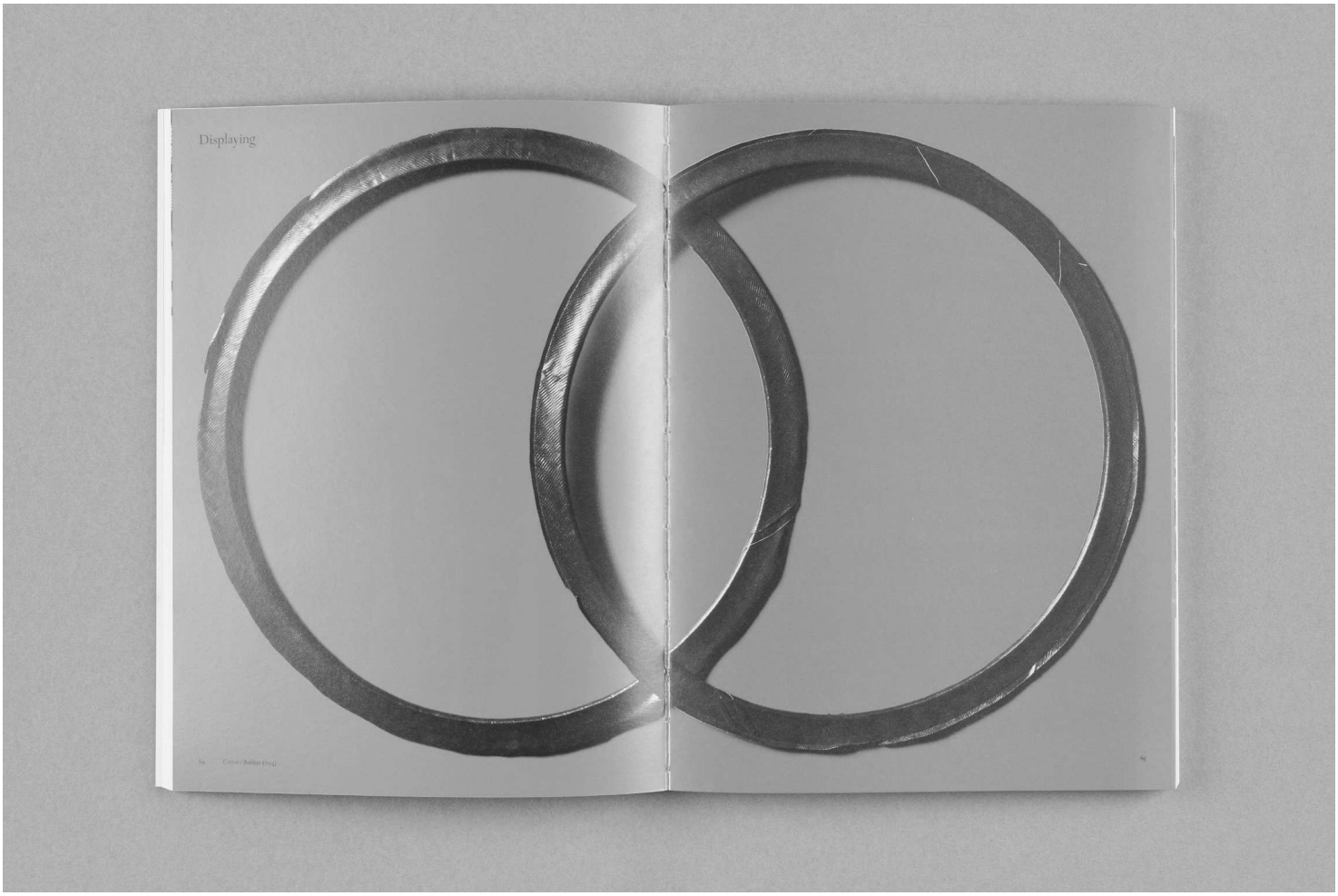
This seamless transition was achieved by the skilled labour of the press operator at Artigianelli in Brescia, Italy. The printing of the CMYK signature was completed first. The red background of the image was achieved by a combination of the magenta and yellow process colours, and the sheets were allowed to dry in order for the colour to take on its final appearance. A specific red ink for use on the two-colour printed pages was then mixed by hand to match the appearance of the already printed CMYK sheets (FIG. 0.5.4, 0.5.5.).

Small quantities of this ink were tested by smearing, with a finger, small quantities on the already printed sheets, adjacent to the CMYK red, and seeing how they compared after drying. The point of this — excessive — work is at once to highlight and to make invisible, a transition itself could have been entirely avoided by simply placing this double page image one page later in the layout.

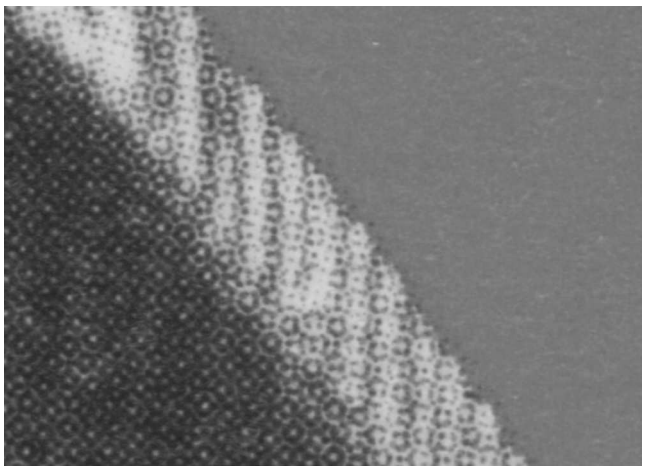
0.6 – A reasonable admission of having acted unreasonably

In *Delirious New York*, Dutch architect Rem Koolhaas set out his theory of the "Paranoid-Critical Method" (PCM). The PCM is a caricature of the megalomaniacal sensibilities of two great egos of twentieth century art and architecture, Salvador Dalí and Le Corbusier, and is a kind of pathological state in which there exists no critique that cannot be absorbed into a pre-existing, self-fulfilling narrative:

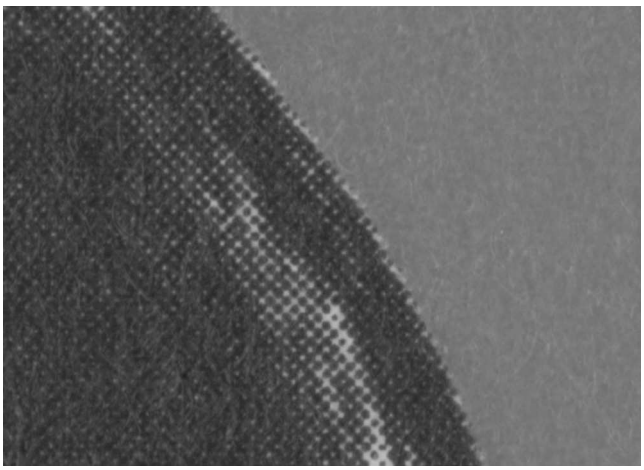
> "Paranoid-Critical activity is the fabrication of evidence for unprovable speculations and the subsequent grafting of this



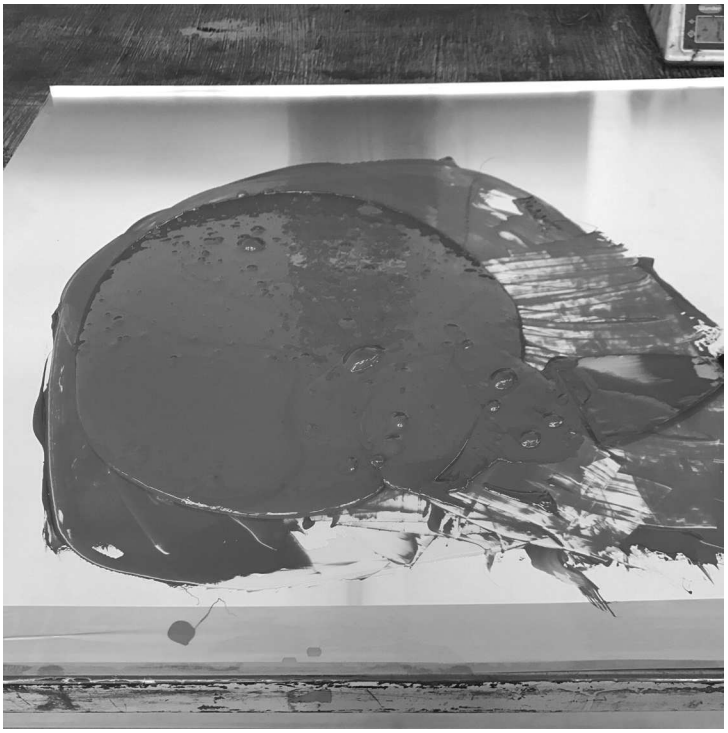
0.5.1. Condorelli, *bau bau*, pages 64–65.



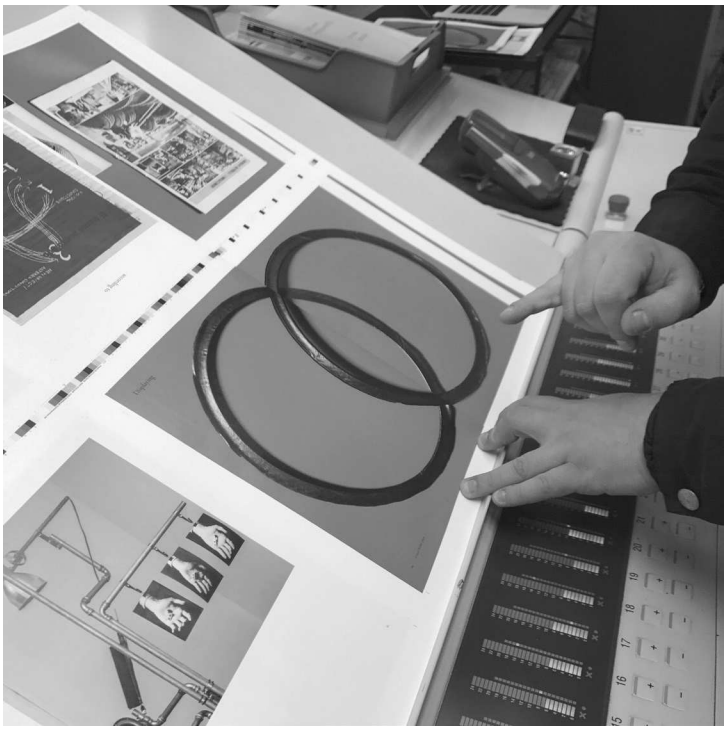
0.5.2. Page 64, detail.



0.5.3. Page 65, detail.



0.5.4. Red ink mixing at Artigianelli, 2017.



0.5.5. Comparing CMYK-printed and two-colour printed sheets at Artigianelli.

> evidence on the world, so that a 'false' fact takes its unlawful place among the 'real' facts."[49]

The point is something akin to Abraham Maslow's "law of the instrument", and the popular metaphor he coined: "I suppose it is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail."[50] Having foreshadowed the idea of the unsuccessful isomorph with my description of Potter's illustrative and overwrought *In:Quest of Icarus* stage, I offer here an example in which I consider myself to have forced an isomorphic design decision.

In 2018, I designed a monograph, *Here's the answer, what's the question?* for Swedish-British, German-based artist Sofia Hultén, published by Ikon Gallery, Birmingham, and Museum Tinguely, Basel (FIG. 0.6.1). This is the third book that I have designed for Hultén, and through various other professional interactions and collaborations, I have become very familiar with her work.[51] In terms of layout and typography, the book is conventional, conforming to the documentary paradigm of the art catalogue. Its binding and finishing, however, are highly unusual and were conceived with an isomorphic intent.

