REPURPOSING DELEUZE AND DESIGN

by

BILLY GOEHRING

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Student: Billy Goehring

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This dissertation has been accepted and approved in partial fulfillment of the requirements for the Doctor of Philosophy degree in the Department of Philosophy by:

Nicolae Morar	Chairperson and Advisor
Daniel Smith	Core Member
Colin Koopman	Core Member
Lisa Mazzei	Institutional Representative

and

Janet Woodruff-Borden	Vice Provost and Dean of the Graduate School

Original approval signatures are on file with the University of Oregon Graduate School.

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DISSERTATION ABSTRACT

Billy Goehring

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Gilles Deleuze's interdisciplinary reception privileges the term, "assemblage," but this translation runs the risk of appearing as jargon, whereas the original *agencement* would appear to a French audience as a more ordinary term. In the absence of a better alternative translation, I propose that we translate the problems motivating Deleuze's word choice rather than the word, *agencement,* itself. I consult a wide range of the figures influential for Deleuze and Félix Guattari who are relevant for the many contexts in which *agencement* appears in their work. This leads me to propose design as suitable terrain for redescribing Deleuze's philosophy.

At the other end of the project, I note that design has its own share of problems. Theoretical approaches to design are often limited to particular kinds of design, and there are few efforts to reconcile design theories and definitions rooted in different designs, e.g. cinematography and engineering. Most accounts, though, define design primarily or exclusively in terms of its purpose or intended function. This poses problems for understanding changes in function and design's unintended effects. Deleuze scholarship and design both have problems, and therefore I use each as an intervention into the other: design affords us the opportunity to redescribe Deleuze's philosophy, while the problems at stake in Deleuze's philosophy allows us to redescribe design and treat design in a more

comprehensive manner.

In the end, I propose that we understand *agencement* as the interaction between coinciding, heterogeneous considerations or perspectives of the same substance; a living room is a series of activities, a spatial configuration of things, a collection of ideas, an arena of feelings and affects, and so on. We can tell a similar story with design, which explains why intentional design decisions can have unintended consequences. I arrange furniture while considering quantity, but unbeknownst to me, the change in quantity results in a change in quality. Both *agencement* and design are ways of describing how considerations which are different in kind can nevertheless coincide and affect one another.

CURRICULUM VITAE

NAME OF AUTHOR: Billy Goehring

GRADUATE AND UNDERGRADUATE SCHOOLS ATTENDED:

 University of Oregon, Eugene, Oregon
 Duquesne University, Pittsburgh, Pennsylvania
 Missouri State University, Springfield, Missouri

DEGREES AWARDED:

 Doctor of Philosophy, 2019, University of Oregon
 Master of Arts, Philosophy, 2013, Duquesne University
 Bachelor of Arts, English, 2011, Missouri State University

GRANTS, AWARDS, AND HONORS:

 Graduate Teaching Fellowship, Philosophy, 2013-2019

 First Place Graduate Research Panel, University of Oregon, 2018

 Foreign Language and Area Studies Fellowship, University of Oregon, 2015

 Strasser Scholarship for Language Study, Duquesne University, 2012

 Critical Language Scholarship, U.S. Department of State, 2009

PUBLICATIONS:

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 Ponty, Deleuze, and the Challenge of Meillassoux." *Chiasmi International* 19
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To Mom and Dad, for everything.

You may have wondered what it is I've been doing with my life.
You supported me, nevertheless.

(This probably won't make it any clearer.)

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> I think assemblage is a convenient word precisely because it's so vague. If we think about assemblage in a Deleuzian context, however, it has a more specific meaning which often didn't seem to be closely related to the ways I heard it being used at the conference. My criticism of "assemblage" in this context is that it is in danger of losing any specificity at all and becoming a convenient catch-word to talk about whatever you want to talk about.
> N. Katherine Hayles[1]

This is a philosophical treatment of design. Or it will be; until then, we begin with

Gilles Deleuze and Félix Guattari's concept of *agencement*. Several readers have

expressed concern that "assemblage" may be an inconvenient translation of the term.

This inconvenience is potentially significant inasmuch as *agencement* is reportedly

central to Deleuze's philosophy and certainly central to his wide, interdisciplinary

reception. The lack of better alternatives to "assemblage" might justify its preference, but

I wager that the situation highlights something about the work of translating philosophy.

Our hand is forced in favor of "assemblage" only if we see it our task to translate the

language of the author, the words he or she has committed to paper. In translating or

interpreting Deleuze, or any philosopher, I argue that the words matter less than the

problems which drive them and motivate their choice, and that translating these problems

faithfully matters more than the accurate rendering of *agencement* itself, as a word.

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[1] N. Katherine Hayles with Stephen B. Crofts Wiley, "Media, materiality, and the human: a conversation with N. Katherine Hayles," in *Communication Matters: Materialist Approaches to Media, Mobility and Networks*, eds. Jeremy Packer and Stephen B. Crofts Wiley (New York: Routledge, 2012), 18-19.

In the chapter that follows, I will first describe the situation of *agencement*'s translation. This will include a survey of the decisions made by different translators of Deleuze's and Deleuze and Guattari's work. As we will see, the problem also warrants that we consult general dictionary definitions and etymological accounts to better assess the word's specificity and the natural connotations it may have for a francophone audience. But because we are more interested in problems and motivation than we are in the word itself, this overview only serves to frame our engagement with Deleuze and Guattari. We must establish how *agencement* might appear to readers of French, how it is used in different contexts, and what sets it apart from other similar French words. Then we will have a better sense of what to look for as we consult Deleuze and Guattari's work to see how *agencement* appears, and the sort of general problems it implies or addresses. Ultimately, the concept offers them at least four advantages or serves at least four purposes: it is flexible enough to handle different "semiotics" at different scales, it demands that the terms of analysis be considered as interdependent and continuous rather than discrete, it combines heterogeneous descriptions without dissolving their difference, and it is amenable both to thinking about how things hold together and how they fall apart. The hesitation some authors have felt over "assemblage," along with these general problems motivating *agencement*, will suggest a way forward—circumventing these translation difficulties and offering other advantages to boot: design will be our escape route.

A READER CAUGHT UNAWARES

Suppose I had never read Deleuze, and had no knowledge of the French language. Perhaps I study literature, geography, architecture, anthropology, sociology, or

philosophy. My first contact with Deleuze could take many forms, but the literature I consult would almost certainly mention, if not privilege, the term, "assemblage." Even if my guide does not go as far as Manuel DeLanda and claim assemblage as the cornerstone of Deleuze's philosophy, I would assume that getting a better handle on the concept would pay off in a better understanding of Deleuze.[2]

What does the scholarship tell me? I am told that an assemblage "could be defined as a loose affiliation of individual components that have come together to form a single body—but a body that is never stable or unified."[3] That although this collection of things shares a single context, it "resists stratification."[4] We also discover that an assemblage is not a "collection of individual terms," since it is "neither a unity nor a totality but a multiplicity," and a multiplicity, in principle, "actively resists unification."[5] An assemblage is defined as that which "entails a consistency of elements that is irreducible to a traditional dualism," as a "multiplicity that is drawn into a plane of consistency that maintains itself without being reduced to either side of a dualistic relation."[6] Other commentaries tell us that it is a machine, "a kind of Rube Goldberg machine, one made

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[2] Manuel DeLanda, *Assemblage Theory* (Edinburgh: Edinburgh University Press, 2016).

[3] Neil Leach, "Machinic Processes," in *[En]Coding Architecture,* ed. Liss C. Werner (Pittsburgh: Carnegie Mellon University, 2013), 34.

[4] *Ibidem*.

[5] Robert Cooper, "Assemblage Notes," in *Organized Worlds: Explorations in Technology and Organization with Robert Cooper,* ed. Robert C. H. Chia (London: Routledge, 1998), 103.

[6] Jeffrey Bell, "Assemblage + Architecture," in *The Deleuze Dictionary: Revised Edition,* ed. Adrian Parr (Edinburgh: Edinburgh University Press, 2010), 19.

up of incongruous parts in *ad hoc*, shifting relations of widely varying degrees of efficiency and probability."[7]

Where does that leave me, as a new reader? I have learned that an assemblage is a loose body that resists stratification and dualism, that is never unified, that is neither collection, nor unity, nor totality, but a multiplicity, and that relates incongruous parts like a Rube Goldberg machine *ad hoc*. We will eventually discover the merit of these descriptions, but for the moment it is difficult for me to look out "into the world" and understand what "assemblage is meant to describe. In general, there are three strategies for making sense of an unfamiliar or opaque word in a philosopher's vocabulary. The word might be a non-technical term used in new or technical ways, a concept on loan from another philosopher, past or present, and whose historical pedigree contextualizes the force or direction of the author's work, or else it might be a neologism, coined to meet unique conceptual demands.

In the first case, the new technical use of a word often plays on its non-technical usage, its history, or its etymology, and consulting any of these can shed light on its proposed meaning. A reader comes closer to the meaning of *différance,* in the work of Jacques Derrida—technically neologism—if she knows that -*ence* and -*ance* are pronounced the same, and that -*ance* is a French suffix that indicates an ongoing condition or process. In the second case, that of borrowed terms, the reader, if she is aware of the term's history, can consult its place and function in the hands of its previous owners. If Vilém Flusser refers to something as noumenal, or as a thing-in-itself, his

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[7] Ronald Bogue, Deleuze's Way: Essays in Transverse Ethics and Aesthetics (New York: Routledge, 2007), 145.

meaning will remain impenetrable for a reader without cursory knowledge of the philosophy of Immanuel Kant. In all cases, finally, although especially in the case of neologism, the reader relies on context and the author's own definition to make sense of an unfamiliar word.

With any luck, someone in the literature will alert us to the fact that "assemblage" is the translation for *agencement,* and our difficulty in reading Deleuze for the first time becomes a symptom of this fraught translation. If we ask where assemblage and *agencement* fall in the above categories—repurposed words, borrowed terms, neologisms—they are classified similarly. Neither word is a neologism. Nor are either of them featured in the history of philosophy or in the work of Deleuze and Guattari's predecessors. Both are "regular words," i.e. non-philosophical terms that have been put to philosophical purposes.

The problem is that the relevant strategy, consulting standard definitions, common uses, and etymology, yields different results for assemblage, on the one hand, and *agencement*, on the other. As a new reader, I would have a different experience and understanding of Deleuze, in accordance with whether I encounter this word in English or in French. The words are defined differently, are used differently, and have different etymologies and histories. Perhaps of more consequence is the fact that the Francophone reader is bound to be more acquainted with *agencement,* outside of reading Deleuze, than the Anglophone reader is with assemblage.[8] Semantic discrepancy aside, then, the French

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[8] While this claim is merely the product of my intuition, I might refer the reader to two authoritative word databases which track word frequency in French and English, respectively. The Lexique project, now Lexique 3, draws on a large corpus of books, web page results, and subtitle information to rank 135 000 individual French words. *Agencement* appears 1.89 times in every million French words, while different forms of the verb *agencer* appear 2.91 times (http://www.lexique.org). Brigham Young University's massive

text is equipped to appeal to the reader's intuition, to bank on their prior knowledge and use of *agencement.* For the reader of English caught unawares, however, one is for all intents and purposes forced to treat assemblage as a neologism, or to seek out its uses in English which are perhaps no less unfamiliar— "assemblage" as an artistic form, or a dig site's "assemblage" of fossils or artifacts.

The translation assumes an air of technical sophistication, whereas *agencement,* even if it is not exactly common, is more accessible to the average reader. Without intervention, in the form of a new translation or careful exposition, "assemblage," or *agencement*, may be doomed to remain jargon, misleading Deleuze's interpreters or else barring access to his would-be readers.

THE TRANSLATION OF AGENCEMENT

While a philosopher's work is still in the process of being translated, disagreement over turns of phrase and conceptual fidelity is inevitable. When a word in the source language lacks an obvious counterpart in the target language, translators and subsequent commentators are charged with the double task of both rendering the term's conceptual significance for the philosopher in question and signaling to readers in the target language, as accurately as possible, the associations readers of the source language would make with the term.

Early English translations of Deleuze and Guattari's work saw little controversy with the term *agencement*, at least at a conceptual level. The term appears sporadically in

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corpus of 14 billion words includes 15,596 instances of "assemblage," which means it appears only 1.114 times per million English words (https://corpus.byu.edu/iweb/). Naturally this only applies to written French and English and does not demonstrate the average vocabulary of regular speakers.

Anti-Oedipus; in their translation, Robert Hurley, Mark Seem, and Helen R. Lane have it as "arrangement" and ostensibly did not see a need for a translator's note on the matter, as you will not find any.[9] Nearly a decade prior, Mark Seem rendered the term as "set-up" when translating his interview with Guattari—the "collective set-ups of analysis or of enunciation relative to desire and its production."[10] The brief respite from arguing over translation may reflect the fact that, in its early appearances in *Anti-Oedipus*, *agencement* did not yet figure as an independent technical term but was a turn of phrase used to describe other, then more central, terms in Deleuze and Guattari's vocabulary. In a few places they describe desire not only in terms of machines, but with reference to "machines and *agencements* of machines."[11] Or the word might appear in a series of phrases meant to characterize the then larger concept of "desiring machines": "The schizoanalytic argument is simple: desire is a machine, a synthesis of machines, a machinic *agencement*—desiring-machines."[12]

Translations varied after the appearance of *Kafka: pour une littérature mineure* in French and before the full English translation of the same in 1986. A partial translation of the work by Robert Brinkley shows "arrangement," a common decision and at one time

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[9] It should be said, however, that according to either Dosse or his translator, Deborah Glassman (unfortunately the text does not specify, nor does it cite its source), "arrangement" was approved as a translation by Deleuze himself. François Dosse, *Gilles Deleuze and Félix Guattari: Intersecting Lives*, trans. Deborah Glassman (New York: Columbia University Press, 2010), 527n43.