Several of the artist's video works infer a scrambling of linear causality in ordinary experience. In the video series *Nonsequences* (2013–2014), an apparently mundane sequence of events is shown in brief vignettes.[52] In *Nonsequences I* (2013), the artist, seen in a messy sculpture studio, picks up an apple, then *accidentally* drops it into a plastic tray containing dust and dirt from the concrete floor, then picks it up and cleans it by wiping it on her jeans, then eats the apple, then drops its core in the waste bin. Straightforward enough. In the video these same five actions are repeated in multiple versions, each time in a different temporal sequence. The defining and disarming aspect of the work is that these scrambled causalities are not achieved in editing or postproduction, but are performed in deadpan style by the artist. For example, in another 'nonsequence' in the same work, the artist first drops the apple into the waste

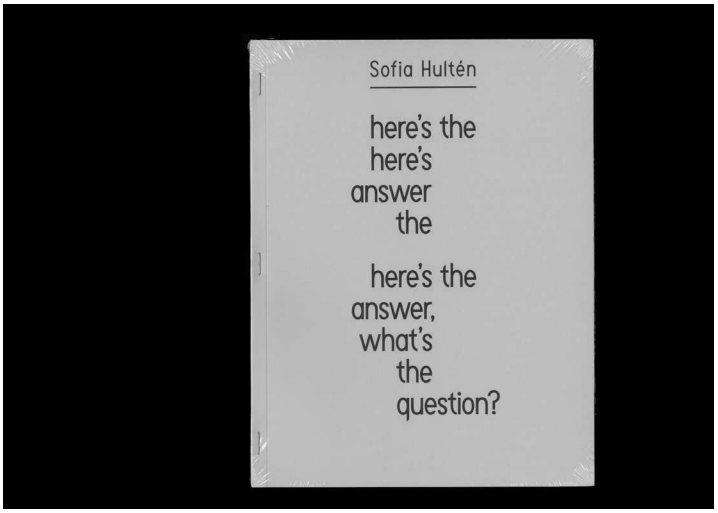
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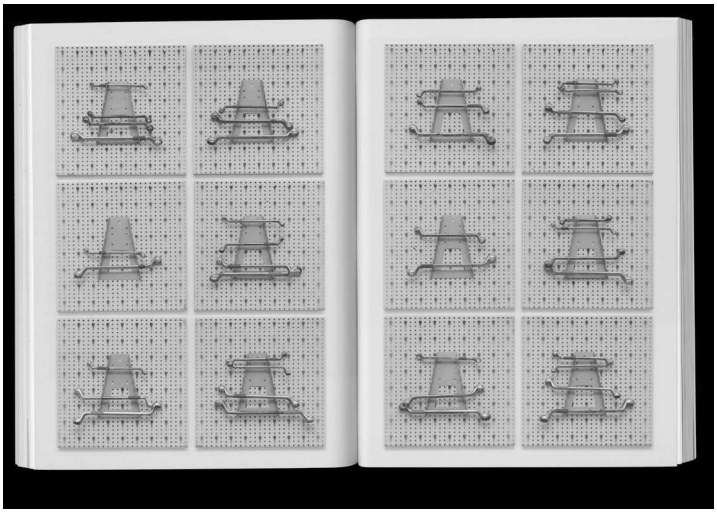
49 Rem Koolhaas, *Delirious New York* (The Monacelli Press, 1994), 241. The nature of Koolhaas's observations have a political connotation, and seem prescient in relation to a 2010s version of political populism and communication strategies based on "alternative facts", the expression accredited to US Counselor to the President Kellyanne Conway on January 22, 2017. (*Delirious New York* was originally published in 1978.)

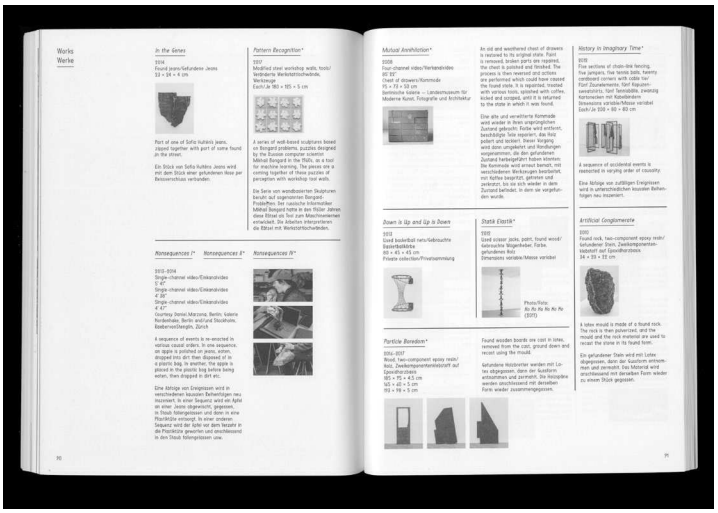
50 Abraham H. Maslow, *The Psychology of Science: A Reconnaissance* (University of Wisconsin, 1966), 15.

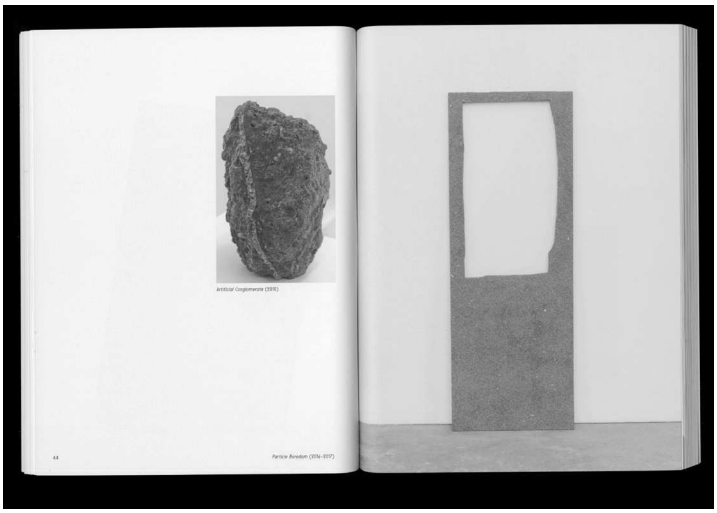
51 Hultén has twice invited me to be her interlocutor in public, in-conversation events.

52 *Nonsequences* is a portmanteau of nonsense and consequences.









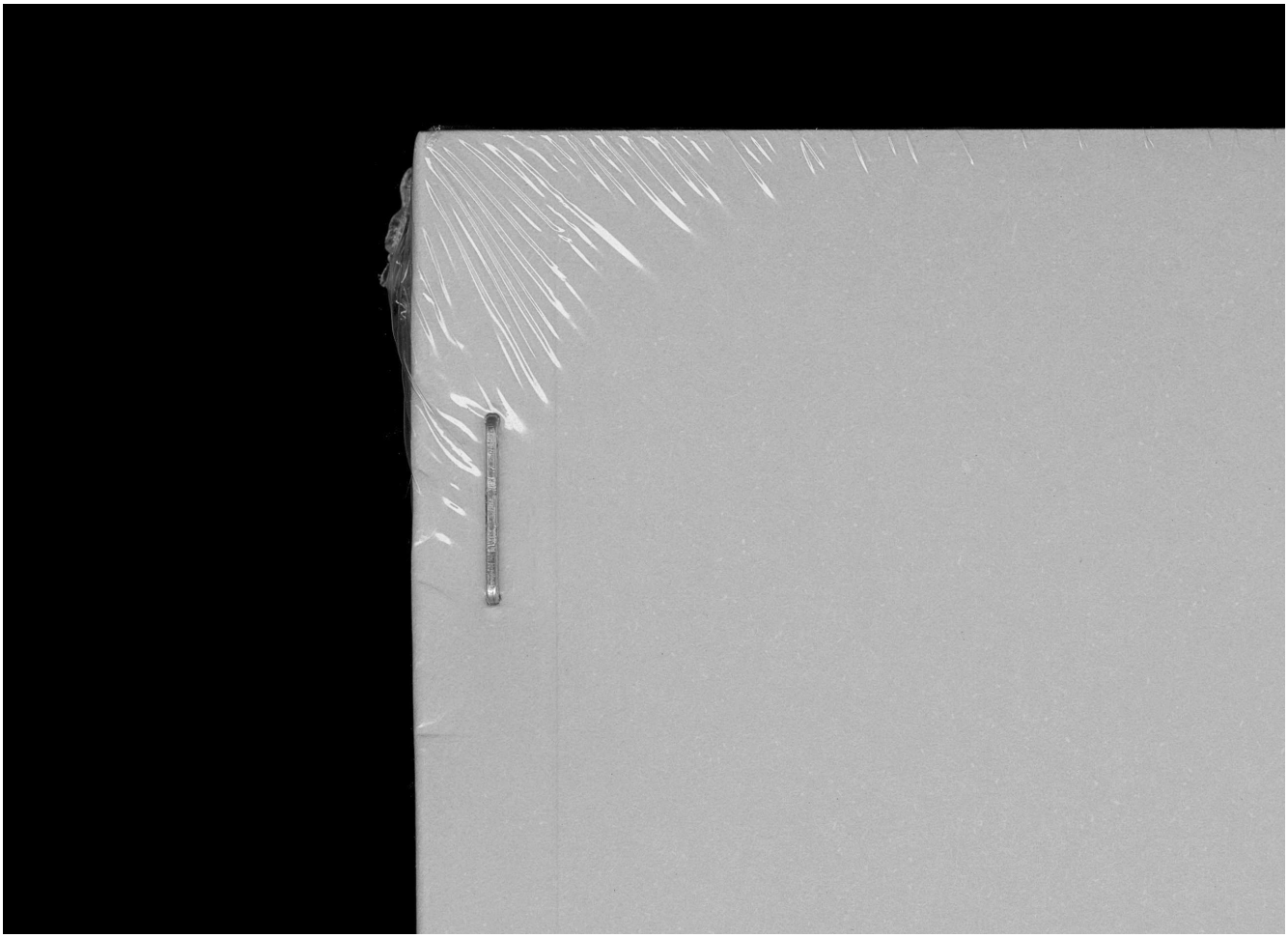


0.6.1. Sofia Hultén, *Here's the answer, what's the question?*, 2018, selected pages.

bin, then picks it out of the waste bin wrapped in the plastic bin liner, then pointlessly wipes the bagged apple on her jeans, then bites through the plastic bin liner into the apple, chews the plastic and the apple, then drops it into the tray of dirt. In another, she drops the apple into the tray of dirt, then picks it up, bites and chews the apple, visibly covered in dirt from the studio floor, then drops it half-eaten in the waste bin, then picks it out of the waste bin and wipes the bagged, half-eaten apple on her jeans. And so on. The artist's controlled performance — unflinching as she consumes dirt and plastic — provokes an instinctive, unsettling reaction.

During the design process I took the position that this temporal scrambling of causally-related phenomena was a defining artistic proposition and worked to *strengthen* that *signal*. I conceived an alteration to a sequence of operations in the book's manufacture. Shrink-wrapping in a protective, disposable plastic film is normally the penultimate stage of a book's finishing, before copies are boxed for distribution. In this case, Hultén's book was perfect bound — a cheap binding method that would be somewhat out of place in a museum publication — shrink-wrapped, then bound *again* with a stab-stitch: a heavy gauge industrial wire, or 'staple' that is forced through the entire, already shrink-wrapped, book block (FIG. 0.6.2). To an innocent visual inspection of the finished book, this detail is practically invisible. Only if the shrink-wrapping noticeably catches under the stab-stitched binding as it is removed, or if a small, torn section of shrink-wrapping remains visibly lodged under one of the staples, might this *impersonation* of a nonsequence be exposed (FIG. 0.6.3).

As a work of industrial design, the book is not entirely successful. In this written narrative, it certainly functions in an isomorphic register, and I have shown images of it in slide presentations at conferences and spoken of how, in its design, I attempted to *do what the artist would do*. However convincing these statements might be, when handling the book it becomes apparent that basic aspects of its utility have been neglected. The stab-stitched binding makes the book considerably more awkward to open than a well-made section-sewn paperback book, of the kind favoured in contemporary art publishing for its ability to lie flat on any double-page opening. In this permissive publishing context, where design decisions in the service of inscrutable meanings are acceptable if those meanings are valued by an artist, I was able — perhaps in a paranoid-critical manner — to persuade the artist, curator, and publisher to



0.6.2. Hultén, *Here's the answer, what's the question?,* stab-stitched binding.



0.6.3. Hultén, *Here's the answer, what's the question?,* shrink-wrap caught in staple.

accept an isomorphic design decision that functionally compromised the book.[53]

0.7 – An unreasonable amount of *research* will be required

How are such design decisions informed and implemented during a design process? In contemporary communication design practice, research is an under-defined concept that refers to a number of categorically distinct activities. Research might be work done autonomously, at the designer's initiative, with content not determined by the constraints of a typical commission. Or it might be an engagement with design history. Walker (2017) surveys communication design's efforts — often undertaken by practitioners — to historicise itself with increasingly academic credentials.[54] Recent work to decolonise and depatriarchise those histories, such as Mignogna and Pharr (2018), and Fanni, Flodmark, and Kaaman (2020), are redefining communication design's canon. Design research can also refer to attempts to imbue design processes with methodological rigour. This approach, in which the comprehension of designed information by its *user* is treated scientifically, is synonymous with mid-twentieth century European communication design pedagogies, but has contemporary descendants in practices such as user-centred design and transcreation that are outside the scope of this discussion.[55]

A key recent phenomenon is emergence of the small, autonomous, communication design research studio.[56] Common Interest, based in Basel, self identity as "a non-profit design research practice".[57] Studio Folder, in Milan, describe themselves as "an agency for visual research".[58] An indirect precedent might be K-Hole, "a trend forecasting group",[59] based in New York City, whose founder Emily Segal now operates, with collaborator Martti Kalliala, as

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53 As is standard practice, a dummy was made, but production went on anyway.

54 Sue Walker, 'Research in graphic design', *The Design Journal*, no. 20 (2017), 549–559.

55 I am referring to a historical strand of design pedagogy at schools such as HfG Ulm, which tried to reformulate design as a science that could be methodically practiced. If user-centered design conceives of the user as a rational individual, contemporary marketing practices such as transcreation invoke the user as a culturally specific individual.

56 Design research also has corporate and governmental histories, such as the Design Research Unit in the UK.

57 Practice description, Common Interest website (2020). Via: http://common-interest.ch. (Currently inactive).

58 Practice description, Studio Folder website (2020). Via: http://www.studiofolder.it. Common Interest and Studio Folder demonstrate the possibility for relatively small teams to take on the role that was historically occupied by larger agencies.

59 Practice description, K-Hole website (2020). Via: http://khole.net.

Nemesis Global, “a think tank for cultural research”,[60] producing “self-initiated, multidisciplinary research on fashion, subculture, urbanism, technology, design, speed, language, and death.”[61] The most conventionally commercial of these practices, Studio Folder, undertake both commissioned and self-initiated publication and exhibition design projects, employing consistent research methods in both contexts. Nemesis Global, by contrast, do not directly provide communication design services. They freely publish research at their website, in the form of “memos”, offered speculatively to attract commissioned consultancy work in strategy and branding. Nemesis Global collaborate with other agencies for the technical implementation of commissioned work, assuming, in that regard, the role of an art director. The various activities of these studios might reflect a novel emphasis on research afforded by the increasing digital automation of communication design labour. Traditional distinctions between the design studio and the print factory, reflecting historical divisions of labour in mainstream publishing, can be entirely collapsed by designers working in fully digital publishing contexts. Other technical dependencies, such as reprographics and type design, can also be accommodated in the workflow of even single-person design practices. With the work of facilitating production consequently reduced or reformatted, research becomes one possible specialisation with which a small studio can distinguish itself. I return to a potential consequence of this shift in chapter five.

An isomorphic design decision implies a differently nuanced kind of research. The two decisions discussed so far in this introduction — the laborious preparation of Condorelli’s images for printing in black and red, and the scrambling of the binding and finishing of Hultén’s monograph — are both informed by, negotiated with, and approved by, the artists whose works and sensibilities they are intended to represent. They are design decisions that require a deep, collaborative engagement with content. Unfamiliar, unanticipated content. In the remainder of this section, I set out a brief, recent history of this approach, and resort to an example from sociology to demonstrate a possible methodology for researching an isomorphic design decision.

Canadian designer Bruce Mau, in his 2000 monograph *Life Style*, presents the working life of a communication designer in the field of cultural publishing as an intellectually enriching experience in which research is not a discrete activity.

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60 Practice description, Nemesis website (2020). Via: https://nemesis.global.

61 ‘2018 according to Nemesis’ Walker Art Center (2018). Via: https://walkerart.org/magazine/2018-the-year-according-to-nemesis-global.

Knowledge is ambient, encountered, and absorbed in the daily practice of designing. Reviewing *Life Style*, Stuart Bertolotti-Bailey summarises the studio culture it describes: "Clients take on the role of teachers, then form and content develop in tandem."[62] As the designer for Zone Books, Mau's studio designed covers and text typography for a twentieth-century canon of European philosophers, including Bataille, Bergson, Debord, Deleuze, and Foucault, working in collaboration with editors such as Sanford Kwinter and Lynn Hunt. This work, and other high-profile cultural projects and publications, such as the design of *S,M,L,XL*, an expanded monograph for Dutch architect Rem Koolhaas's firm OMA, conferred on Mau himself the status of public intellectual. His body of work, by its association with such distinguished content, qualified him as an editorial collaborator, and created agency with which he negotiated progressive design approaches in increasingly mainstream corporate commissions. Bruce Mau Design, no longer headed by Mau, is now a large international branding and communication consultancy:

> "Our research methods, deep cultural immersion, and on-site collaborative pop-up studios ensure a profound understanding of the challenges and context behind every project."[63]

Daniel Van der Velden (2006) finds the adoption of the word research in self-identifying statements by contemporary communication designers euphemistic: "That risk is that we start naming them research practices while what's going on below the surface is business as usual. Not every practice is … research."[64] Metahaven, the studio Van der Velden founded with Vinca Kruk in 2007, initially operated in a mode not dissimilar from Mau's early work for cultural publishing. Kruk says "I was fascinated by the idea that as a designer you're able to examine all kinds of different subjects, exactly because you're in a position to accumulate a rare combination of knowledge."[65] Although Metahaven continues to exist as an active communication design studio, their

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62 Stuart Bertolotti-Bailey, 'Review: *Life Style* by Bruce Mau', *Items* no. 1 (2001). Archived at Typotheque. Via: https://www.typotheque.com/articles/bruce_mau_life_style. From 2000–2010, Bertolotti-Bailey himself co-edited the journal *Dot Dot Dot*, whose resolutely independent outlook fostered a scene of European and American designers and artists with a literary — as opposed to purely graphic — sensibility.

63 Practice description, Bruce Mau Design website (2020). Via:https://www.brucemaudesign.com/about.

64 Daniel Van Der Velden, 'Research and Destroy: Graphic Design as Investigation', *Graphic Design: Now in Production* (Walker Art Center, 2011), 16. The statement accords with what artist Natascha Sadr Haghighian calls the "legitimating gesture of research", in Tom Holert, *Knowledge Beside Itself: Contemporary Art's Epistemic Politics* (Sternberg Press, 2020), 128.

65 Metahaven + Niessen & De Vries, *1:1:1* (Uitgeverij Boek, 2011).

self-initiated, research-oriented projects, and the resulting books, videos, and installations, are increasingly formatted for, and distributed within, the contemporary art world:

> "Metahaven often transfers aspects from one field into another: for example, they envision their work conceptually as artists but execute it within the practices of filmmaking and graphic design."[66]

The art world context simplifies the relational dynamics in the production of these works by establishing Metahaven as traditional authors. The website sprawl.space, an online repository for content from Metahaven's debut feature-length film, *The Sprawl*, presents a complex assemblage of found TV news footage, original interviews with academics and political commentators, and new videos whose production involved actors, sets, locations, and extensive layering and graphic postproduction. These materials, while collaboratively produced, comprise a self-initiated artwork. Metahaven's aesthetic propositions are not directed at any specific content in any straightforward interpretive register, rather they reflect on general tendencies in visual culture. Archey (2018) decodes Metahaven's aesthetic entirely without recourse to content:

> "Their graphic design work is recognisable for its use of web vernacular, layering, and experiments with surface and texture. Their designs are brassily exuberant, shamelessly interested in pop, and at times festooned with decoration. They play with notions of anachronistic bad design, such as drop shadows, novelty-sized text, and hazy auras of less attractive shades of CMYK such as puce and daffodil. Yet for all of Metahaven's joy and exuberance — their final designs sometimes planned and at times happened upon in the process — so too are their compositions visually complex and multitudinous in their interpretation."[67]

The aesthetic sophistication of such projects, their fluency in the visual language of hyper-nuanced online subcultures, affords Metahaven autonomy in the contemporary art world. It has attracted traditional design commissions for

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66 Karen Archey, 'Cloudy Weather', Karen Archey and Metahaven (eds.), *PSYOP: An Anthology* (Stedelijk Museum, 2018), 9.

67 Archey, *PSYOP*, 9.

publishing projects that tackle related ideological crises in culture, politics and information. Metahaven transgress the passive research *ambience* of Mau's studio to orchestrate the direction and concerns of their projects, both commissioned and self-initiated.

Van der Velden:

> "Let designers offer the surplus value, the uselessness and the authorship of their profession to the world, to politics, to society. But do not let designers just become walking encyclopaedias, adorned with such titles as 'master', 'doctor', or 'professor', their qualifications dependent on a framed certificate hanging on the wall. Let there be a design practice in which the hypothesis — the proposal — has higher esteem than need and justification."[68]

This sentiment would seem to fit within a broader cultural shift toward non-academic definitions of *research* that legitimise knowledge produced by artists. Holert (2020) finds such reformatting of research to accommodate — or exploit — artistic methodologies regrettable:

> "Symptomatic of the problems inherent in epistemisation as a tendency (or a 'turn') are the numerous interpellations of artists as peculiar thinkers. Routinely, artists are addressed as creatures who 'think' in a special, unexpected, creative mode that runs against the grain of an alleged habitual, mainstream rationality."[69]

Holert, perhaps disturbed by a perceived novelty in the reception of artistic research, argues for an acceptance of the artist as a producer of equally valid knowledge. Indeed, to qualify a method of research befitting an isomorphic design decision, I need to look beyond the forms of design research introduced so far, to a more unequivocally rigorous notion of research.

Ethnomethodology, a term coined by sociologist Harold Garfinkel, is the study of a given social order in which there can be no "relief from it or disengaged place to observe it from".[70] The approach has been described as "voodoo sociology", and has similarities with so-called Gonzo journalism, in which a

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68 Van Der Velden, *Graphic Design: Now in Production*, 18.

69 Tom Holert, *Knowledge Beside Itself: Contemporary Art's Epistemic Politics* (Sternberg Press, 2020), 10.

70 Eric Livingston, *Making Sense of Ethnomethodology* (Routledge, 1987), 57.

reporter directly implicates themselves in events that they later write about.[71] Between 1979 and 1981, Garfinkel's doctoral student in sociology Eric Livingston conducted an ethnomethodological study into the practice of proving mathematical theorems. Doing so required Livingston to pursue a degree in mathematics at graduate level alongside his main studies, entirely for research purposes:

> "it was necessary to gain real-world access to the rigor of a mathematical argument as a local phenomenon ... through an extended descriptive analysis of the lived-work of proving one of Gödel's incompleteness theorems."[72]

Livingston's doctoral dissertation, adapted into the book *The Ethnomethodological Foundations of Mathematics* is a kind of meta-mathematical workbook. Livingston proposes that the "ethnomethodology of mathematics itself is a peculiar pedagogy of mathematics."[73] He proceeds by exhaustively documenting his own step-by-step working process of proving the Gödel theorem, while simultaneously commenting on it as "lived-work". "Livingston is working through a particular proof by himself, noticing the things that he needs to do in order to understand the proof, thereby making visible the work of proving."[74] To a non-mathematician, even this pedagogical reformatting remains completely inscrutable in its technical terminology and orthography. In *Making Sense of Ethnomethodology*, Livingston gives abbreviated examples of proofs in basic Euclidean geometry to make his method accessible, combining diagrammatical drawing, equations, and analytical prose commentary. On the distinction between his method and a conventionally more removed sociology, Livingston claims:

> "Rather than offering an interpretive version of mathematicians' work, it elucidated the distinctiveness of mathematics — qua mathematics — as a unique science of practical action."[75]

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71 Stephen Cole, 'Voodoo Sociology: Recent developments in the sociology of science', *Annals of the New York Academy of Sciences* no.1, vol. 775 (1995).

72 Eric Livingston, *The Ethnomethodological Foundations of Mathematics* (Routledge, 1986), 175.

73 Michael Lynch, *Art and Artifact in Laboratory Science: A Study of Shop Work and Shop Talk in a Research Laboratory* (Routledge, 1985), 139.

74 Christian Greiffenhagen and Wes Sharrock, 'Tensions in Garfinkel's Ethnomethodological Studies of Work Programme Discussed Through Livingston's Studies of Mathematics', *Human Studies*, (August 2019).

75 Livingston, *The Ethnomethodological Foundation of Mathematics*, 17.

Lynch (1983) admits that the "demands of such a program are undoubtedly imposing", but suggests that the method "has the potential of vastly surpassing anything previously done on the sociology of mathematics and the sociology of science, if only because of the intimate way in which the approach to the phenomenon is deeply embedded within the phenomenon's unique course of pedagogy."[76] Translation: two years of dedicated retraining is a high bar to qualify a social scientist to comment on mathematical practice. But Livingston's work is considered insightful precisely because of its credibility for mathematicians. "Most writing about mathematics by philosophers and sociologists and historians uses toy examples that no mathematician would find relevant."[77] Livingston achieved a kind of ethnomethodological union with mathematics, documenting and representing the work of a mathematician *by becoming one*: "proving is what mathematicians do, and it is the ability of mathematicians to engage in proving that makes mathematicians recognisable to each other ..." The ultimate claim of credibility for this approach was made by Harold Garfinkel, who claimed simply that "Livingston's findings are mathematical results."[78]

Livingston's ethnomethodological example is far removed from my reductive characterisation of Mau's research as passive and Metahaven's as generalised and escapist. In its absurd and unreasonable specificity, it seems ideally suited to an isomorphic approach. An isomorphic design decision demands research into *content*. Unfamiliar, unanticipated content. In Céline Condorelli's *bau bau*, the appropriateness of the decision to prepare the images in black and red relies on the artist's credibility as a researcher and our collaborative negotiation of how to express that research. I argue in 0.4, above, that this is an isomorphic design decision because it supports the artist's view of what is significant about the material, interpersonal and institutional encounter that she had at the Pirelli Settimo Torinese factory. The design decision is subordinate to, and

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76 Lynch, *Art and Artifact*, 295. In contrast, as a teacher, Norman Potter demanded that his students engage with design at an intellectual level. For him, the acquisition of knowledge had a more heroic, hard-won character: "I expect you to do your homework — as I have had to do — and I expect you to have sat up all night and several nights so that you actually know your Bantock and Peters and Holt and Illich and Reimer and Goodman and all the rest so that we can take all that for granted as common ground before we begin. And this applies to any other matter on which you are forming views."