[10] Mark D. Seem and Félix Guattari. "Interview: Félix Guattari," in *Diacritics* 4.3 (Autumn 1974), 41.

[11] For example: Gilles Deleuze and Félix Guattari, *Anti-Oedipus*, trans. Robert Hurley, Mark Seem, and Helen R. Lane (Minneapolis: University of Minnesota Press, 1983), 324. Gilles Deleuze and Félix Guattari, *L'Anti-Œdipe* (Paris: Minuit, 1972), 388. Henceforth, *AO*.

[12] *AO,* 296/352.

assemblage's major competitor.[13] Compare this to Marie Maclean's translation of Chapter Four of *Kafka,* wherein she translates *agencement* as "organization," noting that the French term "implies an interlocking system or arrangement basic to both organism and organization."[14] In his overview of the duo's turn to literary discourse and related developments in schizoanalysis, Charles Stivale describes the concept of "arrangement" as the "minimal unity" of both "states of things, of bodies" and of "regimes of statements, signs."[15] Stivale refers to the 1977 translation of Deleuze's *Dialogues* with Claire Parnet, but chose not to follow Hugh Tomlinson and Barbara Habberjam in their preference for "assemblage."[16] A few years later, however, he conceded; his translation of the end of *Mille Plateaux* for the journal *SubStance* uses "assemblage," with no mention of arrangement or *agencement* and no translator's note.[17]

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[13] Gilles Deleuze, Félix Guattari, and Robert Brinkley. "What is Minor Literature?" in *Mississippi Review* 11.3: Essays Literary Criticism (Winter/Spring, 1983), 13-33. Despite Brinkley's detailed commentary on the translation and philosophical context for Deleuze and Guattari's work, he does not mention *agencement* nor the reasons for choosing "arrangement" as its translation.

[14] Gilles Deleuze, Felix Guattari, and Marie Maclean, "Kafka: Toward a Minor Literature: The Components of Expression," in *New Literary History* 16.3: On Writing Histories of Literature (Spring 1985), 607n12.

[15] Charles J. Stivale. "Gilles Deleuze & Félix Guattari: Schizoanalysis & Literary Discourse," in *SubStance* 9.4 (1980), 54.

[16] See Gilles Deleuze and Claire Parnet, *Dialogues*, trans. Hugh Tomlinson and Barbara Habberjam (New York: Columbia University Press, 1987). Gilles Deleuze and Claire Parnet, *Dialogues* (Paris: Flammarion, 1977).

[17] Gilles Deleuze, Félix Guattari, and Charles J. Stivale. "Concrete Rules and Abstract Machines," in *SubStance* 13.3/4: Gilles Deleuze (1984), 7-19. In fact, we find the struggle between assemblage and arrangement on display in this special issue of *SubStance.* Those who opt for "assemblage" include Paul Patton, "Conceptual Politics and the War-Machine in 'Mille Plateaux,'" 61-80; Stivale again in "The Literary Element in 'Mille Plateaux': The New Cartography of Deleuze and Guattari," 20-34, and Stivale yet again in his translation of part of Deleuze's *Cinema 1*, "Image-Movement and Its Three Varieties: Second Commentary about Bergson," 81-95. The sole proponent of "arrangement" is Alice Jardine, "Woman in Limbo: Deleuze and His Br(others)," 46-60. Stivale, in his introduction to the issue, briefly offers "arrangement" and "assemblage" as alternatives, but with no further commentary on the matter: Charles J. Stivale, "Introduction," 3.

Simultaneously with *Kafka* and the passage into Deleuze and Guattari's next major joint-publication, *agencement* took on new life. After the publication of *Mille Plateaux,* Deleuze is candid about the shift in their vocabulary: "When a term is introduced and has the least bit success, as has been the case for 'desiring-machine' […] either one circulates it, which is already rather pernicious […] or one renounces it and seeks other terms to upset the order."[18] Out with desiring-machines, in with *agencements.* Not only did a once incidental term in the definition of desiring machines come to replace the latter concept entirely, but *agencement* would feature prominently throughout *Thousand Plateaus* and became strongly associated with a new turn in Deleuze and Guattari's career: the collective *agencement* of enunciation, the machinic *agencement* of desire, the concrete *agencements* which express a diagram or abstract machine, the *agencement* between the planes of consistency and organization, *agencement* as contrary to stratification, etc. Even if the reader cannot make sense of these phrases, *agencement*'s sudden frequency in their writings makes it clear that there is indeed something at stake, conceptually, in the "battle" over *agencement*'s translation.

The architects behind "assemblage" were likely Paul Foss and Paul Patton in their 1981 translation of *Rhizome,* what would eventually become the introduction to *Mille Plateaux.*[19] In their provided glossary, we are told that assemblage translates *agencement,* but not the reason for this decision. While he was not the first to render it as

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[18] Gilles Deleuze, "Five Propositions on Psychoanalysis," in *Desert Islands and Other Texts: 1953-1974,* ed. David Lapoujade, trans. Michael Taormina (New York: Semiotext(e), 2004), 278. Gilles Deleuze, "Cinq propositions sur la psychanalyse," in *L'Île déserte: textes et entretiens 1953-1974,* ed. David Lapoujade (Paris: Minuit, 2002), 387. Where both English and French editions were consulted, both will be cited, in that order, e.g., 278/387.

[19] Paul Foss and Paul Patton, "Notes for a Glossary," in *Ideology and Consciousness* 8 (Spring 1981), 41-48.

"assemblage," the tremendous interdisciplinary influence—especially in recent years—of

Brian Massumi's translation of *A Thousand Plateaus* has resulted in consensus among

Deleuze's translators: *agencement* means "assemblage." The word appears often enough

in *A Thousand Plateaus* to warrant consistent verbiage, and, as we will see, there are

certainly issues with assemblage's primary alternative, arrangement. However, the

decision to invariably render *agencement* as "assemblage" results in a few regrettable

turns of phrase completely removed from their French equivalents. A prime example is

"musical assemblage," which translates *agencement musique.* Undoubtedly, the phrase

occurs in the technical context of Deleuze's and Deleuze and Guattari's thought, and thus

obtains new valences and nuances. But whereas any francophone reader would be hardly

surprised to hear music discussed in terms of its *agencement,* no anglophone reader

would recognize "musical assemblage" other than as ostensibly the application of

Deleuze and Guattari's philosophical concept.[20] Would we render *agencement de couleur*

(something like "color scheme") as a "color assemblage"? Would the common phrase,

"*agencement de magasin*" (something like "store layout") become a "store assemblage"?

Some have expressed concern at this development. Those like Erin Manning and

Francis Bangou find *agencement* untranslatable, to the extent that it should be left in the

original French. Manning argues that Brian Massumi "translates the untranslatable" with

"assemblage," that the concept has "too often been read as an object or existent

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[20] In addition to the long discussions of music and *agencement* in *A Thousand Plateaus,* see references to "*agencements musicaux,*" like that in Gilles Deleuze, "Eight Years Later: 1980 Interview," in *Two Regimes of Madness,* ed. David Lapoujade, trans. Ames Hodges and Mike Taormina (New York: Semiotext(e), 2006), 177. Gilles Deleuze, "Huit ans après: 1980 entretien," in *Deux régimes de fous,* ed. David Lapoujade (Paris: Minuit, 2003), 163.

configuration, rather than in its potentializing directionality."[21] Manning wants to preserve the word's sense of process, agency, movement, and connection. Bangou, on the other hand, takes "assemblage" to task for not capturing the "unpredictability and consistent reinvention" essential to *agencement*.[22] Manning may be right about its being untranslatable, but "potentializing directionality" takes us even further from *agencement*'s immediate impression on the French reader.

While many use "assemblage" with neither endorsement nor disapproval, a few defend the choice explicitly. Some approve it because it sounds like it comes from the domain of machines and engineering, appropriate given Deleuze and Guattari's reference to *agencements machiniques*.[23] Jon Roffe defends assemblage because it is a substantive, has spatial connotations, and because it communicates a sense of activity.[24] For similar reasons, translators like Hugh Tomlinson and Barbara Habberjam follow Patton's and, later, Massumi's decision: they note that "the French word has both an active and a

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[21] Erin Manning, *The Minor Gesture.* (Durham: Duke University Press, 2016), 123. To be clear, despite the claim that Massumi translated the term, she admits in a footnote that he had "opted for the already-existent translation" for want of better alternatives (246n13).

[22] Francis Bangou, "Reading ICT, Second Language Education and the self: An Agencement," in *Cartographies of Becoming in Education,* ed. Diana Masny (Rotterdam: Sense, 2013), 146. Bangou offers by contrast an *assembled* piece of furniture—"if the instructions are not followed correctly, then the final result would not be what it was meant to be […] an *agencement* refers to the arrangement of various elements that were not necessarily meant to be put together," (*Ibidem*). Bangou's criticism of assemblage may be warranted, but as we will see, however, *agencement* may apply to both scenarios he describes.

[23] Jean-Jacques Lecercle, *Deleuze and Language* (New York: Palgrave Macmillan, 2002), 186.

[24] Jon Roffe, "The Concept of Assemblage and the Case of Markets," in *Assembling Consumption: Researching Actors, Networks and Markets,* eds. Robin Canniford and Domen Bajde (New York: Routledge, 2016), 45. Roffe points to *agencement*'s suffix, *-ment*, for evidence of its inherent dynamism. On the basis of these three criteria, he opposes "assemblage" to words like "organization" and "arrangement," but does not elaborate why they wouldn't fit the bill. I fail to see why arrangement wouldn't work as well as or perhaps better than assemblage according to Roffe's own criteria. Arrangement is a substantive, has spatial connotations, and has the advantage over assemblage of sharing *agencement*'s suffix.

passive sense, 'a way of assembling or arranging' as well as the resulting 'ordering or arrangement.'"[25] However, they do not explain what makes "assemblage" most qualified for the job. John Macgregor Wise briefly notes a discrepancy between the French and English, but then, surprisingly, proposes that we "get a sense of the term assemblage by seeing how it is used in different contexts"—*English* contexts.[26] Wise discusses fossil assemblages, for example, even though these are not referred to in French as *agencements,* but as *assemblages*. On the other hand, Wise does not share others' reservations over terms like "arrangement" and "organization," and recruits these related words to help bring out the original French meaning of *agencement* more fully.[27]

While assemblage dominates the field, there are a few hold outs. In a frequently cited article on the subject, John Phillips notes that, as we've seen with Wise's description of fossil assemblages, *assemblage* is a French word with a "more restricted range of uses" than *agencement*.[28] Phillips may not come to the table with an alternative in hand, but he stresses that assemblage risks compromising important aspects of Deleuze and Guattari's philosophy. Ian Buchanan criticizes the choice of "assemblage" for reasons not the least of which concern DeLanda and assemblage theory. He does not mince words in his final assessment: "Instead of a new way to understand the problem,

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[25] Deleuze, *Dialogues,* xiii. Only in English edition.

[26] J. Macgregor Wise, "Assemblage," in *Gilles Deleuze: Key Concepts*, ed. Charles J. Stivale (Montreal: McGill-Queen's University Press, 2005), 77.

[27] "Assemblages are particular *arrangements* of elements, *organized*, which have their own *patterns* of movement and rest" (*Ibid.*, 77). Emphasis mine.

[28] John Phillips, "Agencement/Assemblage," in *Theory, Culture and Society* 23.2-3 (2006), 108.

[assemblage] simply gives us a currently fashionable way of speaking about it."[29]

Buchanan argues that, "if everything is or must be an assemblage," the term's lack of specificity compromises its critical traction; *agencement* loses the "cutting edges" that normally justify the use of new concepts.[30] But perhaps the problem with assemblage is not its universal application. If assemblage has lost its cutting edge, it may be due to neglect for *agencement*'s meaning, and the conceptual problems it addresses.

For example, Bernd Frohmann has other reasons for deciding against assemblage in favor of "arrangement." He writes,

> *Agencement* suggests design, a sense missing from the French *assemblage,* which refers to assembly lines, building construction, and various setups of material things […] A Deleuzian *agencement* has design but no designer, because the design is immanent and emergent.[31]

It may appear odd to emphasize design, given that Deleuze's few remarks on the subject are anything but laudatory.[32] But as we will see below, design is indeed a

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[29] Ian Buchanan, "Assemblage Theory and Its Discontents," in *Deleuze Studies* 9.3 (2015), 391.

[30] *Ibid.,* 383.

[31] Bernd Frohmann, "The documentality of Mme Briet's antelope," in *Communication Matters: Materialist Approaches to Media, Mobility and Networks*, ed. Jeremy Packer and Stephen B. Crofts Wiley (New York: Routledge, 2012), 180n3.

[32] "Finally the most shameful moment came when computer science, marketing, design [*le design*], and advertising, all the disciplines of communication, seized hold of the word *concept* itself and said: 'This is our concern, we are the creative ones, we are the *ideas men!* We are the friends of the concept, we put it in our computers!'" Gilles Deleuze and Félix Guattari, *What is Philosophy?*, trans. Hugh Tomlinson and Graham Burchell (New York: Columbia University Press, 1994), 10. Gilles Deleuze and Félix Guattari, *Qu'est-ce que la philosophie?* (Paris: Minuit, 1991), 15. Henceforth *WP*.