77 Martin H. Krieger, 'Book Review: Eric Livingstone, The Ethnomethodological Foundations of Mathematics', *Advances in Mathematics*, no.64 (1987), 332.

78 Quoted in Greiffenhagen and Sharrock, *Human Studies*. Richard Hamilton's "typo-translation" of Marcel Duchamp, discussed at length in chapter four is one of the the only loosely comparable works in communications design of which I am aware.

instrumentalised by, the artist's research. When the work on *bau bau* was done, my collaboration with Condorelli had developed over ten years and several major projects. I might claim that this collaboration is comparable, in terms of the degree of its engagement, with Livingston's work on mathematics. But where Livingston's methodology is categorically different is in its transgression of disciplinary reciprocities. My collaboration with Condorelli is not unlike other close-working relationships between artists and communication designers. Our practices are interconnected and, to some extent, mutually dependent. While my design decision, made in relation to Condorelli's work, is arguably as nuanced and engaged, it cannot match Livingston's sheer transgressive conviction of independently mediating disciplined work as an outsider to that discipline.

Twentieth century notions of communication design that relate only incidentally to content are thoroughly *reasonable* because they do not demand that the designer be intellectually able and economically at liberty to engage deeply with each commission that they undertake. The approach that I advocate might better resemble contemporary curatorial practice, in which the curator is expected to write and research a breadth of artistic practices. In chapter five, I confront reciprocal knowledge gaps between communication design and neuroscience.

0.8 – A reasonable application of industry-standard imaging technics

In the 1930s and 1940s, American artist Ansel Adams developed his "Zone System" for black and white photography, in which the exposure of a negative, its chemical processing in the darkroom, and its final printing are calibrated. Despite its emphasis on "image management", the Zone System was motivated by Adams's claim that artistic judgement should take priority over technical sophistication in photography: "If we fail to comprehend the medium, or relinquish our control to automation of one kind or another, we allow the system to dictate the results instead of controlling them for our own purposes."[79]

Adams's term for this negotiation between artist and instrument was "visualisation", a practice of "learning to see as the camera sees"[80] and "projecting the final photographic image in the mind before taking the first steps

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79 Ansel Adams, *The Camera* (Little, Brown and Company, 2003), 2.

80 Adams, *The Camera*, 95.

in actually photographing the subject."[81] This mode of visualisation is a way of reasoning the manipulation of the photographic image with an unwavering notion of fidelity, not a merely technical fidelity, but one mapped to artistic perception. In the *Ansel Adams Photography Series*, Adams offers insightful captions recounting exemplary visualisation decisions. One photograph, *White Branches, Mono Lake, California*, is described:

> "This is one of the few images I have where high values, in this case the white branches, are printed pure white. They are alkali encrusted and show little or no texture to the eye, and none in the negative. Hence, any attempt to print them down would result in flat gray values. The intention is that they stand in glaring contrast with the relatively dark background of the thundercloud reflections. The print is not realistic, but a faithful equivalent of the visualisation."[82]

Adams's approach now constitutes the routine digital technics of the artfully printed image, transformed into computational workflows that produce optimal colour reproduction in industrial-scale offset-printing.[83] In my practice experience designing conventional art catalogues, I have overseen many production processes at one print factory highly accomplished in this technical and procedural work: Die Keure, in Bruges, Belgium.

Stuart Whipps's 2011 publication *Why Contribute to the Spread of Ugliness?* documents in photographs a collection of 487 archive boxes housed in the former Birmingham Central Library and belonging to that building's architect, John Madin (FIG. 0.8.1). The photographs show this archive in a state of neglect, and, as such, convey several layers of meaning. The boxes are in a poor state of repair, their contents spilling out, and the building itself, the largest civic library in Europe and an icon of post-war functionalist architecture in Britain was due for demolition at the time the photographs were made.

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81 Ansel Adams, *The Negative* (Little, Brown and Company, 2002), 1.

82 Ansel Adams, *The Print* (Little, Brown and Company, 1995), 42. By "printed pure white", Adams actually means unprinted white paper.

83 I do not intend to elaborate on it, but I acknowledge an equally vigorously theorised history that outright rejects the photographic reproduction as having even the possibility of a fidelity to its referent. Twentieth century art collector Albert Barnes, informed by a Benjaminian faith in the "aura" of the original artwork, would not allow any of his collection of impressionist European paintings to be loaned to other exhibitions or reproduced in colour (his own books included black and white reproductions for reference only).



0.8.1. Stuart Whipps, photograph from *Why Contribute to the Spread of Ugliness?*, 2011.

Following an established workflow, communicated in advance by Die Keure, the artist initially provided original RGB TIF files directly to Die Keure. The files are provided in the RGB colour space to maintain the full colour gamut captured by the digital camera's sensor. The conversion to the colour space of the process printing colours — CMYK — will potentially cause a loss of some colour range, so this will be handled inside Die Keure's workflow using a digital colour profile that allows for the type of paper that has been chosen for the book, and any anticipated effects the tone or absorbency of its surface might have on the appearance of colours in the images.[84] The files have already had some processing in the digital post-production software Capture One. Each box was photographed in the same marked position against a mid-grey archival background, hung to create an infinity curve. Due to the large number of boxes, this work had to be done in several sessions, and despite every effort to control the conditions in the improvised photographic studio at Birmingham Central Library, small differences in the precise grey of the background inevitably occur over the course of multiple shoots. Capture One allows a batch of images to be compared according to a group of user-defined reference points. In this case, the four corner regions of each image were defined and automatically adjusted to correct any minor disparities in the grey background.

At Die Keure, the images were colour-converted using the appropriate profile and output on a digital proofing printer. This printer is part of a network of calibrated devices that are linked in a programmatic workflow designed to simulate the appearance of the given images on the specified paper, without the expense and commitment of producing printing plates, and taking time on the large industrial offset printing presses in the main factory. These digital proofs were sent to my studio for inspection. Whipps and I then travelled to Die Keure, with the digital proofs, now annotated and ready for processing in the colour correction studio. This is a dimly lit space in which workstations — large calibrated monitors with hoods to shield their screens from glare — are operated by specialist software technicians. First, batch corrections were made. All of the background greys were to be lightened, and their tone subtly altered. Instructions at this point are given according to the vocabulary of the offset printing press. A desired correction might be described as "Remove magenta in the greys". The software technician, working in Adobe Photoshop, will visualise this correction using an "Adjustment layer" — a non-destructive mode of

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84 For example, if the paper has its own prominent colour cast, or if it has a fibrous, uncoated surface that would cause the individual specks of ink to expand as they dry and thus render a darker image.

making an iteration of the image on a separate layer inside the same file, so as not to forego the possibility of returning to the original state if the subsequently produced second digital proof is not liked.

Once batch corrections were made, corrections to individual images were done. The shaded interior spaces of some of the most decrepit, gaping boxes were darkened a little, for purely artistic reasons, so that they look deeper and more mysterious. Each image was inspected at a 200% scale view on the screen to look for artefacts: distracting marks in the photographed scene itself, spots of dust in the camera lens, and the like. At the conclusion of this process, more actual-size digital proofs were printed, to be viewed in an adjacent room, specifically designed for the purpose, with simulated daylight. This stage of the work is a close comparison of original and correction. Back and forth. Further corrections were made as needed, using the same procedure. Ultimately, the objective was the production of a set of approved digital proof-prints that the press operator will mount on the console of the offset printing press in the factory and make constant reference to during printing.

This workflow is non-negotiable. The economics of Die Keure's operation as a specialist working with art-world clients depends on managing commercial risk by using such exhaustive simulations to preclude the possibility of the client being in a position to be dissatisfied with the final result.

0.9 – Reasonably recursive representations

Following the preceding account of an *optimal* colour management workflow, some art historical references will serve to introduce a contrary, materialist, approach to reasoning about colour, image, and the notion of fidelity that is pursued in detail in chapter three. Images have always had the potential for recursive, self-similar aspects in the coincidence of what they depict and how, materially, they depict it. In this sense, some of the earliest examples of human representational mark-making might seem *incidentally isomorphic*.

English artist and writer John Berger, in 'Why Look at Animals?' (1977):

> "The first subject matter for painting was animal. Probably the first paint was blood."[85]

And Danish artist Simon Dybbroe Møller, in 'Mercury' (2019), a visual essay on the contemporary photographic image:

> "A key component of photographic film is gelatin, also manufactured from animal bones. The skeleton of a horse can deliver enough gelatin to produce approximately 20,000 films. With analogue photography, we could say that the photograph of the animal constitutes Roland Barthes' idea of photography as inherently tautological — 'in the flesh'. Like a seal teddy made of sealskin. Its self-referential equivalent today would be a photograph of a landscape containing titanium, tungsten, gold, or copper, or the so-called rare-earth elements that make up the chips in our photographic machines now."[86]

In the landscape painting tradition, too, there have always existed material continuities between pigment and picture. English nature writer Robert Macfarlane:

> "Oil painting is an appropriate medium to represent the processes of geology, for oil paints have landscapes immanent within them: they are made of minerals ... in oil paintings of landscapes, the earth has been pressed into service to express itself."[87]

Despite their recursive tendences, such images of animals and landscapes are not isomorphic by my definition. The distinction here follows from the assumption that these tautologies — depicting animals with animal-derived pigments and landscapes with landscape-derived pigments — were never intended by their makers to have any particular significance. These were not images made to strengthen the animal-ness *signal* of an animal's representation by materialising it with the very same animal's body. Animal- and mineral-derived products were, incidentally, the materials used for making pigments in certain historical contexts. They were thus employed

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85 John Berger, 'Why Look at Animals', *About Looking* (Pantheon Books, 1980).

86 From a pamphlet accompanying *Mercury – A visual essay by Simon Dybbroe Møller* at Tallinn Art Hall, Tallinn – Tallinn Photomonth 2019 biennial.

87 Robert Macfarlane, *Mountains of the Mind* (Granta Books, 2003).

indiscriminately in the making of paintings, regardless of what those paintings happened to depict.

Applying this distinction to twentieth century art history requires a different nuance. American artist Wayne Thiebaud's paintings of ice cream cones, for example, exploit the unctuous, viscous quality of oil paint and its purely visual likeness to smooth, soft ice cream. In these paintings, a vaguely circular, generous splodge of off-white paint, apparently barely worked by the artist, suffices to convey something at once tactile and pictorial about vanilla ice cream. The correlation is deft, transformative, and self-conscious in ways that the indifferent images described above are not. But the same argument ultimately applies: Thiebaud painted ice creams with the same oil paints he used to paint slot machines, cityscapes, and many other subjects having no essential visual or material similarity with paint or its constituent pigments.

And so *incidentally isomorphic* is an oxymoron. An isomorph is always reasoned (manicly, with absurd specificity), discovered (in awe, with deference), engineered (by going to excessive technical lengths), or orchestrated (informed by extensive research).

To close this loop of art historical references, consider a contemporary example: Berlin-based artist Olafur Eliasson's abstract watercolour paintings made with pigments suspended in a medium of melted glacial ice from the artist's native Iceland. With such material poetics, Eliasson attempts something categorically different from any of the preceding examples. These paintings depend on being construed as the result of a deliberate, significant deployment of glacial water, infused as it is with narratives of climate change, in the composition of their suggestive elegaic proto-landscapes. The effort of acquiring and transporting this particular water is unseen, therefore excessive, and demands the viewer's faith in its provenance.

0.10 – Unreasonably irradiated

There are other conceivable "relation-seeking" modes of imaging than those that *look like* or are *materially consistent* with what they represent. Other technics might be inventively analysed.

One example that I have often relied on to introduce my research is a short YouTube video in which a helicopter is shown taking off from a Hong Kong

dock.[88] As the helicopter ascends, the video conveys the high-volume rhythmic staccato sound of its rotor blades. But, unexpectedly, they do not appear to move. It is eerie and artificial-looking, the aircraft seeming somehow to float into the sky with no visual sign of the mechanical energy required to get it off the ground. The effect is produced by a deliberate technical isomorphism — an exact reciprocity between the rotational frequency of the helicopter's rotorblades, and the specified shutter speed and frame rate of the digital camera recording the scene.

This reciprocity creates a document that does not look like an unmediated experience of seeing a helicopter fly, yet is somehow *more* faithful to it, the camera's having-in-common (and thus reinforcing) the rate of rotation required of the rotor blades for the machine to achieve flight. This kind of technical reciprocity would be banal — or pedantic, in the negative sense — if it were not for its poetry: the strange and unlikely fact of it strengthening the signal (to use Potter's expression) of what is arguably the most important characteristic of what it represents: its *critical metric*.

What makes this video particularly appropriate as an introduction to isomorphic communication, is the way in which it engages, ecstatically with rotational frequency and disinterestedly with place, context, history. It suppresses these other aspects of the scene it conveys. It is at once super high resolution and obviously incomplete or inadequate.

Artist and researcher Susan Schuppli's concept of the "material witness" goes beyond circular reasoning and self-similarity. Schuppli's work draws on legal role-play and the scenario of the court case:

> "Humans become witnesses when their knowledge or experience positions them as semantically 'material' to a case. My particular usage, in contrast, takes the concept quite literally: material as witness. In order to ensure its conceptual rigor, the material witness must remain vigilant against the tendencies that consign

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88 The video was made by German commercial cameraman Chris Fay, using a Samsung S7 Smartphone, and published on YouTube in January 2017. The video was widely disseminated and publicised in the popular press as a curiosity. As of November 2019, it has over 7 million views. At his website, Fay writes, "The frame rate was 30 fps. I am guessing that the helicopter had a rotation speed of about 6 rounds per seconds and as the 30 fps in the camera is a multiple of that, the blades do look like they are not moving. The helicopter does have the same RPM speed (rounds per minute) when lifting off, it just adjust the tilt of the blades in order to lift off. This circumstance helped to create this illusion."

> its operations to metaphor, which is often what happens when concepts travel from one domain to another."[89]

The idea of the material witness as a kind of *informed* material, that, through its being in the presence of a particular event, is encoded with information, often extraneous to the information it might be designed to retain, has an important bearing on my articulation of the isomorphic. Schuppli's most relevant case study concerns Soviet filmmaker Vladimir Shevchenko's 1986 film, *Chernobyl: Chronicle of Difficult Weeks*, whose production began just three days after the explosion at the Chernobyl nuclear power plant in April of that year. Shevchenko had official access to the site, and was able to fly over the thirty-square-kilometre exclusion zone by helicopter and document the aftermath of the explosion and the impending meltdown of the nuclear fuel in the destroyed reactor building.

Schuppli recounts:

> "When Shevchenko's 35mm footage was later developed, he noticed that a portion of the film was heavily pockmarked and carried extraneous static interference and noise. Thinking initially that the film stock used had been defective, Shevchenko eventually realised that what he had captured on film was the image and sound of radioactivity itself. ... What we are witness to, in this fleeting energetic event, is the radiological conversion of a somewhat pedestrian account of the disaster into the most dangerous film in the world."[90]

These artefacts of its irradiation become the defining visual proposition of Shevchenko's film, and crucially, for my purposes, he embeds them into its narrative. "This is how radiation looks", reads the film's voiceover.

Historian of science Lorraine Daston, in *Representation in Scientific Practice Revisited* (2014):

> "Although the history of art was forced at last by the advent of photography to abandon its long fascination with mimesis ... the same specter of the perfect copy still haunts the history of science, despite the best efforts of scientists and artists to explain

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89 Susan Schuppli, *Material Witness: Media, Forensics, Evidence* (MIT Press, 2020).

90 Schuppli, *Material Witness*.

> that the most faithful rendering is often not one that could be mistaken for the original."[91]

Daston's proposition leaves suggestively open how the "most faithful rendering" will look and operate. Presumably because it must be specific to, and contingent on, its subject. Not only *more* than a simple resemblance, but *other*. The visual reciprocity of the YouTube helicopter video is an artefact, in the negative sense in which a scientific image might be discounted for revealing the signature of the technics that produced it, and not the unmediated natural phenomenon it seeks to transparently represent. The irradiation of Shevchenko's film also obviously conforms to this sense of the term artefact. Yet, while, unlike the helicopter video, the distortion of the film was not premeditated by the artist, its discovery, and subsequent centring in the published film make it the defining aspect of the work — decisively more, Schuppli suggests, than any purely documentary significance the film might have. The effect is the antithesis of the incidental. *Absurdly*, *particularly*, *lethally* fitting it is that Shevchenko's images should be marked with artefacts unique to the effects of radiation on images.[92]

An isomorphic communication, then, need not be premeditated after all. The transformation of the incidental into the isomorphic only requires a self-conscious post-rationalisation, that is entirely consistent with the profile of design decision-making that I will construct in chapter one, below.

0.11 – A reasonable explanation ...

On April 23, 2015, Dan Barber, head chef at Blue Hill at Stone Barns in Tarrytown, New York, posted to Instagram an image of an egg white and yolk in a clear glass bowl. The perfectly-formed yolk has an unusual red tinge. Its caption reads:

> "a 'red pepper egg' from laying hens fed high-carotenoid peppers (bred by Michael Mazourek) @bluehillfarm."

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91 Lorraine Daston, 'Beyond Representation', Catelijne Coopmans, Michael Lynch, Janet Vertesi, Steve Woolgar (eds.), *Representation in Scientific Practice Revisited* (MIT Press, 2014), 319.

92 Shevchenko died in 1987 from the effects of exposure to radioactivity at the Chernobyl Nuclear Plant.

And the proud disclaimer "#nofilter", signalling that the colouring of the egg is not produced by an Instagram image filter.

Barber's red egg is not an isomorph according to any binary, signifier/signified, model of communication that might apply to the examples already given in this introduction. It is not red to *represent* an essential redness of high-carotenoid peppers. Its redness, rather, means to situate egg, hen, pepper, breeder, grower, and chef in a network of supply chains, nutritional and digestive processes, 'farm-to-table' farming practices (with their implied ecological virtues), and a highly refined culinary culture. Barber is the *master* orchestrator of this network, and the red egg signifies his virtuoso agency in it.[93]

In his book *The Third Plate*, Barber praises another chef, David Bouley, for his influential work in researching fish ecologies, establishing deeper relationships with fishermen, and his use of labelling to signify the value of that work to the diner:

> "Bouley learned about how temperature, ocean currents, and time of year affected flavor. And he remembered every detail. … Bouley would soon make his own connections with fishermen, sending waiters and cooks to the docks to buy from them directly. Fishermen came to anticipate Bouley's little red pickup truck full of cooks snoozing as they waited for the boats to land. And Bouley began identifying where the fish were coming from on his menu. You didn't choose between salmon or squid — you chose between Copper River salmon and Rhode Island squid. … Highlighting the provenance of each fish, Bouley elevated their stature …"[94]

Crucial to Barber's Instagram post and Bouley's menu are their naming and descriptive texts. The narrative value of the red pepper egg and the Copper River salmon might be entirely illegible without such texts. In bibliographic practice, French literary theorist Gérard Genette coined the collective term "paratexts" to describe the colophon, captions, titles, back-cover blurb and other intermediaries — Instagram captions included — that "accompany" and

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93 Despite Barber's well-documented project to expose the negative ecological consequences of industrial food production in capitalist societies, the colonial connotation of the word *master* seems nonetheless fitting to describe the manipulation of a hen's diet to achieve a visual outcome.

94 Dan Barber, *The Third Plate: Field Notes On the Future of Food* (The Penguin Press, 2014).

"reinforce" a primary text.[95]

Twenty-first century motivations to label a designed object with its material constitution, provenance, and the conditions of the labour that enabled its manufacture and distribution, are various, and highly contradictory. Take the following three examples of the ubiquitous wording "100% cotton" that describes hundreds of millions of items of clothing produced annually around the world, in profoundly disparate conditions.

A T-shirt from the Australian clothing brand Man-tle is labelled:

> "100% organic pima cotton. Grown in Peru, spun in Switzerland, knitted and dyed in Wakayama, Japan. Ships from Australia."

A T-shirt from the American clothing brand Industry of All Nations is labelled:

> "100% organic cotton. Raw material: Guatemala. Processing: Guatemala. Cut and sew: Guatemala. Labels: Guatemala. Hang tag: Guatemala."

A T-shirt from the German brand EDO is labelled:

> "Made in Turkey from 100% certified organic pre-consumer surplus fabrics. Oekotex Standard 100. Limited to 22 pieces. Offline only."

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95 "Unreinforced" and "accompanying" are from the following passage: "A literary work consists, entirely or essentially, of a text, defined (very minimally) as a more or less long sequence of verbal statements that are more or less endowed with significance. But this text is rarely presented in an unadorned state, unreinforced and unaccompanied by a certain number of verbal or other productions, such as an author's name, a title, a preface, illustrations. And although we do not always know whether these productions are to be regarded as belonging to the texts, in any case they surround it and extend it, precisely in order to present it, in the usual sense of this verb but also in the strongest sense: to make present, to ensure the text's presence in the world, its 'reception' and consumption in the form (nowadays, at least) of a book. These accompanying productions, which vary in extent and appearance, constitute what I have called elsewhere the work's paratext …" Gérard Genette, *Paratexts Thresholds of Interpretation* (Cambridge University Press, 1997). Roland Barthes has theorised the relations between text and images that are the basic elements of graphic design. In 'Rhetoric of the Image' he poses the question "How does meaning get into the image?", and, in answering that question, goes further than Genette in specific discussion of the co-existence in graphic space of image and text: "In order to find images given without words, it is doubtless necessary to go back to partially illiterate societies, to a sort of pictographic state of the image. From the moment of the appearance of the book, the linking of text and image is frequent, though it seems to have been little studied from a structural point of view." Roland Barthes, 'Rhetoric of the Image', *Image Music Text* (Fontana Press, 1977), 38.

These labels reveal the three apparently identical garments to be categorically dissimilar. The Man-tle label invokes a global network in which its designers research exceptionally high quality products and establish long-term collaborative relationships with their producers.[96] The Industry of All Nations label emphasises the existential proposition of that company: a mode of production that is geographically situated around the origin of its raw material, thus limiting the resources used in transporting materials around the world in supply chains. This is a so-called virtue-signal, but *is* virtuous nonetheless. And yet the EDO label is able to undercut this virtuousness, not only by opportunistically repurposing waste in a supply chain, but by including the designer-retailer and end-user of the garment in the label's paratext.[97] Its "offline only" policy limits the availability of the garments to buyers with access to the designers' Berlin studio. This precludes the possibility of a garment being ordered by, and transported to, a buyer on the other side of the planet and thus, undermining the ecological credentials that are intended to define the object.

Condorelli's *bau bau* and Hultén's *Here's the answer, what's the question?*, differ completely in their use of paratext to disclose their isomorphic features. Condorelli's book includes the "note on the design" quoted in 0.4, above, while in Hultén's book no reference in text, either technical or artistic, is made to its binding. During the latter design process, conversation around the proposed binding method was centred on the idea that its communicative intent did not depend on it actually being *noticed by anyone*. Like some perverse version of the invisible craftsmanship anecdote told by Steve Jobs's biographer, this design decision is only about being *faithful* to an artistic proposition. It is primarily a communication between designer and artist, with only tacit acknowledgement of other publics. Its *legibility* is actually evaluated by its conceptual fidelity to artistic propositions found in the content, and the artist's sensibility more generally.

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96 Relationships with producers are enabled by the background of its designers, Aida Kim and Larz Harry. Not to imply that the production of this garment is necessarily wasteful or this company unethical. For example, another garment description from their website: "The Z1 sweater is a hand-crotchet product of our partnership with Tohoku Crotchet. Using a dense, stretchy British wool slub yarn, this was knitted by a team of craftspeople in the tsunami effected region of north east Japan. Through teaching and supplying raw materials, the project aims to employ those who otherwise have lost their livelihood."

97 Neither Man-tle nor Industry of All Nations limit online orders by geography. By ordering a single vest for delivery to a European address, an individual can cause that garment to be sent from Guatemala, to Los Angeles, to Europe.

0.12 – ... for something quite unreasonable

This discussion now arrives, ultimately, at a consideration of *scope*. I have accounted for isomorphic design decisions that relate particular moves in a communication design work to particular aspects of that work's content. However, the resulting isomorphisms — Condorelli's black and red images and Hultén's scrambled binding — are only *features* of those works, and don't necessarily define them as designed objects. Condorelli's book includes over 250 images and fewer than twenty of those were processed using the specific technique discussed above; while, apart from its binding, Hultén's monograph is relatively conservative in its design.

Rare Bird Economics is a small publication, produced in summer 2020 as a *teaching object* for a seminar at the Staatliche Hochschule für Gestaltung Karlsruhe in Germany, to demonstrate isomorphic possibilities in communication design (FIG. 0.12.1). The publication reproduces photographic and textual documentation of three White-throated Needletail birds, two preserved in the collections of New Zealand museums, and one that was the subject of a rare European sighting on the Outer Hebridean island of Harris in June 2013.[98] This bird became the subject of the publication for the purely incidental reason that it, the fastest in the world in level flight, is capable of flying at a speed close to the optimal sheet rate of today's industry-standard offset printing press. This absurd and arbitrary point of inception is pursued rigorously through "relation-seeking" approaches to the various aspects of the book's editorial, design, imaging, print production, and distribution processes.

To support this teaching object, philosopher Graham Harman's concept of *duomining* was introduced as a device to structure students' decoding of the publication and to inform their own orchestrational design moves:

> "One way of understanding a thing is to determine what it is made of, such as when we discover that water is made of two hydrogen atoms and one oxygen atom or that Finnish and Hungarian stem from the same linguistic family. Another type of understanding comes from knowing not what components a thing is made of, but what effects it has on other things. We understand

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98 The photographs are used according to Creative Commons Attribution 4.0 International Licenses, freely offered by the Auckland War Memorial Museum, and the Museum of New Zealand, Te Papa Tongarewa, Wellington.