It's worth noting that the French use of the English, *design,* refers to the industry of design—hence it belongs to the "disciplines of communication" alongside marketing and advertising. The English is broader and more ambiguous than the French, which distinguishes between *design, dessein,* and *dessin*. Tomlinson and Burchell do not flag such a distinction in their translation of *Qu'est-ce que la philosophie?* Deleuze and Guattari, in this passage, mean the sort of design in cahoots with advertising in marketing; later, when they specify that they do not understand "*plan*" as a design (*Ibid.,* 41/44) they write *dessein,* a program or intended plan-of-action.

common thread to *agencement'*s French definition and to nearly all of its uses and contexts. Notably, while language of design is salient in *agencement*, it is far less pronounced not only in "assemblage" but also in many similar terms which would have been available to Deleuze and Guattari. *Dispositif* was already on the table, and certainly on Deleuze's radar, given that he discusses Foucault's use of the term on several occasions. I claim that, among other things, one of its distinguishing features is that neither *dispositif,* nor *assemblage,* nor *structure,* nor *arrangement* are as closely or as significantly associated with design as *agencement.*

This fact is perhaps less instructive, for the moment, since we have yet to see what it is about design that lends itself so well to the different senses of *agencement*, nor have we seen why it warrants suspicion over "assemblage." Why is design worth discussing in this context at all, given Deleuze's attitude toward it? We will save these questions for later, but for now it is worth noting that assemblage fails to capture a good part of *agencement'*s definition. To get a firmer grip on what assemblage misses, we will need to turn to the wider and non-technical life of *agencement* in French, as well as its philosophical employment, such that we might reconstruct what may have motivated Deleuze and Guattari's word choice. This will entail a thorough inquiry into the term's definition and use, a reflection on its etymology, and a search for context clues in the work of Deleuze, Guattari, and Deleuze and Guattari.

THE MEANING OF AGENCEMENT IN GENERAL

One might expect to encounter the word, *agencement*, in the fields of architecture, painting, music and composition, geology, biology, interior decorating—in addition to its

less technical uses.[33] A bilingual metallurgist might translate *agencement* as "fitting," e.g. aluminum fitting. In economics and accounting, and along with *implantation,* it might refer to the arrangement of buildings, installations, and machines involved in a business, especially in production. In marketing and retail, however, we might understand it as "store layout" or "retail design," since one account describes it as "the way a store has been laid out or set up (furniture, displays, gondolas, shelves, boxes, offices, inventory) for the purposes of sales and advertising."[34]

Apart from these technical senses of the term, dictionaries generally define *agencement* as the "act of organizing the diverse elements of an ensemble, of adapting them, of combining them to be convenient or pleasant"; in the arts, as the "act of arranging, harmoniously ordering the parts of an artistic or literary work"; in a more pejorative sense, *agencer* can also mean "to combine in a shrewd way and often to dishonest ends."[35] Even before consulting the philosophical backdrop of Guattari and Deleuze's respective careers and the definitions they offer for the term, *agencement* poses tremendous difficulty for any careful English translator. *L'agencement d'une boutique, d'un appartement. L'agencement des couleurs d'un tableau. Une escroquerie bien agencée.* A boutique's or an apartment's layout. The placement or arrangement of colors

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[33] ATILF, *Le Trésor de la langue française informatisée* (le TLFi) (http://atilf.atilf.fr/tlf.htm) Accessed on 3/6/2017.

[34] The metallurgical, economic, and retail definitions come from *Le grand dictionnaire terminologique* (www.granddictionnaire.com) Accessed on 8/10/2017. Translation mine.

[35] Louis Guilbert, René Lagane and Georges Niobey, *Grand Larousse de la langue française,* vol 1 (Paris: Larousse, 1971). The following are the original French passages, respectively: "Action d'organiser les divers éléments d'un ensemble, de les adapter, de les combiner en vue de la commodité ou de l'agrément"; "Action de disposer, d'ordonner harmonieusement les parties d'un œuvre artistique ou littéraire"; "Combiner de façon astucieuse et souvent à des fins malhonnêtes." Translation is mine.

in a painting. A well-planned scam. The examples could go on—we would be hard-pressed to find an English word equal to the task of translating *agencement*. This is in part due to the variety of its domains and uses in French, in part due to its unique etymological history. The difficulties will explode, of course, when we turn to the word's role in Deleuze and Guattari's philosophy.

Beyond dictionary entries, we turn to that "specifically philosophical athleticism" of etymology, since there "must be a strange necessity for [a philosopher's] words and their choice, like an element of style."[36] Etymological reflection is also worthwhile as Deleuze scholars are often mistaken about *agencement*'s. As the story goes, *agencement* is related to *agencé,* or agency. We will see that, indeed, "collective *agencement* of enunciation" was originally termed a "collective *agent,*" and thus some association between terms is warranted. For the moment, though, it is worth mentioning that these two French words have different roots and distinct histories.[37]

The connection to agency may be fruitful—and indeed, many interpretations or applications of assemblage make hay on this confusion. However, the word's actual etymology will shed light on how *agencement* has come to mean what it does, bringing us closer to approximating the valences it carries for French readers and offering us new ways to speculate on its role in Deleuze's thought. Besides, even if Deleuze and Guattari

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[36] Deleuze and Guattari, *WP,* 8/13.

[37] Guattari's phrase, "collective agent of enunciation," from *La Révolution Moléculaire* to *Les Écrits Anti-Oedipe*, might trouble agency's privilege in the reception of *agencement*. After all, if, as the argument might go, the word *agencement* signals the distribution of agency such that there is no longer *one* agent or subject, it remains to be seen why Guattari wrote for so long and so consistently on *the* collective agent of enunciation. Very occasionally he would treat *agent* and *agencement* interchangeably. An explanation for his use of "agent" and for its interchangeability with *agencement* comes from the realm of scientific logic. See our discussion of Marcel Boll, below.

chose the term exclusively or primarily for its connection to agency, this play on words would lose its critical traction were we to lose sight of its *standing meaning as a regular piece of French vocabulary.* If some scholars are to be believed, the word is Deleuze and Guattari's invention, and might be better rendered as "agencing."[38] But nothing prevented the authors from coining a new word—let us presume that their word choice is motivated.

Agence, agency, comes from the Latin for "to act": *ago, agire.* "Acting"/*agens* → *agence*. One French dictionary notes that the verb, *agencer,* was synonymous to *orner* or "decorate, adorn" from its appearance in the 12th century until the 17th century, after which it took on a more robust sense of "arranging" or putting things in order.[39] Whereas *agence* comes from the Latin for "to act, acting," *agencer*'s Latin components include prefix *ad,* "to, toward," and a contraction of *genitus*: *adgentiare.*[40] *Genitus/genus* has a variegated afterlife in the French language, lending itself to words related to being (*genre, générer, engendrer*), kindness or niceness (*gentil*), and people (*gens, gent*). The etymology of *agencement* comes to life in the word's forerunners in Middle French. *Agentir/agensir/ajentir* meant to make something pleasant, nice, to decorate or embellish. As an adjective, something or someone *agensi* was well-dressed, arranged, pleasing, agreeable, noble, valiant—had a well-groomed or well-polished look about it. Something *agencif* was proper, suitable. In describing the layout and décor of a home's interior, one might have referred to its *agencissement.*[41]

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[38] Hayles, 25.

[39] Albert Dauzat, Jean Dubois, and Henri Mitterand, *Nouveau dictionnaire étymologique et historique.* (Paris: Larousse, 1964). Under "agencer."

[40] *Ibidem*.

[41] Frédéric Godefroy, *Dictionnaire de l'ancienne langue française,* vol 1 (Paris: F. Vieweg, 1881), 159-60.

While the word has since taken on a more commercial character, referring to store branding and the arrangement of facilities, the etymology and early forms of *agencement* still square with what we've seen of its modern usage. *Ad-genitus*; *ad-gendré, ad-gentil.* *Agencement* appears to carry a double sense of creation, as both material and expressive; more so than similar terms, such as *arrangement.* In other words, an *agencement* marks an effect, intentional or unintentional, material or expressive; as I *agence* the items in my living room, I change the impression it makes on visitors, how certain items will be used or interpreted, the flow of traffic through the house, my future cleaning regimen, etc. In English, the word would lie somewhere between adjust (ad-just: altering something so that it approaches a standard) and engender (en-gender: causing something to come into being); like the former, *agencer* means to arrange things such that they are nice, suitable, appropriate. But like the latter, one often creates something in their *agencement* or makes it possible—production, sales, a painting, a melody, or an effective scam.[42]

ACCORDING TO DELEUZE AND GUATTARI

Putting our dictionaries aside, what does *agencement* mean for Deleuze and Guattari? In what context does the word appear and what conceptual role did it perform in their individually and jointly written work? In what follows we will address these questions in three ways. First, we will survey *agencement*'s "competition," i.e. the terms and concepts for which Deleuze and Guattari claim *agencement* is a better alternative, and describe its relevant advantages in each case. We will then move from such a

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[42] I am not interested in coining new terms, as it would only add to the problem of jargon in Deleuze scholarship, but one could perhaps imagine the English equivalent of *agencer* as "adgender."

negative definition to a positive account, how they define and use *agencement* at various points in their career(s). Lastly, in synthesizing the insights gained from both negative and positive definitions, we will see why design is well-suited for our project.

SUBSTITUTIONS: WHAT AGENCEMENT IS NOT

So long as we assume that philosophical terminology is deliberate, and that it is motivated by problems and the conceptual, historical context for which it is appropriate, it is a good idea to consult failed contenders for the role. A clearer view of what *agencement* is not, the terms it was intended to replace or displace and the advantages Deleuze and Guattari believed it held over them, will offer us surer footing when examining how it operates in their philosophy. Whatever an *agencement* is, we know that it is not a set [*ensemble*], desiring-machine, behavior [*comportement*], complex, or subject.

Our first clue, often overlooked, comes from an interview with Guattari, where he claims that he and Deleuze had repurposed *agencement,* which "originally belonged to the domain of scientific logic."[43] Guattari does not cite his sources, and one is hard-pressed to find a French logic textbook from the early to mid-20th century which includes the concept in any meaningful way—with the notable exception of those written by Marcel Boll, a frequent author on scientific logic. According to Boll, scientific logic is concerned with two basic features: facts and statements. A fact is an actual relation

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[43] Félix Guattari, "1980 – Petites et grandes machines à inventer la vie: Entretien avec Robert Maggori," in *Les Années d'hiver 1980-1985* (Paris: Bernard Barrault, 1986), 155.

between entities, e.g., objects, components, and wholes. Statements are expressions of facts, exemplified in "propositions preceded by the locution, 'the fact that.'"[44]

Scientific logic distinguishes between two primary logical operators or ways in which sets [*ensembles*] can join together. A *liaison* converts one or more sets into a new set, e.g. by addition or subtraction, but there is nothing necessary in the relation between these sets. The result of a such a *liaison* is a set of sets, or a whole made up of wholes [*ensemble d'ensembles*]. On the other hand, sets may enter into interdependent relations with other sets; such relations render them into facts.[45] The operator for such a relation is not a *liaison,* but an *agent*, and it distinguishes an *agencement d'ensembles* rather than a mere set of sets. Boll offers the following example to illustrate the distinction. $20 + 27$ is not yet a fact, since although we can add 20 to 27, nothing commits us to doing so; this is only the *liaison* between two wholes. $20 + 27 = 21 + 26$, however, is a fact, or an *agencement.* The equals sign, as the *agent* of the *agencement*, renders the pair of *liaisons* interdependent: each commits us to the other.[46]

In a short introduction to an essay by Pierre Bénichou in *Les Temps Modernes*, titled "Sainte Jackie. Comédienne et Bourreau," Deleuze relates his and Guattari's notion of desiring-machines to Bénichou's reflection on masochism.[47] Deleuze replaces the paradigmatic psychoanalytic question, "What does it mean?" with one rooted in the

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[44] Marcel Boll. *Manuel de logique scientifique*: *remplaçant et complétant les* Éléments de logique scientifique, 1942. (Paris: Dunod, 1948), 9-12.

[45] *Ibid.,* 58.

[46] *Ibid.,* 64-65.

[47] Gilles Deleuze, "Your Special 'Desiring Machines': What Are They?" in *DI*, 242-244./337-339.

analysis put forward in *Anti-Oedipus*: "How does it work? How does it function?" If

desire is here presented as a matter of production and a function of machination, Deleuze

specifies that it consists in an *agencement* of little desiring-machines, in a particular

relationship with larger social and technical machines.[48] Thus, not only is desire the

function or product of such machines, but machines of different scales in different

domains are *agencées* together, such that their *agencement* forms the backbone of

analysis or diagnosis: What are your machines, and how are they arranged? Indeed,

Deleuze characterizes the fundamental task of anti-psychoanalytic analysis as the

discovery of the "collective *agencements* of enunciation, the collective bonds, the peoples

within us who make us speak, and on whose basis we produce statements."[49] Where the

psychoanalyst looks to interpret the meaning of the masochist's account, the anti-

psychoanalyst asks what *agencements* of machines or what collective *agencements* are in

play.

    Agencement has always been of central concern to the definition of machines in

Deleuze and Guattari's work, as evidenced by what would become an appendix for *Anti-

Oedipus*.[50] A 1973 text titled "Bilan-programme pour machines désirantes." This essay,

meant to remediate the misunderstandings of their recent book, includes a few examples

of machines that will later be rewritten as examples of *agencement*.[51] Throughout, the

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[48] *Ibid.,* 244/338.

[49] Deleuze, "Five propositions," 275-276/383-384.

[50] This appendix does not appear in the English version of the book.

[51] Gilles Deleuze and Félix Guattari, *A Thousand Plateaus,* trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987). Originally published as *Mille Plateaux* (Paris: Minuit, 1980). Henceforth *ATP*. The *ensemble* [later: *agencement*] *homme-cheval-arc* itself appears in *ATP* 404/503, but similar

question of machine is one of communication and recurrence; something, a quality or a characteristic, is communicated or recurs in the different levels of a machine, or between machines in their *agencement.* Deleuze and Guattari write that "the man-horse-bow ensemble forms a nomadic war machine in the conditions of the steppe," in the same way that a labor machine forms under the bureaucratic conditions of an empire.[52] The point is that the Hun does not merely project or extend himself via horse and bow as tools, but they, along with the Hun himself, function as parts of a machine that follow each other around in their interrelations, that together take on a certain consistency, in the sense we will soon discover. The Hun outside the man-horse-bow machine is different from the machined Hun.

By the time of their second joint venture, *Kafka: Towards a Minor Literature, agencement* had already come to eclipse *machine désirante,* figuring into their interpretation of Kafka, the critical literary method their interpretation inaugurates, as well as the general political and metaphysical system such a method implies. Deleuze is clear in an interview that *agencement* was intended to replace desiring machines.[53] What advantage did *agencement* have over desiring-machine? In a discussion following his "Cinq propositions sur la psychanalyse," Deleuze expresses a sentiment which might resonate with those frustrated with the current reliance on jargon in the literature:

> When a term is introduced and has the least bit success, as has been the
> case for "desiring-machine" or "schizo-analysis," either one circulates it,

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formulations crop up throughout the chapter devoted to the problem this example represents, entitled "1227: Treatise on Nomadology—The War Machine." See *ATP,* 351-423/434-527.

[52] Gilles Deleuze and Félix Guattari, "Bilan-programme pour machines désirantes," in *L'Anti-Œdipe,* 464.

[53] Deleuze, "Eight Years," 177/163.

which is already rather pernicious, a sort of co-optation, or one renounces it and seeks other terms to upset the order. There are words that Felix and I now feel it urgent not to use: 'schizo-analysis,' 'desiring machines'—it's awful, if we use them, we're caught in the trap. We don't know very well what they mean, we no longer believe in the words; when we use a word, we want to say, if this word doesn't agree with you, find another, there's always a way. Words are totally interchangeable.*54*

The move away from desiring machines appears to be motivated less by the shortcomings of "desiring machines" than by the shortcomings of an audience which over-circulated the term.

There were other concepts in *agencement*'s cross hairs. Deleuze, as well as Deleuze and Guattari, shifts emphasis from ethics to ethology, an emphasis concomitant with the substitution of *agencement* for behavior [*comportement*]. Deleuze claims that this reversal allows us to avoid any nature-culture distinction; ethics and behavior concern one's individual activity, and thus questions of what aspects are "natural" and which are "cultural" are seldom far behind.[55] Before one can discuss behavior, however, Deleuze tells us to consider the particular way things hang together, since an *agencement* is precisely "*ce qui fait* tenir ensemble *des éléments très hétérogènes, un son, une couleur, un geste, une position, etc.*"[56] Ethology, after the spirit in which it was founded by Jacob von Uexküll, evaluates a tick's behavior only in the context of the signs and

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[54] Deleuze, "Five Propositions," 278/387.

[55] We will have the occasion in Chapter Three to briefly discuss the work of mathematician, René Thom, whose catastrophe theory offers a similar proposal to overcome isolated notions of behavior. In one of the more famous varieties of catastrophe, the so-called "crest model," we find that what appears to be discontinuous at the level of an individual's behavior is ultimately continuous in a broader view of its constitutive factors.

[56] Deleuze, "Eight Years," 179/165.

circuits which the tick encounters and in which the tick dwells.[57] There is no behavior outside of such an *agencement.*

Elsewhere, Guattari claims that *agencement* stands in for the Freudian term, "complex." He argues that his and Deleuze's alternative has the advantage of being "at once a notion poorer in comprehension than complex and richer in extension."[58] Beyond a Freudian complex, which Guattari understands to be limited to the unconscious, their *agencement* involves "imaginary representations, linguistic chains, economic, political, aesthetic, microsocial semiotics, etc."[59]

That *agencement* should contrast with psychoanalytic concepts like "complex" should come as no surprise, given Guattari's training and history with Jacques Lacan. A hallmark of Lacan's theoretical outlook is the subject's split, in language, into the *sujet d'énonciation* and the *sujet d'énoncé*—I, as a speaker, and "I" as a signifier which is spoken. As Lacan puts it, "the right way to answer the question 'Who is speaking?'" is at stake.[60] And perhaps the earliest appearance of *agencement* is in Guattari's intervention on just this aspect of Lacan's work. The model of subjectivity split between the speaking and spoken "I" has the double fault of first, like behavior, emphasizing the individual

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[57] Jakob von Uexküll, *A Foray into the Worlds of Animals and Humans, with* A Theory of Meaning, trans. Joseph D. O'Neil (Minneapolis: University of Minnesota Press, 2010).

[58] Félix Guattari, "1980," 156. In his glossary, Guattari reaffirms his intention for *agencement* to displace the Freudian concept of complex. "Glossaire de schizo-analyse," in *Les Années d'hiver: 1980-1985* (Paris: Bernard Barrault, 1986), 287.

[59] Guattari, "1980," 155.

[60] Jacques Lacan, "The Subversion of the Subject and the Dialectic of Desire in the Freudian Unconscious," in *Écrits*, trans. Bruce Fink, 677/800. Original pagination following Fink.

over the context on which it depends and second, like complex, being limited to discourse or signification.

In a 1966 essay, "Le Groupe et la personne," Guattari finds the ego and its individual identification processes to depend on a "structural *agencement* of a-subjective statements [*énoncés*]."[61] Lacan had asked "Who's speaking?" in the unconscious, and famously claims that the unconscious is structured like a language. Guattari's "desubjectivation" and his motivations behind *agencement* culminate in his riposte to Lacan's claim. Structured like a language? "Sure! But by whom? By family, by school, by the barracks, by the factory, by cinema, and, in special cases, by psychiatry and psychoanalysis."[62] Splitting the subject doesn't go far enough for Guattari; for him, there is no subject responsible for any statement—a statement is only possible as part of an *agencement,* comprised "of semiotic constellations of *all sorts*, of connections of flows of *all sorts*, of relations of forces and constraints of *all sorts*."[63]

THE POSITIVE DEFINITION OF AGENCEMENT

Here we will begin with a series of paired terms that together form what they call the tetravalence of an *agencement*: bodies and statements, territorialization and

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[61] Félix Guattari, *Psychanalyse et transversalité* (Paris: [Re]découverte, 2003), 169. Not only did *agencement* displace the role of desiring machines in the work of Deleuze and Guattari, it also supplanted the emphasis on "groups" in Guattari's solo work. Individual acts and statements are fundamentally mediated by one's relation to groups and the relations between groups—groups constituted from within (*groupes-sujets*) and from without (*groups assujetis*).

[62] Félix Guattari, "Le divan du pauvre," in *Communications* 23 (1975), 99.

[63] *Ibidem.* Emphasis in the original. Elsewhere, in the "Programme" for *La Révolution Moléculaire,* Guattari's position is more to the point. Among the tasks necessary for his molecular revolution: "CONCEVOIR DES AGENCEMENTS COLLECTIFS D'ÉNONCIATION QUI DÉPASSENT LA COUPURE ENTRE SUJET DE L'ENONCIATION ET SUJET DE L'ÉNONCÉ." Guattari, "Programme," in *La Révolution moléculaire* (Paris: Les Prairies Ordinaires, 2012), 363. (Note: Majuscule in the original).

deterritorialization. That an *agencement* brings together such heterogeneous series or tendencies is our next concern: despite being incommensurable, heterogeneous elements somehow communicate, coordinate, co-function in an *agencement*. This leads us to a final theme of consistency; an *agencement*-informed analysis asks how things hold together or follow each other around, such that a change in dimension amounts to a change in nature.

The "tetravalence" of *agencement* describes the two axes along which it is structured or according to which it forms and develops. The passage is among the most cited in the literature:

> On a first, horizontal, axis, an *agencement* comprises two segments, one of content, the other of expression. On the one hand it is a *machinic agencement* of bodies, of actions and passions, an intermingling of bodies reacting to one another; on the other hand it is a *collective agencement of enunciation*, of acts and statements, of incorporeal transformations attributed to bodies. Then on a vertical axis, the *agencement* has both *territorial sides,* or reterritorialized sides, which stabilize it, and *cutting edges of deterritorialization,* which carry it away.[64]

We will pick apart this tetravalent model and see the parts of its definition recur elsewhere in Deleuze and Guattari's work. The first thing to note is that rather than a hard distinction between different types of *agencement*,[65] they present the same *agencement* as simultaneously composed of bodies, actions, and passions on the one hand and statements, incorporeal transformations, on the other. *Kafka* describes these as the first *agencement*'s "two faces."[66] The simultaneous composition of bodies and statements,

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[64] Deleuze and Guattari, *ATP,* 88/112.

[65] *Pace* Manuel DeLanda, *Assemblage Theory*, 55 (and *passim*).

[66] Gilles Deleuze and Félix Guattari, *Kafka: Toward a Minor Literature*, trans. Dana Polen (Minneapolis: University of Minnesota Press, 1986), 81. Gilles Deleuze and Félix Guattari, *Kafka: Pour une littérature*

content and expression, marks the aspect most celebrated in the scholarship: heterogeneity.

As quoted above, Guattari reminds us that an *agencement* draws together flows of all kinds, semiotics of all kinds. It is a reminder that heterogeneity must be understood in terms of difference in kind, irreducibility or incommensurability. From the perspective of chemistry, a mixture is heterogeneous if it resists complete combination or assimilation, or if one can distinguish some of its components. In such a view, concrete is often heterogeneous because one can discern particles of different size, color, and texture. The elements of an *agencement* are different in kind. It brings together both content and expression—an *agencement* is required to adjust one to the other, despite their being mutually irreducible.[67] One either considers bodies or statements; these are distinct considerations, and yet each presupposes the other and both describe the same *agencement*. Louis Hjelmslev, from whom they borrow this terminology, held that content and expression could only be defined in the context of their relative roles in the same sign function, and that while they constitute entirely distinct planes or considerations, there can be no content without expression and no expression without content.[68]

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mineure (Paris: Minuit, 1975), 145. Henceforth *Kafka.* The account of *agencement* in *Kafka* in many ways prefigures the tetravalent model in *Mille Plateaux*. Cf. *Kafka,* 81-86/145-154.

[67] Deleuze and Guattari, *ATP,* 86/109.

[68] Louis Hjelmslev, *Prolegomena to a Theory of Language*, trans. Francis J. Whitfield (Madison: University of Wisconsin Press), 45. Original pagination, as provided by Whitfield.

Hjelmslev claims that languages arrange their content differently, as well; each language "stresses different factors in it in different arrangements, puts the centers of gravity in different places and gives them different emphases."[69] The same goes for expression: languages express content with different phonemes, syntagmas, paradigms, and so on. To take the example of color—blue's situation in a larger color scheme is a consideration of content; the spelling and pronunciation of "blue," as well as the rules according to which this word is formed and the rules which inform its place among other words is all a consideration of expression. The color corresponds to the word, despite the difference in kind between colors and words. As part of his treatment of Lewis Carroll in *The Logic of Sense,* Deleuze describes a similar situation between things and events, bodies and words: "you either eat what is presented to you *or* you are presented to what you eat."[70] This only apparently a dualism, though, as is Hjelmslev's; the series of edibles and legibles may be heterogeneous, but are "two sides of a frontier represented by sense," an "articulation of their difference."[71] There is an *agencement* between both series or plans. This recalls the advantage *agencement* was purported to have over "behavior," as we saw above. It was a "problem of consistency": "How do things take obtain consistency? Between very different things, there can be an intensive continuity."[72] Something holds bodies and events, things and words, together.

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[69] *Ibid.,* 49.

[70] Gilles Deleuze, *The Logic of Sense*, trans. Mark Lester with Charles Stivale (New York: Columbia University Press, 1990), 23. Gilles Deleuze, *Logique du Sens* (Paris: Minuit, 1969), 36. Henceforth *LS.*

[71] *Ibid.,* 24/37.

[72] Deleuze, "Eight Years," 179/165.

What is more, despite the irreducibility of their plans or considerations, one side

of an *agencement* is able to affect the other. According to Hjelmslev's linguistic

framework, "permutation" is defined as the shift on one *plan* that results from a shift on

the other: because expression and content are commutative, changing the order of the

expressive linguistic chain, "man bites dog," results in a change in content, even though

content and expression are different in kind.[73] Deleuze and Guattari describe the causal

relationship between heterogeneous elements which characterizes the concept of

agencement as transversality. As part of a round table discussion of Marcel Proust,

Deleuze recalls his and Guattari's most famous *agencement*—that of the wasp and

orchid—to describe the function of Proust's narrator of communicating non-

communicating elements:

> There is communication, but it is always between non-communicating
> vases. There are openings but they always take place between closed
> boxes. This communication does not occur within any dimension usually
> included in the dimensions of communicating things: it could be called an
> aberrant communication. […] There is communication, but it is always
> between non-communicating vases. […] We know that the orchid presents
> the image of an insect drawn on its flower, thereby ensuring the
> fertilization of the female flower by the male flower: to indicate this type
> of crossing, of convergence between the evolution of the orchid and the
> evolution of the insect, a contemporary biologist has spoken of an
> aparallel evolution, which is exactly what I mean by aberrant
> communication.[74]

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[73] See Hjelmslev, *Prolegomena,* 66-67. It should be noted that although Hjelmslev was a linguist and his examples are thus primarily linguistic in nature, he perceived his as a general semiotic theory not limited to linguistic signs.

[74] Gilles Deleuze, "Proust Round Table," in *Two Regimes of Madness,* ed. David Lapoujade, trans. Ames Hodges and Mike Taormina (New York: Semiotext(e), 2006), 39-40. Gilles Deleuze, "Table ronde sur Proust," in *Deux régimes de fous,* ed. David Lapoujade (Paris: Minuit, 2003), 38.