0.12.1. *Rare Bird Economics*, 2020, cover with bird shown at actual size.

> something of Napoleon by knowing that he won victories at Austerlitz and Jena while suffering defeats at Leipzig and Waterloo. In fact, for all entities we seek both kinds of knowledge. Water is known by understanding not only its chemical formula, but also the various uses to which water can be put and the various effects it has on other chemical compounds — how it behaves at freezing and boiling temperatures, or under zero-gravity conditions on spacecraft. Likewise, in Napoloeon's case we not only learn about his successful and unsuccessful interactions with other historical agents, but can also learn about that which Napoleon is made of: the ancestral history of the Buonaparte family, the conditions in Corsica and post-revolution France that enabled his rise, and perhaps even some medical information about the specific composition of his body."[99]

Rare Bird Economics is deliberately overwrought, taking (too) seriously its project to make multiple, expertly-reasoned isomorphic alignments that reward students' attempts to duomine them.[100] Some of these alignments utilise conventional — *reasonable* — graphic devices. The photographs of the bird are reproduced at actual size, and routine digital colour profiling processes are used in an effort to achieve accurate representation of colours.[101] Photographs of the topside and underside of a single bird from the Museum of New Zealand, Te Papa Tongarewa, are placed in corresponding positions on the front and back covers, such that flipping the closed book over in the hand gives a spatially-mimetic reproduction of a visual inspection of the bird.

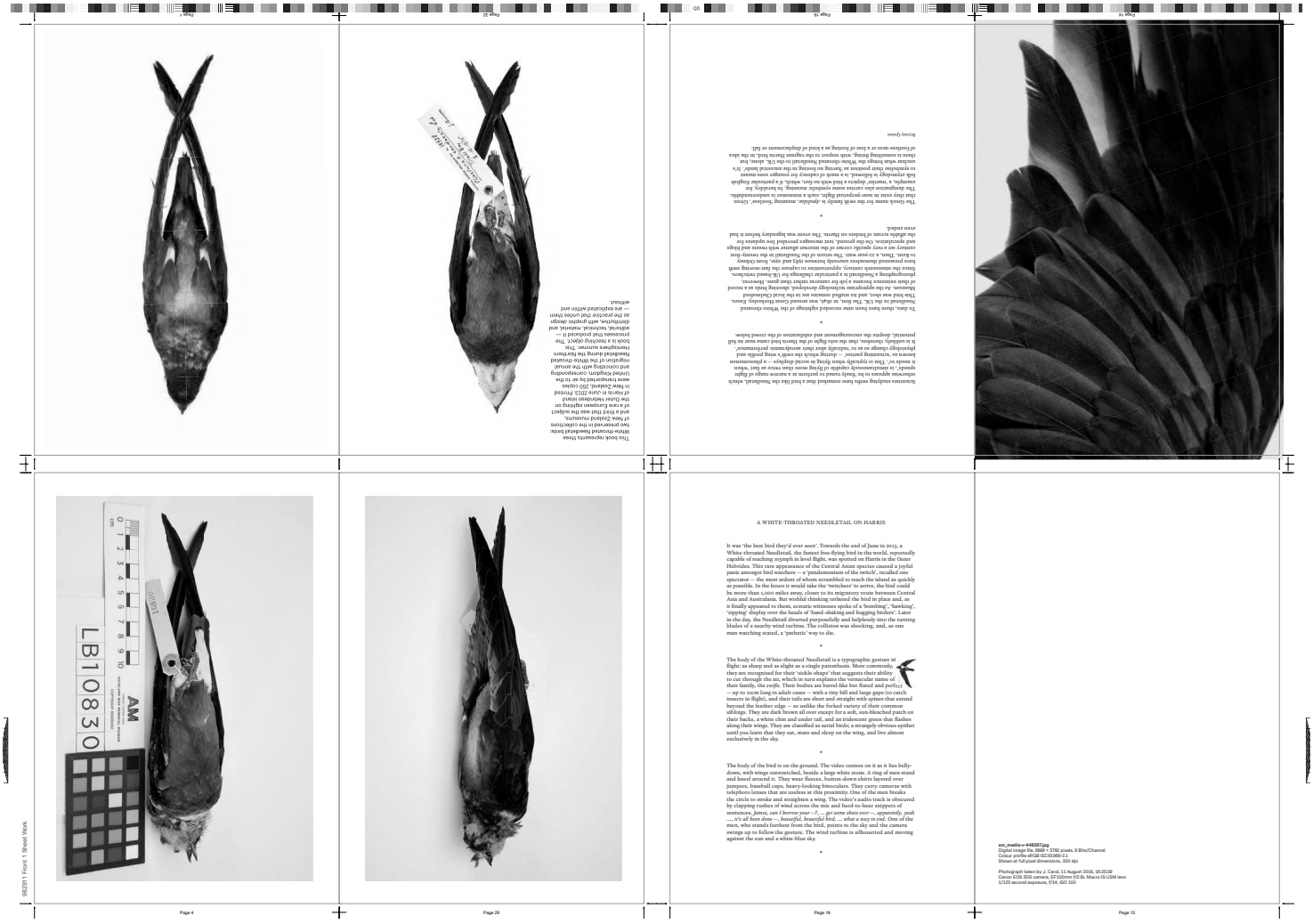
Other alignments introduce absurd — *unreasonable* — devices that have no precedent for being construed as representative of content that I am aware of. The photographs of the bird are oriented in the layout such that when the pages

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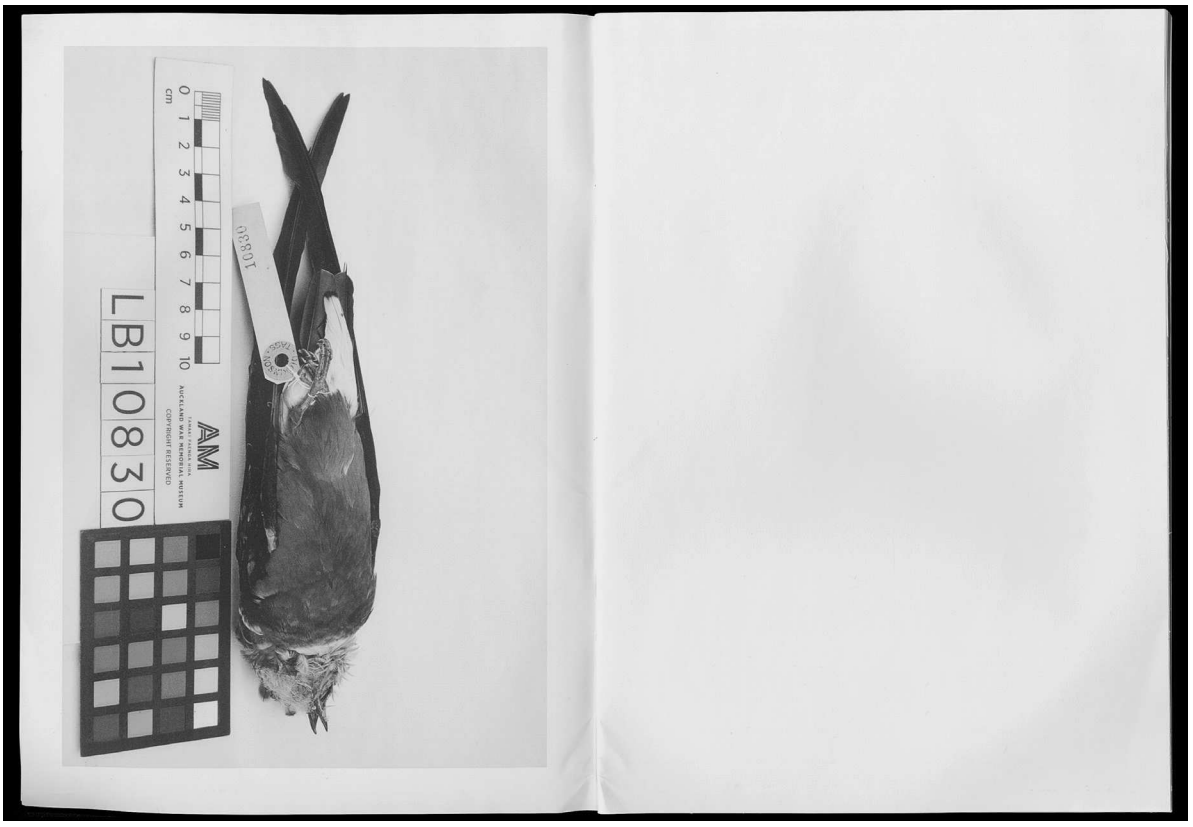
99 Assignment by Graham Harman, in Jenna Sutela (ed.), *Add Metaphysics* (Aalto University, 2013), 42. Harman's term is as an element of his defence of object oriented ontology and critique of various philosophical traditions. He is not necessarily recommending duomining as a mode of analysis. See Harman, 'On the Undermining of Objects: Grant, Bruno, and Radical Philosphy', *The Speculative Turn, Continental Materialism and Realism* Levi Bryant, Nick Srnicek and Graham Harman (eds.) (re.press Melbourne, 2011).

100 Where the term expert is understood to have a negative connotation in the sense that *Rare Bird Economics* claims mastery of a complex network implicating many actors and interests, human and non-human.

101 The work involved a network of people and several new collaborations. The resulting colour reproduction is rather unsatisfactory. It is for this reason that an additional "epitext" — Genette's term for a supplementary paratext not appearing on the book-object itself — was produced to add further convoluted processes in pursuit of *faithful* colour reproduction.



0.12.2. *Rare Bird Economics*, pages imposed so that bird 'flys' forwards through the press.



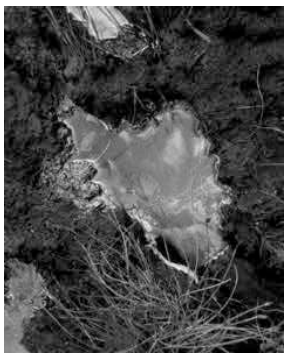
0.12.3. *Rare Bird Economics*, bird consequently appears inverted on the page.

Produced in 2020 as an epitext to the publication *Rare bird economics*.
Edited and designed by James Langdon, HfG Karlsruhe, Germany.
Text from correspondence with Josh Jones, birder and photographer.

Seeing these features on the bird was incredibly difficult due to its speed, but the photographs do a decent job of portraying it. Deep and oily in particular, that sort of impression. There's certainly an iridescence, but the description of 'oily' does it for me.



Figure 1
White-throated Needletail, *Hirundapus caudacutus*, left wing detail, shown at actual size. Photograph from the collection of Auckland War Memorial Museum, New Zealand, licensed under a Creative Commons Attribution 4.0 International License. Digital image file in JPEG format downloaded from [aucklandmuseum.com].



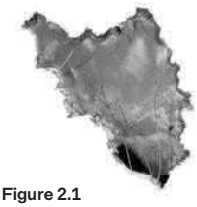


Figure 2.1
Detail made using the Quick Selection tool in Adobe Photoshop.

Figure 2
Oil-polluted land. Close-up of oil floating on water in a field. Photographed near Ullapool, Scotland, UK. Photograph by Martin Bond, licensed from Science Photo Library, London, UK. Digital image file in JPEG format downloaded from [sciencephoto.com].



Figure 3
Selective manipulation of Figure 1 using the Match Colour feature in Adobe Photoshop version 22.0.0, with Figure 2.1 as source image.

Layout prepared in Adobe InDesign version 16.0.
Printed offset in four-colour process by Druckteam Berlin, Germany.
250 copies collected directly from the factory.

were imposed onto SRA1 printing sheets for production, each image of the bird moved through the press head-first. Consequently, some images appear upside-down in the bound book (FIG 0.12.2, 0.12.3).[102] The sheet rate of the Heidelberg Speedmaster XL105-6 offset printing press was specified in order that the speed of the sheets of paper moving along the bed of the press corresponded to the reported top speed of the White-throated Needletail, its *critical metric*. The weight of the paper was chosen so that a single copy of the trimmed and stapled publication weighs the same as a typical adult bird.[103] The edition of 250 copies refers to a designation given in a 'Conservation Advice' document on the species produced by the Australian Threatened Species Scientific Committee. If and when the bird's population reaches this number it will become officially endangered. Printing took place in Auckland, during Southern Hemisphere winter 2020, and the books were transported by air to the UK, corresponding and coinciding broadly with the migration of the White-throated Needletail for the Northern Hemisphere summer, and specifically with the movements of the vagrant bird spotted on Harris in 2013. I could go on. Seriously.

A third category of alignments signal contradictory and complicated meanings that do not relate to the representation of the bird, but to the institutions and practices on which the making of the publication depended. The Forestry Stewardship Council logo is displayed with unusual prominence on the first page of the publication. The FSC audits the use of this logo and its inclusion in *Rare Bird Economics* was enabled by the existing accreditation of the printer Blue Star Collard, and the use of an approved paper stock "from responsible sources": Sumo Offset. The auditing process, however, does not take into account the overall economy of the project's production and distribution. So, while the FSC logo appears to provide a mainstream ecological virtue-signal in the publication, it is openly undermined by material wastage, and by the publication being excessively transported by air to its destination over 18,000 kilometres away.[104]

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102 Imposition determines the position of each page on the larger printed sheet so that when it is folded and collated the pages read in the correct order.