Transversality or transversal communication explains why Deleuze and Guattari so often claim that *agencements* cannot change in dimension without also thereby changing in nature. They have thresholds, lines of flight or escape which, if followed, could lead to collapse or transformation—Deleuze and Guattari describe the alcoholic's "last drink," beyond which the *agencement* could change radically, a point of no return beyond which lies intervention, violence, a trip to the hospital, or death.[75] It is so important to understanding the concept that they sometimes single it out as what defines or characterizes an *agencement:* "An *agencement* is precisely this change of dimension in a multiplicity that necessarily changes in nature to the extent that it increases its connections."[76]

On this note, we arrive to the next two faces of *agencement*, in the language of *Kafka*, or the second axis of the tetravalent definition in *Mille Plateaux*. On the one hand, we can describe an *agencement* as "segmental" since it comprises "several contiguous segments or [divides] into segments that become *agencements* in turn."[77] In this view it is appropriate to talk about its parts and their organization, or the extent to which these parts may in turn have parts and internal relations, i.e. may themselves be *agencements*. But on the other hand, an *agencement* pulls together a space or consistency that remains distinct from its organization, a "field of immanence," so it includes "points of deterritorialization": the possibility of breaking down, or else drifting off to become

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[75] Deleuze and Guattari, *ATP,* 438/546. See also the subsequent discussion of margins and marginalism (438ff/546ff).

[76] *Ibid.,* 8/15. This formulation also appears, for example, on 244/299, 249/305.

[77] Deleuze and Guattari, *Kafka,* 85-6/153.

something else, is from this vantage an inalienable condition.[78] On this face, we are not concerned with labeled segments and interconnected parts as much as with breaking points, thresholds, tendencies—internal difference, the "style" in which an *agencement* behaves, transforms, or perishes.

So the story goes in *Kafka*. By *Mille Plateaux,* Deleuze and Guattari elaborate this second axis in somewhat different terms. If the first axis of the tetravalent model specifies that an *agencement* is both one of bodies and one of statements, the second reminds us that an *agencement* comprises both reproductive means and a tendency to drift. The first allows it to accommodate change by appropriating elements according to its organization or segmentation; the second marks the margin at which things can escape the *agencement,* forcing it to adjust or dissolve.

The tetravalent definition—bodies and statements, reterritorialization and deterritorialization—does not tell the whole story. In addition, one ought to consider the relationship between *agencements* and strata, as well as that between *agencements* and abstract machines. We will briefly consider the first relationship with an eye toward both geology and linguistics; the second we will review on the basis of Deleuze's understanding of what it means to be "abstract."

Guattari asserts that the notion of a "concrete machine," a forerunner to the *agencements concrets* of *Mille Plateaux*, signals a "politics of interstratification"; it marks the potential for an *agencement* either to close back up and stratify or else to open onto "diagrammatic lines of flight," opportunities for drift and transformation consistent

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[78] *Ibid.,* 86/153.

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with the *agencement*'s form.[79] The language of strata and stratification likely comes from the work of Louis Hjelmslev, in an essay titled "*La stratification du langage*."[80] Strata play a prominent role in *Mille Plateaux,* and *agencement*'s first appearance there depicts it as a multiplicity between strata on the one hand, which "make it into a kind of organism," and a body without organs on the other, which undoes this organism.[81] In a passage which combines Hjelmslev's terms—strata and interstratification—with geological stratigraphy, Deleuze and Guattari present the nature and function of *agencement* in condensed form. They write:

> Challenger quoted a sentence he said he came across in a geology textbook. He said we needed to learn it by heart because we would only be in a position to understand it later on: "A surface of stratification is a more compact plane of consistency lying between two layers." The layers are the strata. They come at least in pairs, one serving as *substratum* for the other. The surface of stratification is a machinic *agencement* distinct from the strata. The *agencement* is between two layers, between two strata; on one side it faces the strata (in this direction, the *agencement* is an *interstratum*), but the other side faces something else, the body without organs or plane of consistency (here, it is a *metastratum*).[82]

The language of this passage can be interpreted both in geological terms and in the framework of Hjelmslev's work in linguistics. According to the former, the "surface of stratification" refers to what geologists call a "stratification plane" or, more commonly in English, a "bedding plane." Bedding planes are the lines used to distinguish strata, and even though they reflect transitions between one round of sedimentation and another

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[79] Félix Guattari, "Les machines concrètes," *La Révolution moléculaire* (Paris: Les Prairies Ordinaires, 2012), 526.

[80] Hjelmslev, "La stratification du langage," in *Essais Linguistiques* (Paris: Minuit, 1971), 44-77.

[81] Deleuze and Guattari, *ATP,* 4/10.

[82] *Ibid.,* 40/54.

(thus geologists do not refer to bedding planes as strata in their own right), they are nevertheless distinct from strata. This is because bedding planes are described according to their particular consistency—gradational, wavy, sharp, sutured. These planes, or surfaces of stratification, may prove instructive for our understanding of *agencement*: they serve to distinguish and relate strata (*interstratum*), their individual character is impertinent since the stratigrapher only consults them to make sense of a geological formation; considered in themselves (*metastratum*), what matters is the consistency of their surface, and the plane extends only as far as does this consistency (a change in consistency likely signals a change in plane, a distinct sedimentation event).

In the case of Louis Hjelmslev's linguistics, "the stratification of the semiotic system" refers to the division of signs, linguistic or not, along two axes into four aspects: form of content, substance of content, form of expression, and substance of expression. The "first" distinction is between the different *plans* of expression and content, to which the second distinction between form and substance is subordinate.[83] Although Hjelmslev's semiotic theory extends beyond linguistic phenomena, language offers the most immediate examples. If I want to express something, I have to do so in a certain form: the form of letters on a page, or the sounds which make up a spoken word— "potato." But what substance is formed in expression? The continuum of vocalizations, writing tools, i.e. the kind of substance which lends itself to form expressions: some surfaces and materials simply won't do if we want to express "potato" in braille. The relevant content likewise takes a certain form; a history of use and web of connotations

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[83] Hjelmslev, "Stratification," 53.

lead us to understand "potato" in very particular ways, and different languages will place the potato differently on a culinary continuum, a vegetative continuum, etc. The substance formed as content might be a memory, a reference to something starchy or planted, a "thought-mass."

Form and substance exist only as relative terms, and un-formed substance often appears in Hjelmslev under the guise of "material," "purport," or "*sens.*"[84] While Hjelmslev defines form as "the total set of marks which, in a given axiomatic, constitute definitions," while anything not included in this form "but which would clearly belong to an exhaustive description of the object in question" he names the substance relative to form.[85] Taken together, we can say that an expression refers to a state of affairs or mixture of bodies while expressing a sense, a substance whose independent existence is only ideal, since sense "only has existence through being substance for one form or another."[86] Hence the union of the *plans* of content and expression concerns denotation, while the selection of a suitable form according to substance or sense is a matter of what Hjelmslev calls manifestation.[87]

With these distinctions in mind, we can see Deleuze and Guattari's tetravalent model in another light. On the one hand stratification involves the distinction and mutual presupposition of content and expression, bodies and marks or sounds. On the other hand,

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[84] *Ibid.,* 59n1.

[85] *Ibid.,* 56.

[86] Hjelmslev, *Prolegomena,* 48. Cf. Deleuze's idea that sense, or the expressed, does not exist outside its expression.

[87] Hjelmslev, "Stratification," 54.

it is a question of form and substance—the latter the residue of the former, and yet the determinant for the selection of form, which always "remains" for the benefit of new forms.[88] Stratification is the complex relationship between denotation and manifestation: it involves relations between strata (*interstratum*) whereby one strata projects onto another and acts at a distance, and the intrinsic character and internal relations of any given stratum (*metastratum*).

Beyond the tetravalent model, there is furthermore the relationship between concrete *agencements* and abstract machines. While conceptually distinct from *agencements,* an abstract machine only exists and operates "within" concrete *agencements*.[89] These machines are something like the an *agencement*'s unique profile or consistency, according to which the latter can take form or drift away, the program for how content and expression correspond, as well as the differential logic of both the *agencement*'s territory and its undoing. Thus, we might find the "same" abstract machine at work in the prison, in the school, in the factory.[90] It applies to the *agencement* as a whole, as its "diagram." So, with language, for example, "[i]f external pragmatics of nonlinguistic factors must be taken into consideration, it is because linguistics itself is inseparable from an internal pragmatics involving its own factors."[91]

The relationship between an enveloped abstract machine and the *agencements* that perform it is important for the kind of analysis proposed in *Mille Plateaux*. The

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[88] Hjelmslev, *Prolegomena,* 48.

[89] Deleuze and Guattari, *ATP,* 510/636.

[90] *Ibid.,* 66/86.

[91] *Ibid.,* 91/115.

relationship between consistency and organization, or between an abstract machine and a concrete *agencement*, poses the methodological question: "Given a machinic *agencement*, what is its relation of effectuation with the abstract machine? How does it effectuate it, with what adequation?"[92] We will come back to the concrete and the abstract in Chapter 3.

For now, we identified four of *agencement*'s characteristics to develop and "translate" into other words: it is well-suited to many registers on different scales of analysis; it resists any discrete analysis by emphasizing interdependence; it concerns heterogeneous *plans* which nevertheless interact or communicate; it simultaneously accounts for how things gain traction and come to appear as essential as well as how things fall apart or change into something else. We will now sum up our findings and consider the advantages of pursuing design in translating Deleuze.

GENERAL PROBLEMS, TRANSLATION

What matters more: words or problems? That is, if it is so difficult to translate *agencement*, we have the option on the one hand to insist on Deleuze's terminology and search for the most faithful and effective translation possible, or on the other hand to abandon *agencement* and other jargon in favor of what these words were intended to describe. In reviewing our account of *agencement*'s appearance in Deleuze and Guattari's work, the fact that it replaced the concept of desiring machines in their work points the way for our research. If *agencement* is poorly translated by "assemblage," and if we have

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[92] *Ibid.,* 71/91.

no alternatives, and if Deleuze scholarship seals itself off with an overreliance on jargon, then we ought to take Deleuze's advice: there is always another way around, we can always put things in other words.[93] What are we putting in other words? Our summary above indicates several problems or themes which we will have to address in the rest of the dissertation.

First, in addition to replacing desiring machines, *agencement* displaces the notion of behavior and the Freudian complex. Its alleged advantages over these terms are instructive. In subordinating the activity and behavior of an individual to the field of bodies and statements that are its condition of possibility, Deleuze claims to bypass any nature-culture distinction. Among Guattari's issues with the Freudian understanding of "complex" is the fact that it is strictly the complex of personal, psychic elements. An *agencement,* on the other hand, brings together elements on smaller and larger scales than the personal, and combines flows or semiotics of different stripes—biological, geological, historical, linguistic, political, l*ibid*inal, etc. Whether as a substitute for behavior or for complex, *agencement* betrays an ambition for maximum extension; rather than a natural or cultural account, or a l*ibid*inal account, *agencement* addresses any of these accounts and an account of accounts.[94] Hence Guattari purports it to be "infinitely

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[93] Deleuze, "Five Propositions," 278/387.

[94] This commitment puts Deleuze and Guattari in league with the 20th century development of so-called Freudo-Marxism, the effort to marry Freud's psychological framework with Marx's political economy for a more thorough-going and comprehensive social analysis. After all, they describe *Anti-Oedipus* as a contribution to "material psychology" and cite Wilhelm Reich's problem in order to frame their project (29). Reich writes, "To ascribe [the Nazis'] success solely to political swindle […] would be to become entangled in a contradiction with the basic idea of freedom, and would practically exclude the possibility of a social revolution. What must be answered is: Why do the masses allow themselves to be politically swindled?" *The Mass Psychology of Fascism*, trans. Vincent R. Carfagno, eds. Mary Higgins and Chester M. Raphael (New York: Noonday, 1970), 36.

richer in extension" than complex, even if its comprehension is less clear.[95]

Second, an *agencement* is distinct from a *liaison,* in the domain of scientific logic, and from a subject, in the domain of psychoanalysis and structuralism. These items together recall Guattari's response to Lacan's claim about the unconscious: if it structured like a language, who or what is responsible? Consider what changes in shifting from "the subject of enunciation" to the "agent/*agencement* of enunciation." Even if the former is split between enunciation and *énoncé*, it in any case refers to the speaker; nothing of enunciation, the statements themselves, or their relation to the speaker is implied. To borrow Boll's terms, the relation between statements and the relation to the speaker might as well be one of mere *liaison*. As the *agent* or *agencement* of enunciation, on the other hand, we come to consider the above in terms of transformation and interdependence.

Third, as per the first axis of Deleuze and Guattari's tetravalent model, the notion of *agencement* is characterized by heterogeneity. It is heterogeneous insofar as it is composed of heterogeneous elements: the "same" *agencement* is both one of bodies and one of statements, i.e. is composed along two irreducible *plans*—that of content and that of expression. It is also heterogeneous insofar as it comprises (at least) two incommensurable considerations or *plans*: from one angle, it is a matter of organized parts and segments; from another angle, it is a question of consistency, singularity and haecceity. Not only is this a general problem in association with *agencement,* but it appears as a motif throughout Deleuze's career. In *The Logic of Sense* he pursues the relationship in Stoic logic between mixtures of bodies on the one hand and incorporeal

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[95] Guattari, "1980," 156.

events on the other, a relationship he rediscovers through the work of Lewis Carroll: one speaks with words, not things, and one eats things, not words; somehow, the edible and the sayable coincide. The heterogeneous relationship between bodies and statements recurs, obviously, in the notion of *agencement*, but we find it still elsewhere, as in Deleuze's writings on Foucault in which he describes the relation between the visible and the sayable, for example.[96]

Fourth, according to a second axis, the same *agencement* has both the tendency to establish or stabilize its claim on different elements and its consistency, and the potential to drift off or dissolve according to constitutive thresholds or parameters. A frequent refrain in Deleuze and Guattari's account: a change in dimension results in a change in nature.[97] Again, this facet of the concept also extends farther into Deleuze's work generally considered. The relationship between organization and consistency, the dimensions or layout of a form and what the form can do or become, finds a succinct expression in the idea of threshold. Thresholds and limits are features of organization, and yet point to the developments beyond which organization is undone or drifts off to become something else.

If we give up on translating *agencement* and instead pursue "other words" with which to describe Deleuze's philosophy, these will be our desiderata. First, we need a wide-encompassing account that is open or flexible enough to handle different registers, separately and in conjunction especially—as Guattari puts it, we need our account to be

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[96] Cf. Gilles Deleuze, *Foucault*, trans. Sean Hand, with foreword by Paul Bové (Minneapolis: University of Minnesota Press, 1988), 47-69. Gilles Deleuze, *Foucault* (Paris: Minuit, 1986), 55-75.

[97] Deleuze and Guattari, *ATP,* 510/636.

"rich in extension." Second, our account ought to involve several scales in terms of interdependence and transformation; Guattari's language avoided talking only about society or only about the individual, and he strove to talk about the *agencement* of micro- and macroscales, pre-personal, personal, and interpersonal. Third, we would want an account of coinciding and communicating *plans,* or considerations, which we would otherwise find incommensurable. Lastly, our account should describe how things assert and reproduce themselves, on the one hand, and on the other hand how things have an inherent tendency to drift and/or destruction.

A tall order, perhaps, but we might take our cue from Frohmann's footnote about design, mentioned above: what *agencement* has, which assemblage lacks, is a reference to design. In terms of definition and use alone, design captures the senses of the French word rather well: design can refer to a process or a product, and often it means both. Like *agencement*, design involves making things pleasant, useful, or suitable. Furthermore, as the etymology of *agencement* suggested, design is inseparable from creation, creativity. We shouldn't be surprised that a typical German translation for *agencement* outside Deleuze and Guattari's philosophy is "Layout," and on at least one occasion this was the preferred English translation for the term. [98]

These admittedly superficial similarities are bolstered by concepts found in Deleuze, Guattari, and Deleuze and Guattari. We find a panoply of terms related to design: diagrams, lines and points, architecture, cinema, painting, musical composition, drama and dramatization, problems, and so on. We saw that Deleuze and Guattari

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[98] Félix Guattari, Juliana Schiesari and Georges Van Den Abbeele, "Ritornellos and Existential Affects" in *Discourse* 12.2 (Spring-Summer 1990), 66-81.

describe *agencement* as joining together two *plans,* that of transcendence and that of immanence, or organization and consistency: at one point they describe the first as a teleological *dessein,* the second as an abstract *dessin.*[99] These two French words each capture different senses of the English, "design": on the one hand design (*dessein*) refers to intentions, plans, and a subjective creative process; on the other hand, design (*dessin*) is a diagram, a sketch of the designed product which includes both intentional and unintentional features. *Agencement* connects *dessein* and *dessin*; design will help us bridge a similar divide, in addition to resonating with Deleuze's expansive design vocabulary.

Finally, design meets all four of our desiderata outlined above. It is ambiguous in its comprehension but rich in extension, reaching from practical applications in the production and use of videogames to its controversial place in conversations surrounding form and function in evolutionary biology, to take only two examples. Like *agencement,* we could call design multi-scalar, since it involves the sub-personal, personal, and supra-personal. Like *agencement,* design brings heterogeneous elements or considerations into communication. Finally, design, no less than *agencement*, has the potential to break down, transform, operate or drift off in unintended ways.

CONCLUSION

What began as a quibble over the translation of *agencement* has brought us to a new theoretical venue. "Assemblage" did not sit well with us in view of the uses and

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[99] Deleuze and Guattari, *ATP,* 265-7/325-6.

connotations of *agencement,* but we have no alternative translation. Deleuze invited us to "find another" word, if we did not agree with his and Guattari's terms, since "words are totally interchangeable."[100] Our issue was with translation and the wide reception of Deleuze and Guattari's thought; rather than translate *agencement,* we briefly laid out some of the main issues motivating the concept and a few of its primary aspects as they've appeared throughout both authors' careers.

To conclude, let us consider the potential advantages of this approach before delving further into the concept of design. Approaching design in light of *agencement*'s problems in order to recast the latter, rather than "applying" the concept of *agencement* to design, offers us at least three general advantages. First, it allows us to approach design in a comprehensive way, since we seek the broadest extension possible, with an eye to aspects brought out by *agencement* that otherwise we may not have had the occasion to conjoin. Second, it allows us to bring disparate design fields into dialogue: Deleuze and Guattari, *agencement* in hand, were able to compare capitalism, geological formations, and the complex relationship between wasps and orchids; in a similar fashion, we might be able to bring together biological morphology, interior decorating, procedurally generated videogame worlds, *etc.*, in meaningful ways. Finally, it allows us to think about Deleuze in ways that do not overly depend on his and Guattari's verbiage. Considering how often Deleuze, even more than Guattari, played with his vocabulary and framework and theoretical references, it is somewhat ironic to ossify his and Guattari's vocabulary into industry terms. Turning a new stream onto Deleuze's career from the perspective of

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[100] Deleuze, "Five Propositions," 278/387.

the theory and practice of design might uncover new aspects of his philosophy, along with a perspective on how to "be Deleuzian"—with no regard for what he said but in terms, rather, of why he said it.

CHAPTER II

DELEUZE AND GUATTARI'S PLAN FOR POTTERY: FROM STRATIGRAPHY TO CERAMIC RUDIMENTS

Our discussion of *agencement* focused on one of Deleuze and Guattari's more widely quoted definitions of the term, a "tetravalent" model formed along two axes: on the one hand, it is the arrangement between the *plans* of content and expression, such that the same *agencement* can be described both in terms of content and in terms of expression; on the other hand, it is simultaneously a *plan* of organization, with adaptive, conservative processes of stability and reproduction, and a *plan* of consistency that opens the *agencement* up to avenues for drift, fault lines, and new points of departure. The concept's complexity, in addition to its lack of a direct equivalent in English, makes it difficult to translate.

In the last chapter, we found that we were better served by translating the ideas that motivate Deleuze and Guattari's word choice rather than translating the word itself. A frequent term in the tetravalent definition offers another cue for how to organize the ideas involved. If we want to understand *agencement* through design, we begin by noting that it is an *agencement* of *plans*. The concept of *plan* as such, apart from its associated terms (*plan d'organisation, plan d'immanence, etc.*), is largely uncharted territory, since the scholarship rarely discusses the term in isolation.[101] This chapter has two main tasks.

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[101] The extent and significance of *plan*'s omission varies. Bell's otherwise excellent guide to *What is Philosophy?* overlooks the term entirely, even though Deleuze and Guattari's book involves multiple *plans* as well as a discussion of the term in relation to their understanding of "concepts" (esp. *WP* 19). Cf. Jeffrey Bell, *Deleuze and Guattari's* What is Philosophy: *A Critical Introduction and Guide* (Edinburgh: Edinburgh University Press, 2016). Many commentaries mention the different senses of *plan* in French but

First, we will evaluate the concept of *plan* in our initial transition away from

agencement—the meaning and translation of *plan*, its role in Deleuze's work, and what it

inherits from some of Deleuze's noteworthy influences. The second main task of this

chapter will be to develop these problems and themes in the context of designed artifacts.

While I maintain that any design ought to meet our criteria, our discussion will focus on

methods and concepts from the archaeological study of artifact types. An archaeological

lens will help demonstrate how design exhibits the different relevant meanings of the

word, *plan*, in several ways: the use of stratigraphy, frequency, and morphology to study

artifact type requires several different *plans*; the different senses of "function" at work in

artifact type—as use, as an index for fitness, as opposed to form, style, or ornament—also

prevent us from reducing artifact design to a single *plan*; lastly, the peculiar place of

"skeuomorphism" in archaeology will also paint design in a complex, stratified light.

PLAN AND ITS TRANSLATION

It does not share the level of scrutiny and commentators have fewer reservations

with it than with *agencement*, but *plan* offers its fair share of translation difficulties. The

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pay no further attention to the fact that Deleuze draws on so many of its senses in so many turns of phrase on so many occasions. See for example Mark Bonta and John Protevi, *Deleuze and Geophilosophy: A Guide and Glossary* (Edinburgh: Edinburgh University Press, 2006). Those writing on Deleuze's cinema books have more of an impetus to treat *plan* on its own, since *plan* (as "shot") is ubiquitous in those texts, but they make little or no effort to connect this sense of *plan* up with *plans* from elsewhere in Deleuze and Guattari's career(s). See for example Anna Powell's excellent reference to "mixed planes" in "The Daemons of Unplumbed Space: Mixing the Planes in *Hellboy*," in *Deleuze and Film*, eds. David Martin-Jones and William Brown (Edinburgh: Edinburgh University Press, 2012), 173-191. Also see Ronald Bogue's careful and thorough definition of *plan* in *Deleuze on Cinema* (New York: Routledge, 2003), 44f. Felicity Colman is among the few, writing on cinema, who faintly indicates a broader cross-textual reading of *plan,* or rather, she appears to assume such a reading exists and likely does not pursue it further since it would be beyond the scope of her project. After noting *plan*'s place in *Cinema 1* and *2*, Colman refers to Deleuze's larger career and notes that, "[i]n philosophical terms, Deleuze describes the plan in terms of its affective organizational (and political) terms of the planes of immanence and transcendence" (45). *Deleuze and Cinema: The Film Concepts* (New York: Berg, 2011).

situation is deceptive, since the word has an English twin. In French, *plan* can mean, e.g., a plan of action intended to realize a goal, a program or project. It also refers to a layout or blueprint: in building a house, there is the electrical plan, the site plan, and so on. Unlike its twin, however, the French can also mean "plane," as in geometry; it is furthermore the word for a "shot" in cinematography: a long take [*plan-séquence*], close-up [*gros plan*], an establishing shot [*plan d'ensemble*], *etc.* Finally, it means a level of consideration: discussing a situation *sur le plan économique* means considering it "in economic terms" or "at the level of the economy."

Thus, *plan* resists translation despite its resemblance to the English, "plan." Some, like Massumi, attempt to sustain the word's ambiguity by letting context dictate whether to translate it as plan, plane, or as plan(e). The current standard in the scholarship is to consistently render it as "plane," except when discussing Deleuze's later work on cinema, where it is often translated as "shot." The translators of the cinema books had their work cut out for them, and it is especially in the context of those books that *plan* resists any clean translation.[102] Take for example a *plan d'ensemble,* an establishing shot—before transitioning to a scene of dialogue, the camera pans to a shot of a hospital, establishing the scene's place in the world and in the film. So far, so good. But both *plan* and *ensemble* feature as technical concepts in *Cinema 1: L'image-mouvement*. A careful translator is left with two bad options: she can render *plan d'ensemble* as "establishing shot," preserving the cinematic definition but obscuring ties to both *plan* and *ensemble*;

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[102] In their introduction, Hugh Tomlinson and Barbara Habberjam write: "The French word for 'shot' is '*plan*,' which also means 'plane.' Deleuze occasionally plays on the two senses of the French word and we have sometimes translated it as 'plane.' The two senses of the word should be borne in mind whenever the word 'shot,' in any of its many variants, appears in the translation" in Gilles Deleuze, *Cinema 1: The Movement-Image*, trans. Hugh Tomlinson and Barbara Habberjam (London: Athlone Press, 1986), xii.

or else she can opt for something like "plane of the whole," signaling the technical value of the term's individual components but forfeiting any cinematic connotation.

Even if we bracket, as most do, the question of whether and how to reconcile the use of *plan* in Deleuze and Guattari's jointly written texts with Deleuze's cinema books, the famous opposition between the *plan de consistance* and the *plan d'organisation* is no simpler. Massumi opts for "plan(e)" whenever it seems that Deleuze and Guattari intend both "plan" and "plane," as he believes to be the case with *plan d'organisation*.[103] This helps preserve some of *plan*'s complicated character, but problems arise even for Massumi's careful approach. For instance, Deleuze and Guattari claim that *plan de consistance* has roots in both linguistic and geological stratification, and *plan d'organisation* is unmistakably borrowed from the writings of French naturalists Georges Cuvier and Étienne Geoffroy Saint-Hilaire. "Plan(e)" faithfully renders aspects of the original French but might elide any geological, linguistic, or biological connotation. In biology, *plan d'organisation* is typically translated as 'body-plan" or "Bauplan."[104] Different phyla are distinguished by the basic patterns of morphological features: the number of limbs and segments, lines and patterns of symmetry, the nervous system and skeletal structure, etc.

In *plan* the translator finds a tangle of possible definitions, drawing on both historical and technical references. Translators have tried splitting the French into "plan," "plane," and "shot," depending on the context, but this might cover over the connections

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[103] Deleuze, *ATP*, xvii.

[104] I have chosen to keep body-plan hyphenated in order to emphasize it as a potential translation for *plan d'organisation*.

between *plan*'s different uses which the author might have intended. Even clever typography (such as "plan(e)") is hard-pressed to suggest every relevant meaning to the reader: as project, layout, surface, register or level of consideration, and as cinematographic shot or take. Rather than choosing between these in order to translate the word, we will treat the word specifically regarding how it appears in Deleuze's work.