103 According to the 'Conservation Advice' document on the White-throated Needletail produced by the Australian Threatened Species Scientific Committee. This required thirty-two pages, or an entire A0 sheet of paper to achieve. Resources to print all thirty-two pages were not available, so only sixteen pages are printed, the other sixteen are bound in unprinted. This particular aspect is not without precedent. Danish artist Simon Dybbroe Møller's 2012 publication *Hello*, also includes unprinted pages to produce a final weight equivalent to an 11-inch Apple MacBook Air computer.

104 This tension between poetry and excess is explored in British artist Simon Starling's work, in chapter two, below.

The typefaces used in the publication are chosen to invoke economic and political conundrums inherent in the licensing and distribution of digital objects.[105] The sans-serif typeface Turnery (of which a pre-release version was used by arrangement with its designer, Vincent Chan), is to be distributed according to a parabolic pricing model in which it is initially offered without charge, and its price increases until its value — stimulated by demand — is determined by Chan to have peaked, at which point the price of each subsequent license will decrease steadily back to zero.[106]

Two seriffed typefaces are used, both digital revivals of eighteenth-century letterforms: Fleischmann, designed by Erhard Kaiser, and Rosart, designed by Katharina Köhler. The former typeface is explicitly based on the 1739 8-point roman type of German punchcutter Johann Michael Fleischmann. The latter is based on a 1768 specimen by Belgian punchcutter and typefounder Jacques-François Rosart, but notes Fleischmann's contemporaneous work as a comparative reference in its paratexts. These typefaces — arguably stylistically interchangeable — are chosen specifically because Kaiser is a known member of LEGIDA, a Leipzig department of the anti-Islamic organisation PEGIDA whose German acronym is translated as "Patriotic Europeans Against Islamisation of the Occident". The publisher of the Fleischmann typeface, Dutch Type Library, has refused repeated online calls to remove it from sale. DTL argues that as Kaiser was paid a fee for its design in the early 1990s (when he was not active in right-wing discriminatory politics), and does not receive royalties from its sale, the complaint against their continued distribution of the typeface is anachronistic.[107]

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105 These are not isomorphic decisions, they serve to support the proposition of the interconnected network of decisions upon which the isomorphic decisions depend.

106 Correspondence with Chan.

107 Some information here is from the article Agyei Archer, 'Type Choice, Political Choice', Typographica (2020). Via: https://typographica.org/on-typography/type-choice-political-choice/. I first licensed some individual fonts from the typeface Fleischmann around 2014, and again in 2020, without making myself aware of Kaiser's politics. I use them in *Rare Bird Economics* not to initiate a discussion in the abstract about the separation of an artist's biography from their work, but to confront students with the *impossibility of conducting such conversations in the abstract*. A further, more nuanced point emerges here, which is the capacity of narrative and paratext to transform the meaning of artefacts. In a PDF available at Dutch Type Library website, Kaiser describes the culture of an old Europe in which Johann Michael Fleischmann practiced. In the context of his membership of IGADA, this very narrative can be construed as a romanticisation of a Europe before twenty-first century mass migration. Katharina Köhler is a colleague at HfG Karlsruhe and is in no way associated with right-wing politics. She was informed about the intended use of the typeface.

In its own texts and paratexts — essay, captions, colophon, seminar description, back cover blurb — the aspects of *Rare Bird Economics* detailed above are either: obvious and not mentioned in writing; explicitly or partially identified in paratexts; or completely illegible. The sheet rate of the press is stated in the colophon, and the flight speed of the bird is stated in a commissioned essay by Bryony Quinn. These two speeds are given in their normal metrics: miles per hour for the bird, sheets per hour for the press.[108] To equate them would require an exceptionally attentive interpretation of the unusual inclusion of the sheet rate in the colophon. In creating such an ambiguity, the colophon continues not to divulge everything, its printed paratexts becoming set-ups for further revelatory spoken epitexts, about the direction of the bird moving through the press, and the weight of the finished book, that are intended for teaching scenarios, or other scenarios in which their being disclosed solicits and polarises discursive responses.[109] The colophon also identifies other aspects of the book's production that are not isomorphically reasoned or aligned, but which are listed to suggest to students that they *could* be. These include, for example: the software used in production, and the locations and data encryption policies of service providers used in the transfer of the files to the printer.

Back to the red egg. In the comments beneath Barber's Instagram post are a predictably contrary set of responses. One commenter, Margaret Griffin, whose Twitter bio describes her as a keeper of pigs, goats, sheep, ducks, and hens at Three Paddocks Smallholding in Wexford, Ireland, writes:

> "LOL. Horse shit. ... You'd have to starve hens before they would eat peppers."[110]

Another, Harry Felker, identified as a chef's assistant/butcher in Florida, comes at the provocation from another angle:

> "Chef, I have a question, does the egg get any of the spice from the pepper, would using a hotter pepper create an egg with heat?"

The first commenter doubts the authenticity of the whole thing, the second sees the potential to go further.

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108 MPH is used in the UK, including Harris, where some imperial measures are still preferred.

109 Since these spoken details are not included in the book, Genette would call them epitexts.

110 Barber's Instagram posts appear to be automatically reposted to Twitter, where the comments quoted here are drawn from.

Rare Bird Economics, as a teaching object exemplifying isomorphic decision-making in communication design, and its subjection, in a teaching situation, to Harman's concept of duomining, were similarly divisive. Discussions in the seminar yielded a split between a positively construed notion of an *orchestrated* design method, and a negatively construed notion of a *calculated*, insincere appropriation of the White-throated Needletail as *content*. For some seminar participants the publication is an irritating ruse, for others it triggers a productive, pedantic energy in which its inferences of meaning seem suddenly insufficient, drawing questions such as "Why did you correlate the bird's *top* speed and the press's *optimal* speed?", or "Why didn't you get the books sent to the Isle of Harris and document the process of retrieving them from there?", and so on.

And on, and on.

0.13 – A reasonable structure for a dissertation

This dissertation has five chapters. Their sequence corresponds to two transpositions that define the research. The first transposition relates Norman Potter's notion of the isomorphic design decision explicitly to communication design. The second transposition relates communication design approaches from contemporary art, the field in which my practice has been focussed, to neuroscience, a field unfamiliar to my practice.

Chapter one is a reflection on English designer, writer, and educator, Norman Potter as a design decision-maker. The origin of my interest in isomorphism in design comes from Potter. The intention is not a well-rounded portrait. I am after a psychological evocation of Potter's particularly manic and recursive kind of *rigour*, as an essential element of my own formulation of the isomorphic design decision.

Chapter two is a complete bibliography of major monographs on, and artist's books by, contemporary British artist Simon Starling. The chapter serves two purposes. First, it functions as a general survey of approaches to communication design in relation to contemporary art (not limited to examples from my own practice), by presenting a cross section of books of various scales, and produced in various institutional contexts, over the past two decades. Second, it considers the conditions in which an isomorphic graphic design move can be made.

Starling's working methods, I assume in the chapter's argument, make his work receptive to isomorphic representation.

Chapters three and four represent the main reflection on isomorphic approaches in my own communication design practice, and follow specifically from individual projects. Chapter three acts out the pedantic state of mind of a single isomorphic design decision concerning the graphic handling of colour in the printed reproduction of an image. I compare printed reproductions of the proud black and red cover of the book *Die Kunstismen* (1925), designed by Russian artist and designer El Lissitzky. Published between 1967 and 2017, these reproductions treat the material characteristics of the original book's colour in different ways, appealing to contradictory notions of fidelity. The chapter focuses on the notion of elementary colour, as introduced above, in relation to my design of the monograph *bau bau* for artist Céline Condorelli.

Chapter four discusses isomorphism in typography, approached from the dual perspectives of writing and designing text — termed "typing" and "typography" in the chapter itself. This chapter is also prompted by a specific project from my practice: *Upcycle This Book*, by Gavin Wade. The design of this book employs an unusual typographic device, whereby sentences are graphically deconstructed on the page, presented in clusters of words determined by the sense and syntax of their content.

Chapter five transposes the discourse covered in the preceding chapters to another field — neuroscience — and its categorically different culture of visual communication. The motive here, following the argument in 0.7, above, is to apply communication design *research* in an unfamiliar field. This transposition reveals relatable concepts between the two fields — particularly concerning practices of encoding of images with meaning — and highly distinct expectations around the decoding and interpretation of such mediations.

It is important to note that writing for publication has been a vital element of the practice for over ten years. This explains the relatively extended consideration of other designer's work for a practice-based dissertation. Despite this, no sustained attempt is being made to construct this dissertation structurally, or through stylings of language, in an *isomorphic* way. Only in chapter four is there an imperative for some of the effects under discussion to actually materialise on the page.

Research design

My research combines three modes of inquiry. First, through reflection on my past practice, I identify significant artefacts that exhibit isomorphic tendencies and trace their materialities, motives, and inspirations.[1] Second, these inspirations are then separately discussed through close-reading of, and original historical and bibliographical research into, the works of a small group of artists and designers. Third, through practice-based research projects initiated during the candidature, I test my findings in highly specific contexts — both apparently ideal, and apparently not conducive, to the isomorphic design decision.[2] These three modes are deployed thematically in the dissertation, and this requires the following discussion of methods to be organised on a chapter-by-chapter basis.

The general introduction is structured according to an axis of reasonable/unreasonable degrees of fidelity to content in communication design decision-making, where the *unreasonable* is defined as the operative mode of the isomorph. The literature of what is labelled here as *reasonable communication design decision-making* is dismissively caricatured in the general introduction, represented by the content-agnostic philosophy of one of its advocates, the Swiss Emil Ruder, and his statement: "it is not the typographer's business to interpret literature in his own way."[3] Mid-twentieth century literature on communication design decision-making in Europe has a distinctly analytical and procedural bias, sometimes directly venturing into discussion of cybernetics and systematisation. Müller (1961)[4] and Bonsiepe (1968)[5] (both faculty at the Hochschule für Gestaltung, Ulm, Germany) are exemplary in this respect: presenting case studies (the design of a logotype, and the comparison of two versions of a page layout, respectively) in which design decisions are treated as points of purely rational, informational concern:

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1 In the mode of Schön's 'reflection-in-action', Donald Schön, *The Reflective Practitioner: How Professionals Think In Action* (Basic Books, 1984).

2 These three modes coincide with Frayling's three forms of practice-based research: research *into*, *for*, and *through* practice. Christopher Frayling, *Research in Art and Design* (Royal College of Art, 1993).

3 Emil Ruder, *Typography: A Manual of Design* (Niggli, 1967).

4 Walter Müller, 'A Working Procedure in Trade-mark Design', *Uppercase 5* (Whitefriars Press, 1961), 35.

5 Gui Bonsiepe, 'A Method of Quantifying Order in Typographic Design', *The Journal of Typographic Research* (no. 3, vol. 2, 1968), 203.

> "This type of design activity might be described as pre-design, its purpose being to routinise or semi-routinise the maximum possible number of design decisions."[6]

Anthony Froshaug (also faculty at Ulm), whose work, alongside Norman Potter's, is the initial inspiration for my notion of the communication design isomorph, published a disparaging review of Müller's account of logotype design, calling it a "failure in communication".[7]

Froshaug's work on the design decision, contemporaneous with Müller and Bonsiepe, while also itself often highly methodological, contains the kernel of my isomorphism in its insistence on centring content over method:

> "Solutions rarely arise except by contact with & sensual experience of the material."[8]

I discuss a perceived unreasonable energy in Froshaug in the general introduction, but his example —particularly his pedagogy — has clearly also exerted a decidedly *reasonable* influence. Robin Kinross, publisher of Froshaug and Potter, channels Froshaug in the criticism that he publishes at his Hyphen Press website, in which he continually demands design decisions that are appropriate in their contextualisation of the content that they present. This, from a 2011 review of the book *Gerd Arntz: graphic designer*, is typical:

> "The book opens with a sequence of fourteen pages, each showing Arntz's symbols. The effect of the sequence is cinematic and pretty: the background tint is intensified from light through to dark pink; the symbols increase in size (against Otto Neurath's dictum of 'repetition not increase in size'). One tries to find some meaning: does the sequence represent the passage of history? But

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6 Bonsiepe, *The Journal of Typographic Research*, 213.

7 See Robin Kinross, *Anthony Froshaug, Typography & Texts*, (Hyphen Press, 2000), 148. This kind of analytical commentary on communication design decisions seems to have since been all but eradicated by postmodernism. 1990s communication design discourse, notably that emanating from the US journal *Emigre*, invoked post-structuralist notions of the 'death of the author' to explain designers' concern with doing precisely what Ruder had cautioned against, and interpreting content for themselves. Swiss design studio Norm's 2020 book *Dimension of Two* is an absurd parody on the very notion of the knowable in communication design.