DELEUZE AND GUATTARI'S *PLANS*

In order to prepare our approach to design, I will catalog some of the significant instances of *plan* in the work of Deleuze and Guattari. Part of our difficulty in understanding *agencement* in the last chapter was its ambiguous reference; if the word is often translated as "arrangement," "set-up," or "layout," what is it that is arranged, set up or laid out? In other words, what is the term or object of an *agencement*? The tetravalent definition is evidence that, whatever an *agencement* is, it is an *agencement* of *plans*: the *plans* of content, expression, organization, and consistency. Our inquiry of course requires a discussion of each of these *plans,* but ideally their comparison will suggest what they have in common, what might have motivated Deleuze and Guattari to put things in terms of *plan* so often and so consistently. Along the way, we will note concepts of *plan* from some of their forerunners.

CONTENT AND EXPRESSION

Our earlier discussion of *agencement* centered around a popular definition from *A Thousand Plateaus* with a "tetravalent" format: two axes each divided into pairs of *plans*. The first axis comprises two *plans,* "one of content, the other of expression": according to the first *plan*, we have an *agencement* "of bodies, of actions and passions, an

intermingling of bodies reacting to one another"; according to the second, it is one of "acts and statements, of incorporeal transformations attributed to bodies."[105] While the terms themselves come from the linguistic framework of Louis Hjelmslev, the relationship and opposition between content and expression, or bodies and statements, should remind the reader of earlier and later formulations in Deleuze's career, where he treats this opposition first in his work on sense and then in the context of discussing Michel Foucault.

How are we able to attribute words to things? Deleuze's development in *The Logic of Sense* begins with a dichotomy borrowed from the Stoic tradition of logic, between bodies and mixtures of bodies on the one hand, and incorporeal events on the other. Like Hjelmslev, Deleuze is after the "essential relation" which makes language possible, which grounds the possibility of attributing words to things in the sign function.[106] Sense is the privileged domain of his inquiry. Rather than denoting an "external" thing or state of affairs, manifesting the motivations and assumptions on the part of the speaker, or signifying conceptual conditions and consequences, sense is that which is expressed in the statement.[107] For Hjelmslev, sense or purport was an unformed matter that only "exists" as the formed substance of content or expression. Deleuze's sense similarly lacks any "independent" existence, as it "does not exist outside its expression."[108]

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[105] Deleuze, *ATP,* 88/112.

[106] Deleuze, *LS,* 12/22.

[107] For discussion of denotation, manifestation, and signification, see *Ibid.,* 12-4/22-4.

[108] *Ibid.,* 21/33.

Deleuze's title suggests the aim of his project: it concerns the logic of sense, understood as a sort of "non-existent entity."[109] An alternative approach to language and logic might focus on syntactic structure, the relationship between words and words, or semantic structure, the relationship between words and what they mean. A logic of sense, however, concerns among other things the relationship between different ways of expressing the same meaning, or different possible meanings for the same expression. I can define a term's meaning with other terms, but the *sense* of my use of the term does not exist as a distinct linguistic entity but inheres in the place and context of my use. A logic of sense might require us to ask how sense is decided, negotiated, applied, how it changes and how it persists. When told that someone or something "looks green," I understand that there are several senses of this word. But by what right do I apply one and not another of these senses? What in the word accounts for the continuity or contiguity of its different senses? The "green" of "looking green" might imply sickness, inexperience, ecological sustainability, overall coloration, or financial benefit. Deleuze is concerned with how certain senses of a word corresponds to certain aspects of a thing, that is, how sense is selected and communicated. "Green" is among Deleuze's own examples. The sense of green wholly belongs neither on the side of a proposition nor on the side of the designated state of affairs; it is "not a quality in the thing, but an attribute that is said of the thing," an attribute that cannot "exist outside of the proposition."[110] The sense of green is not reducible to denotation, nor to manifestation, nor to signification, and neither is it "in the thing itself," on the order of bodies and bodily mixtures. Sense

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[109] *Ibid.,* xiii.

[110] *Ibid.*, 21/33.

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resides *between* bodies and words; it belongs to neither and exists nowhere but in its

expression, which relates one series to the other. Despite its mediating role, sense does

not prevent the *plans* of things and events, bodies and statements—content and

expression—from remaining incommensurable or heterogeneous.

  Turning to a later chapter in Deleuze's career, in the part of his 1986 book on

Michel Foucault devoted to "stratification," Deleuze reads his subject through

Hjelmslev's stratified terminology.[111] We find Foucault depicted as a theorist of

stratification, of strata "made from things and words, from seeing and speaking, from the

visible and the sayable […] from contents and expressions."[112] Furthermore, content and

expression each have both form and substance: prison as a form of content with prisoners

for its substance; delinquency an expressive substance that takes form in the penal law.

His comments on Foucault's stratification reveal an important aspect of the part *plan*

plays in Deleuze's approach—he notes two basic aspects of Foucault's stratified *plans*:

first, each stratum "implies a distribution of the visible and the sayable which acts upon

itself"; second, "from one stratum to the next there is a variation in distribution, because

visibility itself changes in style, while the statements themselves change their regime."[113]

We will eventually have the resources necessary to refer these two aspects to two distinct

"problems of consistency." For the moment, what matters is the fact that these *plans* are

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[111] Gilles Deleuze, *Foucault*, trans. Sean Hand, with foreword by Paul Bové (Minneapolis: University of Minnesota Press, 1988), 47-69. Gilles Deleuze, *Foucault* (Paris: Minuit, 1986), 55-75.

[112] *Ibid.,* 47/55.

[113] *Ibid.*, 48/56.

heterogeneous but *bisociated*, to borrow Arthur Koestler's term.[114]

NOTE 1: LOUIS HJELMSLEV[115]

Among Deleuze and Guattari's many *plans*, content and expression present the most obvious historical reference, to the work of Danish linguist, Louis Hjelmslev. I will dwell on the details of Hjelmslev's project, since his use of *plans* and the reasons for which his work was innovative will help us understand Deleuze's *plans* and Deleuze's innovation. Hjelmslev was not the first to describe language in terms of heterogeneous *plans*; in many ways, he interpreted his own work as an extension of Ferdinand de Saussure's research, and content and expression in many ways stand in for Saussure's *signifié* and *signifiant*, respectively. And like other Saussure-inspired linguists of the day, he sought out in his *Prolegomena to a Theory of Language* to furnish linguistics with its proper object of study and found it as a science. It is true, Hjelmslev notes, that his peers were very motivated to study language, but language remained a "means to a

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[114] Koestler's bisociation describes when a situation or idea, *L*, is perceived in "two self-consistent but habitually incompatible frames of reference, M_1 and M_2. The event *L*, in which the two intersect, is made to vibrate simultaneously on two different wavelengths, as it were." He claims to have coined the term "in order to make a distinction between the routine skills of thinking on a single 'plane,' as it were, and the creative act, which [...] always operates on more than one plane." Arthur Koestler, *The Act of Creation* (London: Hutchinson & Company, 1964), 35-36.
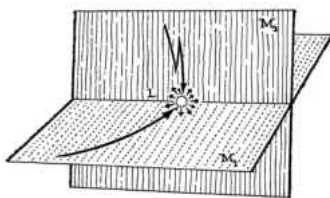
FIGURE 2

[115] I have included four brief notes on Louis Hjelmslev, Jakob von Uexküll, Georges Cuvier, and G. W. Leibniz in order to complement and contextualize some of the ideas we encounter in Deleuze's own texts. Naturally there are other influences and references at work in his and Guattari's use of *plan,* but these authors are the most relevant for explaining distinct aspects of the term.

transcendent knowledge […] not the goal of an immanent knowledge."[116] It was widely believed that language held the "key to the system of human thought," to the profile of society, to the "distant vicissitudes of bygone generations"—even if these beliefs are true, Hjelmslev worries at the fact that so rarely is language studied on its own terms.[117] Glossematics begins with the idea that

> physical, physiological, psychological, and logical phenomena *per se* are not language itself, but only disconnected, external facets of it, selected as objects of study, not for language's sake, but for the sake of the phenomena towards which language is oriented. The same holds true when language is further considered, on the basis of these descriptions, as a key to the understanding of social conditions and to the reconstruction of prehistoric relations among peoples and nations. This is not said to minimize the value of all these points of view and all these efforts, but to point out a danger: the danger that in our zealous haste towards the goal of our knowledge we may overlook the means of knowledge—language itself.[118]

Despite his obvious debt to Saussure's framework, Hjelmslev's discrepancies follow from his ambition for an immanent[119] study of language, an ambition which is crucial for understanding Guattari's enthusiasm for Hjelmslev's work. To begin with, language cannot be defined as a system of signs; sign systems will only do for so-called transcendent approaches to language that interpret it as a means for other kinds of knowledge. Since a "sign" is traditionally understood as a sign of something for someone, defining language as a sign system can only concern "the external functions of a language, its relation to the non-linguistic factors that surround it, but not its proper,

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[116] Hjelmslev, *Prolegomena,* 6.

[117] *Ibidem.*

[118] *Ibidem*

[119] Hjelmslev will sometimes say "empirical" or "inductive."

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internal functions."[120] At the very least, the relations between signs will not be enough to understand how language operates *qua* language. Naturally, such an approach works well if we look to language for the logical grammar reflected in a tribe's kinship structures, or the historical changes in psychic disposition marked by shifts in vocabulary. When it comes to language itself, Hjelmslev points out that the analysis of "all hitherto observed languages" will fumble entities that "can no longer be said to be bearers of meaning" and thus do not qualify as signs, and yet which are not incidental to the structure and use of language.[121]

Hjelmslev asks us to consider the example, from English, "activates." If we really want to treat English as a system of signs, then it "will be of interest to try to carry out the analysis as far as possible."[122] Thus we break up this single word and discover that it is composed of five distinct signs, that is, "five distinguishable entities which each bear meaning": in-act-iv-ate-s.[123] But just because a phoneme or syllable can qualify as a sign, so understood, does not mean that all phonemes and syllables are or can be signs. Hjelmslev thus arrives at two different views of the same linguistic phenomenon:

> From one point of view the *s* in *in-act-iv-ate-s* is a sign-expression, from another point of view a phoneme. The two points of view lead to the recognition of two different objects. We can [admit] that the sign-expression *s* includes one, and only one, phoneme, but this is not the same as identifying the sign-expression with that phoneme; the phoneme enters into other combinations where it is not a sign-expression (*e.g.* in the word

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[120] *Ibid*., 44.

[121] *Ibid*., 41.

[122] *Ibid*., 40.

[123] *Ibidem*.

sell). […] [W]e are led to recognize that a description in accordance with our principles must analyze content and expression separately.[124]

Thus, once he moves on from the idea of language as a sign-system, Hjelmslev is led to repurpose Saussure's two-*plan* schema. While Saussure may have had "an open eye for the two-sidedness of the linguistic sign," as split between signifier and signified, he almost exclusively considers the form of the signifier as characteristic of language.[125]

The most conspicuous contribution in the *Prolegomena* for our purposes is Hjelmslev's emphasis on what Bertha Siertsema calls "heteroplane functions." For all intents and purposes, the sign-system view of language puts signs all on the same *plan*, whereas Hjelmslev begins with the recognition of linguistic functions "between an entity in one plane and an entity on the opposite plane;" Siertsema continues, "To this relation de Saussure only pays attention in one respect, *viz*. for his well-known statement that the relation between 'signifié' and 'signifiant' is an arbitrary one. But he fails to see it as a *functional* relation."[126]

It is also notable that, in contrast to Saussure's famous claim that language is "a

[124] *Ibid*., 42.

[125] Bertha Siertsema, A Study of Glossematics: Critical Survey of its Fundamental Concepts (The Hague: Martinus Nijhoff, 1965), 15-6.

[126] *Ibid.,* 19. Siertsema adds that "functional" ought here to be "taken in the ordinary sense." She summarizes a key point in Uldall's presentation. He and Hjelmslev distinguish two types of units central to glossematic analysis: first, there are "intrinsic units, which are terminals of functions the other terminal of which belongs to the same stratum, and projected units, which are terminals of functions the other terminal of which belongs to another stratum"; they add that the difference between *plans* or strata makes it "clear that the different strata of a description do not necessarily all have the same number of effective operations" or functions (31). Louis Hjelmslev and H. J. Uldall, *Outline of Glossematics: A Study in the Methodology of the Humanities with Special Reference to Linguistics* (Copenhagen: Nordisk Sprog-og Kulturforlag, 1957).

form, not a substance,"[127] substance is still semiotically determined for Hjelmslev, and like the strata of content-form and expression-form, content-substance and expression-substance will be distinct and require distinct linguistic analyses. Recalling Guattari's ambition for a flexible, multi-semiotic analysis, we can see why he appreciated how much more comprehensive and complex Hjelmslev's stratified framework is.

Language has both form and substance, and substance, as one historian of structuralism puts it, "is the manifestation of form in matter."[128] The purport or unformed matter is formed as the substance of content or expression. Barthes claims that substance refers to "aspects of linguistic phenomena which cannot be described without resorting to extra-linguistic premises," which squares with Hjelmslev's and Uldall's description of expression- and content-substance via a series of examples that each "can be described from some non-linguistic point of view."[129] Barthes's definition is incomplete, though, unless we add that otherwise non-linguistic substance becomes linguistic, since the forms of a sign function require substance in order to be materially realized. Siertsema clarifies:

> Many substances will do for the "realization matérielle," but there are kinds of substances which will definitely not do, *viz*. every substance that would fail to show up the value of the units in question, which is to distinguish them from others. Water, for instance, would never do for

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[127] Ferdinand de Saussure, *Course in General Linguistics,* trans. Wade Baskin, ed. Perry Meisel and Haun Saussy (New York: Columbia University Press, 2011), 113.