8 Anthony Froshaug, 'On typography', Robin Kinross (ed.) *Anthony Froshaug, Typography & texts* (Hyphen Press, 2000), 107

there is no meaning here. It is just decoration. These opening pages already betray the spirit of the work they present."[9]

Literature on *unreasonable* fidelities in communication design is almost nonexistent. Chapter two includes one reference, James Goggin's text 'The Matta-Clark Complex', essentially a soft echo of Emil Ruder's refrain, quoted above; and chapter four draws on a number of art historical accounts of Richard Hamilton's typotranslation of Marcel Duchamp, all of which foreground the great lengths Hamilton goes to in order to achieve his typographic isomorph. This gap in the literature is one motivation of the research, and is evident in the recourse to discussion of ethnomethodological approaches to anthropology in section 0.7.

The general introduction and chapter one draw on a contextual review[10] of the term isomorphism, as used in a design context by English designer Norman Potter (1923–1995) and his contemporaries, Froshaug among them. This term is only minimally explicated in published works by its protagonists, requiring that primary research take the form of interviews with a participant group of former students and colleagues of Potter, and other practicing designers who I identified as having been influenced by this aspect of his work. These interviews were semi-structured, in order to achieve a representative in-context account of the term and avoid disproportionately weighting its significance.[11] The term isomorph appears with identical meaning in only one other context that I am aware of, Richard Hamilton's 'typotranslation', discussed in chapter four.[12]

The research on Potter additionally incorporates a practice-based component: the commission, specification, and realisation of a remake of a piece of Potter's stick-furniture, in collaboration with two designer-makers, Simon Jones and Jack Neville. This practice-based element is essential in order to maintain conceptual fidelity to two key tenets of my existing inquiry into Potter's work

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9 Robin Kinross, Hyphen Press website (2020). Via: https://hyphenpress.co.uk/journal/article/gerd_arntz_graphic_designer.

10 Carole Gray & Julian Malins, *Visualising Research: A Guide to the Research Process in Art and Design* (Routledge, 2004).

11 Lisa M. Given, 'Semi-Structured Interview', *The SAGE Encyclopedia of Qualitative Research Methods* (2008). Via: https://methods.sagepub.com/reference/sage-encyc-qualitative-research-methods/n420.xml. The empirical research undertaken in this project is covered by RMIT Human Research Ethics Committee (HREC) approval CHEAN B 21262-01/18.

12 Earlier versions of chapter five went further into disambiguating the term isomorphism from its use in scientific modelling.

— which predates the candidature — that are of particular significance to the portrait of him attempted in chapter one.[13] These tenets are:

First, a 1969 script for a lecture by Potter himself, titled ‘Box and Fox’, in which he writes, in the context of a critique of contemporaneous commentary on design:

> “I have been increasingly concerned by an ever-widening gap in real common reference between those who teach and write about design, and those who practice it, or at least know what it feels like, to actually design something. ... There is also, I believe, a commandment — if I may put it so strongly — to speak of objects only in their presence.”[14]

I have adopted this commandment as an editorial imperative in my writing on Potter, both as a response to Potter’s own expressed distrust of encounters with designed objects mediated through images, and to solve imaginatively the problem of lack of access to his work as a designer, only a very few examples of which survive.

Second, the work of English writer Julia Blackburn. Working often as a biographer, the defining proposition of her work is a highly interpretive response to the unknowable. She seeks out subjects that are problematic or lacking from a biographer’s perspective — lacking material, or access, or existing knowledge, or all of these — in order to create the conditions for speculative and circuitous paths toward insight (Blackburn 2011, 2015, 2017). By coincidence, Blackburn had been an acquaintance of Norman Potter in London in the 1950s.

This archival work on Potter — as was the case for each of the five chapters — was documented and evaluated by a process of reflective journaling. Multi-layered digital journals embedding photographs, transcripts, incidental notes and sketches — a familiar and well developed technique in my communication design and teaching practices — were used to assimilate knowledge produced in

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13 Since 2011 I have been involved in researching Potter’s work and legacy, particularly as a teacher of design. See: James Langdon, ‘Potter’s Lexikon’, *A Circular* no. 3 (2015); James Langdon, ‘Now in color’, *The Bulletins of The Serving Library* no. 11 (2016); James Langdon, ‘Norman Potter’s Teaching Spaces’, *One and Many Mirrors: Perspectives on Graphic Design Education* (Occasional Papers, 2020); James Langdon, ‘A Teacher's Presence’, Deschooling (2020). Via: http://deschooling.org.

14 Norman Potter Archive.

practice and through interviews, leaving a 'trail' of connections available for future reference (Ortlipp, 2008[15]). This assimilation supported the process of analytical writing for the dissertation (Mäkelä and Nimkulrat, 2011[16]).

Secondary aspects of my contextual review of the term isomorphism, as used by Potter, involved assembling a bibliography of explicit and implicit references to the term in his work. Two of these, George Steiner's *Language and Silence*, and Darcy Wentworth Thompson's *On Growth and Form* are significant sources in chapter one. Other background reading in mid-twentieth century Gestalt psychology and philosophy established a baseline knowledge of how the term is applied in these fields.

The basis of chapter two is an intrinsic case study into publications on or by British artist Simon Starling (Stake, 1995[17]). Starling was identified as a suitable subject for such a case study on the assumption that his artistic practice constitutes material that is opportune for mediation through isomorphic graphic design decisions. This decision is dealt with in detail in section 2.2 of the chapter, but in brief, it is my proposition that Starling's artistic practice itself employs isomorphic representational strategies, implying that he — as one critical voice in any editorial discussion about the mediation of his work through graphic design — might favour such approaches. It is important to establish here that the specific designation of design decisions as isomorphic by the artist, or the graphic designers concerned, is not a requirement of the chapter's argument. The point is to survey the use — or absence — of the kind of decision-making characterised in chapter one, in an apparently sympathetic context.

The case of Starling's bibliography economically establishes a number of important contextual generalisations that are pertinent to the overall enquiry of this research. The number, type, and chronology of the titles are sufficiently representative of tendencies in contemporary art publishing, during the fifteen years that I have been practicing, to complement the presentation of work examples from my own practice, and enrich an understanding of the general context in which I have practiced. Such generalisations about contemporary art

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15 Michelle Ortlipp, 'Keeping and Using Reflective Journals in the Qualitative Research Process', *The Qualitative Report* (2008).

16 Marie Mäkelä, 'Reflection and Documentation and Documentation in Practice-led Design Research', *Nordic Design Research Conference* (2011).

17 This case study conforms to Stake's definition of an intrinsic case study in that it it takes Starling's work as an exceptional and singular example of what might be the ideal conditions in which to practice isomorphic communication design. R. E. Stake, *The art of case study research* (Sage Publications, 1995).

publishing are critical to the notion of isomorphism that I am articulating. A general tendency, clearly observable in the case study, towards generic graphic design for contemporary art that makes a kind of performative refrain — pretends not to have mediated or intervened in the framing of content — contrasts, in revealing ways, with the isomorphic approach. It is extremely valuable, therefore, in the case of Starling's bibliography, to argue that a particular design decision has qualities that I identify as isomorphic, in the specific context of the complex of resources, constraints, practices, preferences, and genres that are clearly exemplified in the bibliography. For example, the case study arrays the various economically viable methods of book binding, and the rather uneven standards of their execution internationally. It displays the opposing editorial and design strategies of the serial monograph as compared to the exhibition catalogue. Other overt constraints on the graphic designer, such as the graphic identities of galleries and publishers, act as forces that at once limit the opportunity to make isomorphic graphic design decisions and define the norms and conventions against which such decisions can be distinguished.

My methodology for cataloguing and analysing the books was informed by the work of G. Thomas Tanselle, with which I was familiar from a 2010 curatorial project that drew on his book *Literature and Artefacts*. Tanselle's practice, as a proponent of analytical bibliography, closely scrutinises material details of a book's design and manufacture, interpreting these as meaningful indicators of the intent of the book's makers. (Tanselle, 1998[18]).

Chapter three comprises an instrumental case study of printed reproductions of the cover of a single book (Stake, 1995[19]). The 1925 title *Die Kunstismen*, edited by El Lissitzky and Hans Arp, was specifically chosen for its singular combination of a number of significant elements. The initial impetus for the case study follows reflection on a single work from my practice, the book *bau bau*, designed for artist Céline Condorelli, and discourse arising at regular Practice Research Symposia during the candidature, in which I assert a single design decision in that book as isomorphic. One section of the Condorelli book documents a collection of materials and artworks gathered and produced during a visit the artist made to Settimo Torinese, a manufacturing facility of the Italian

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18 G. Thomas Tanselle, *Literature and Artefacts* (Bibliographical Society of the University of Virginia, 1998).

19 While the analysis in chapter three is highly specific to the nature and context of El Lissitzky's work, I consider this case study, prompted as it was by the handling of colour reproduction in a work from my practice, to conform to Stake's definition of the instrumental case study. Stake, *The art of case study research*, 3.

tyre maker Pirelli. The elementary carbon blackness of the factory's raw materials is explored in detail in the works documented, which were presented in an exhibition on bright red powder-coated steel displays. In the book a single opening, showing a verso page at the end of a sixteen-page signature printed in CMYK, facing a recto page printed in spot black and red, represented an excessive graphic labour to create, on the recto, a material fidelity to the 'blackness' and 'redness' that was reasoned to be meaningful, and superior to the impure, composite full-colour printing of the verso, even if hardly detectable through a cursory inspection of the printing. The argument of chapter three — that the pedantic and laboured distinction between *pure* red and quadrichromic red is significant — required a case study in which a two colour artefact can be inspected in a number of different reproductions.

Die Kunstismen proved ideal for the following reasons. As a canonical book, it is often reproduced, enabling the review of a number of technical approaches. As a work by a highly articulate and polemical artist and designer, its design could be considered from a more outward-looking perspective, in which its elementary blackness and redness are already politically and creatively charged — justifying the level of scrutiny and pedantry in the chapter's analysis.

Following its initial draft in 2018, chapter one was adapted to become an entire issue of the French graphic design journal *Revue Faire*. In the process of producing this adaptation, a practice-based research element was added. Accompanying the publication was a poster on which 12 reproductions of the cover of *Die Kunstismen* were printed, using various colour separation and printing processes corresponding to the examples discussed in the chapter, arranged according to the two logical poles of historian of science Lorraine Daston's assertion that "... the ideal of the perfect representation has proved particularly tenacious in the realm of the image, and nowhere more so than for the scientific image. Although the history of art was forced at last by the advent of photography to abandon its long fascination with mimesis ... the same specter of the perfect copy still haunts the history of science, despite the best efforts of scientists and artists to explain that the most faithful rendering is often not one that could be mistaken for the original."[20]

Chapter four shares methods with chapter three, prompted as it is by a single work from my practice, *Upcycle this Book*, designed for artist-curator Gavin

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[20] Lorraine Daston, 'Beyond Representation', Catelijne Coopmans, Michael Lynch, Janet Vertesi, and Steve Woolgar (eds.), *Representation in Scientific Practice Revisited* (MIT Press, 2014), 319.

Wade. The chapter's historical contextualisation of this work uncovers — and reintegrates, through its typography — highly disciplined knowledge from print history, the psychology of reading, and art history.

Chapter five's choice of neuroscience as the target of its transposition is inspired by a visit to the Deisseroth Laboratory at Stanford University conducted prior to the candidature. Interviews with five researchers at the lab had been conducted at that time, regarding the general nature of their adoption of communication design in the context of presenting their findings. One of these relationships then produced a teaching collaboration at the Fachbereich Gestaltung of the Hochschule Darmstadt in Darmstadt, Germany in 2017, that is the subject of one of the chapter's case studies.

Given the chapter's admission that neuroscience and contemporary art (the latter being the context in which the practice-based works discussed throughout the rest of the dissertation were made) share little common vocabulary, and contradictory approaches to communication design (in contemporary art it is standard practice to completely reformat artistic works for presentation in publications, following the artist's book tradition discussed in the general introduction; while in neuroscience communication design is seen as a threat to the credibility of original data) the chapter required an extensive literature review, and contextual review of its own. This covered science communication; social studies of scientific imaging and visualisation (SIV) as a branch of science and technology studies (STS); technical and ethical aspects of image manipulation in science; the photographic image in visual culture at large; the so-called "neuroscientific turn" and contemporary debates about neuroethics; and other related topics. Earlier drafts of the chapter focused more on disambiguating the term isomorphism, which has a number of existing uses in mathematics and scientific modelling.

These research methods may be unusually various, even in a practice-based research project. Their combination, however, is reflective of the constitution of my practice over the last decade. Writing for publication has been an increasingly prominent aspect of my work since 2009, often in the context of combined editorial, curatorial, and communication design projects. The dissertation's looping trajectories — whereby practice moves prompt other research and writing that then informs further practice — are essential to the proposition of the research. Chapter five's transdisciplinary intent depends on such a discourse-driven view of communication design.