[128] Oswald Ducrot and Tzvetan Todorov, *Dictionnaire encyclopédique des sciences du language* (Paris: Seuil, 1972), 38.

[129] Roland Barthes, *Elements of Semiology*, trans. Annette Lavers and Colin Smith (New York: Hill and Wang, 1967), 40. "The expression substance varies—it may be speech-sounds, which have been described both physiologically and physically, it may be writing of various kinds, dots and dashes, signal flags, buzzing noises, flashes of light, etc. [Content substance is] a sort of ethnic philosophy, a *Weltanschauung,* a "climate of opinion," a set of hypotheses or attitudes or beliefs about epistemology, ethics, economics, religion, manners, politics, geography, history, mathematics, the sciences, music, arts" (Hjelmslev and Uldall, 26).

chessmen. Language depends on substance in as much as its existence depends on the availability of a substance which is able to realize language [, one that] must not only be able to manifest *that* these units differ but also *how* they differ.[130]

In other words, non-linguistic phenomena become content-substance and expression substance by "virtue of the content-form and the expression-form, and only by virtue of them," as the result of "the form's being projected on to the purport, just as an open net casts its shadows down on an undivided surface."[131] On the one hand we have the unformed, "undivided" surface of substance itself. On the other hand, this substance is formed into different substances, sliced according to the respective form. In another context, Deleuze and Guattari will say: different *plans* are "slices" of an unformed chaos.

BETWEEN CONCEPTS AND CHAOS

While a full account of what Deleuze and Guattari mean by "concept" extends beyond the reach of our current project, a few of their remarks in *What is Philosophy* are noteworthy. In particular, we will consider the relationship between the concept of concept and that of *plans,* especially with the *plan* of immanence. Indeed, we are told elsewhere that a concrete *agencement* draws and is drawn by an "abstract machine"—the subject of our next chapter—and in this text concepts and *plans* are likened to the former and latter, respectively.[132] The components of a concept "populate" a *plan*, but the *plan* is not something given in advance; if a concept involves bodies from the *plan* of content,

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[130] Siertsema, 8.

[131] Hjelmslev, *Prolegomena,* 52.

[132] Deleuze and Guattari, *WP,* 36/39. "Concepts are concrete *agencements*, like the configurations of a machine, but the *plan* is the abstract machine of which these assemblages are the working parts."

for example, these bodies live on a *plan* with "no other regions than the tribes populating and moving around on it."[133] Deleuze and Guattari's best example here is the concept of the Other, or the Other Person. Like any concept, the Other involves several components: *e.g.*, a face, the possible world it implies. The components of a concept may themselves considered as concepts, such "that the Other Person has the face among its components, but the Face will itself be considered as concept with its own components."[134] The components of a concept are inseparable as components: "distinct, heterogeneous, and yet not separable."[135] Deleuze and Guattari call this the concept's "endoconsistency." Thus, "each concept will therefore be considered as the point of coincidence, condensation, or accumulation of its own components."[136]

There is good reason to understand *plan* and concept in this framework as relative terms, since the concept appears to functions as a *plan* for its components. Like the *plan* which extends only as far as the tribes that populate it, the concept "rises and falls" with its components.[137] *Plan* is described as a bridge between concepts, a function of the concept's "exoconsistency." The internal consistency of the concept means that the concept's components are inseparable despite their distinction: "the possible world does not exist outside the face that expresses it" in the concept of the Other Person, "although it is distinguished from it as expressed and expression"; "there is an area *ab* that belongs

[133] *WP,* 36-7/39.

[134] *WP,* 19/24.

[135] *Ibid.,* 19/25.

[136] *Ibid.,* 20/25.

[137] *Ibidem*.

to both *a* and *b*," such that *a* and *b* can hold together in the concept they comprise.[138] But the concept is also said to imply the "construction of a bridge" with other concepts "on the same *plan*."[139]

A relative understanding of *plan* and concept would hold that otherwise external concepts have internal consistency as components of a concept, since (1) conceptual components can be grasped as concepts in their own right but are (2) rendered consistent internal to the concept that composes them. We are also told that the *plan* of immanence is like a slice, a cut, or a "section of chaos and acts like a sieve"; chaos is undifferentiated, with nothing to connect different determinations, and a *plan* is a selective function that makes it possible to bridge one determination to the next.[140] Given its plastic character and its selective/bridging function, a *plan* has a relationship to concepts, in their exoconsistency, that is analogous to the concept's relationship with its components, in its endoconsistency.

The rest of *What is Philosophy* notwithstanding, this much we can surmise about the *plan* and the *plan* of immanence: it is something like a cross-section or filter that selects aspects of "chaos" and enables otherwise heterogeneous determinations or concepts to condense, coincide, and cooperate. This is, after all, why David Lapoujade says that the *plan* is what allows one to see: "the *plan* is first of all a transversal cut, section, or intersection. That it has strata confirms that *plans* are sectional views, just as

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[138] *Ibid.,* 19-20/25.

[139] *Ibid.,* 20/25.

[140] *Ibid.,* 42/44.

geological slices allow us to see the stacking of strata. How would strata be perceptible otherwise?"[141] The understanding of *plan* as a slice of chaos, one which allows one to perceive and to do, is not unique to Deleuze and Guattari; it is very possible that they had the idea on loan from Jakob von Uexküll, one of Deleuze's enduring references and influences.

NOTE 2: JAKOB VON UEXKÜLL

There is no disputing Jakob von Uexküll's impact on Deleuze's philosophy, if for no other reason than that Deleuze so often rehearses his example of the tick and the tick's world. Beyond that, one will find, particularly in Uexküll's *Theoretische Biologie,* extensive developments of many terms and concepts Deleuze and Guattari would later borrow or repurpose: territory, thresholds, internal and external melodies and rhythms, and so on. After having devoted much of the book to "single forays in different directions," to the question of how the worlds [*Umwelten*] of different organisms are constituted and navigated, Uexküll closes *A Foray into the Worlds of Animals and Humans* with a consideration of "the interrelations of environments."[142] To do this, he turns to a subject common to multiple environments, an "oak tree, which is populated by many animal subjects and is called upon to play a different role in each environment."[143] The forester, the small child, the fox, the squirrel, the beetle, the ant—each has a different *plan* or perspective onto the oak tree. Their perception of the tree and the tree's meaning

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[141] David Lapoujade, *Deleuze, les mouvements aberrants* (Paris: Les Éditions de Minuit, 2014), 182.

[142] Uexküll, *A Foray,* 126.

[143] *Ibidem*.

for them will change in accordance with their difference in what activity the tree affords them.

> In the hundred different environments of its inhabitants, the oak plays an ever-changing role as object, sometimes with some parts, sometimes with others. The same parts are alternatively large and small. Its wood is both hard and soft; it serves for attack and for defense. If one wanted to summarize all the different characteristics shown by the oak as an object, this would only give rise to chaos. Yet these are only parts of a subject that is solidly put together in itself, which carries and shelters all environments—one which is never known by all the subjects of these environments and never knowable for them.[144]

The oak tree is a chaos from which individual organisms—the beetle, the child, the oak tree itself—cut out pieces, or constitute different environments.[145] I believe that, in accordance with the brief schema we encountered above for Deleuze and Guattari's "concept," we can interpret this to mean that the chaos of the oak tree is sectioned by different *plans*: each is an *Umwelt* with internal consistency for its respective individual organism, and collectively the *Umwelten* are externally consistent since they express the same oak-tree-chaos, and since this belongs to an ultimate continuum of chaoses. Uexküll often describes the final configuration of *Umwelten,* vis à vis the solid chaos on which they all depend, as "The Plan of Nature." According to this reading, Nature's Plan is the *plan* of "external consistency," the continuity and consistency of all *Umwelten*.

Of course, such an interpretation runs counter to popular readings of Uexküll as an anti-Darwinian vitalist, according to which his reference to "plan" attributes a final

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[144] *Ibid*., 132.

[145] *Ibid.,* 130. See also Deleuze and Guattari's description of *plans* and *plans* of immanence in *What is Philosophy?* They claim there that the *plan* of immanence "is like a section of chaos and acts like a sieve" (42).

purpose for biological forms or an intended direction to biological development. While

there might be other evidence for Uexküll's teleology, but his reference to "nature's plan"

isn't to blame. His own sense of *plan* is more in line with the depiction of Uexküll

Deleuze offers us in his work on Spinoza: there, he presents Nature as a single affective

continuum, a *plan* of immanence whereby everything "is defined by the *agencements* of

motions and affects into which it enters, whether these *agencements* are artificial or

natural."[146] Deleuze registers Uexküll as part of a tradition that describes biological

phenomena according to "affects and capacities for affecting and being affected,"

predicated on such an affective continuum or *plan* of immanence.[147]

The mistaken interpretation of Uexküll's "Plan" is understandable given the

word's ambiguity. "Plan," as project or intended program, would lend it credence.

Uexküll repeatedly insists that we "consider the vital expressions of animals from the

point of view of the plan," the overall plan of nature.[148] Be that as it may, he goes to some

length in dissociating "plan" from "goal." In *Theoretical Biology*, the more rigorous and

detailed presentation of his thought, Uexküll complains that

> men have spoken of 'purpose' and 'purposefulness' in Nature; and this
> introduced the idea of Nature as a sort of human being, foreseeing future
> events and acting accordingly. But just where conformity with plan is
> easiest to detect, we can find no trace of any such human-like being.[149]

The situation is reversed. It is not that seemingly random biological developments

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[146] Gilles Deleuze, *Spinoza: Practical Philosophy*, trans. Robert Hurley (San Francisco: City Light Books, 1988), 124. Gilles Deleuze, *Spinoza: Philosophie pratique* (Paris: Minuit, 1981), 167. Henceforth *SPP*.

[147] *Ibidem*.

[148] von Uexküll, *A Foray,* 86.

[149] Jakob von Uexküll, *Theoretical Biology* (London: Kegan Paul, Trench, Trubner & Co., 1926), 270.

ultimately belong to nature's grand, preordained vision, but rather that even the explicitly

intentional acts and decisions of higher mammals have their place in the unity of nature's

non-intentional *plan*. For Uexküll, the activity of an individual organism expresses a plan

insofar as it belongs to a system; the interaction of functions or activities renders them as

parts of a whole, and thus conforms systematically to a larger arrangement or plan of

functions.[150] Perhaps Uexküll uses the word "plan" with regard to nature much in the

same way that other biologists discuss the "body-plans" of organisms.[151] In step with our

overall sketch of *plan*, he defines it as an indivisible whole that is both an abstract total

constituted by its members and the principle expressed in the laws and functions of its

"internal" relations. Uexküll writes:

> A plan, whether a spatial plan or a mechanical plan, always forms an
> indivisible whole. It can repeat itself in any number of objects and is
> largely independent of the volume of the object. Via its reign over the
> spatial or mechanical relations which it expresses, it is a self-contained
> unity totally blind to other plans, and neither influences them nor is it
> influenced by them.[152]

Although Uexküll defines plan in a general way, we can discern two sorts of

plan—*plan*—in his definition, and we will find each of these developed in Deleuze and

Guattari's philosophy as a *plan d'organisation* and a *plan de consistence,* or as the two

sides of design: *dessein* and *dessin.* If it is true that each individual plan is an "indivisible

whole" that reigns over a set of relations in a "self-contained unity" that is "totally blind

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[150] *Ibid*., 106.

[151] Evidenced by the fact that his *Theoretical Biology* is primarily dedicated to the problem of conformity with plan, and the significance of this idea for biological research. There the reader will find explicit mention of animal (body) plans. Given his insistence that "plan" has nothing to do with goals or purposes, the reference to body plans might inform our understanding of nature's plan.

[152] Jakob von Uexküll, "Plan und Induktion," in *Wilhelm Roux' Archiv für Entwicklungsmechanik der Organismen* 116 (1929), 37.

to other plans," such individual plans are in turn supposed to belong together in the ultimate "plan of nature." In one sense, then, they are hermetically sealed and mutually irreducible; in another sense, they *do* fit together and cooperate in another, different sort of *plan.*

DESSEIN AND DESSIN

Thus far we have seen that *plans*, such as those of content and expression, or bodies and statements, are heterogeneous, and that their *agencement* articulates their difference, distribution, and relationship. An *agencement* brings incommensurable *plans* into communication, and elsewhere we saw *plan*, in turn, defined as the bridge between incommensurable concepts or determinations; *plan* was a slice, a filter for distributing or selecting something out of chaos. Two *agencements* may involve their own *plans* of content, may be variable in their own way, but in *What is Philosophy* we can posit a *plan* of these *plans* of content, the variation of variability, or the continuum of all *plans* of content such that they form a *plan* of immanence for all *agencements.* This last point is perhaps clearer in view of other *plans* from Deleuze and Guattari's work: the *plan d'organisation*[153] and the *plan de consistance.*[154] We said that one of *plan*'s meanings, in French, was map or blueprint, and so we will consider the difference between Deleuze and Guattari's two *plans* through the example of a house. Our doubled house's two *plans* involve two different senses of "design" which correspond to the French *dessin* and *dessein*, and it will warrant a brief note on the debate between Étienne Geoffroy Saint-

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[153] As noted above, this is often translated as "plane of organization." Here it will remain in French or else be rendered as "body-plan."

[154] Henceforth "*plan* of consistency."

Hilaire and Georges Cuvier.

We first justified design for the design-connotations unmistakable in *agencement* but absent or markedly less prominent both in its translations (assemblage, arrangement) and in its competitors (*dispositif*). Second, we noted that in general Deleuze's vocabulary has connotations to design. To name a few: lines, marks, figures, *plans*, composition, rhythm, diagrams, images, refrains, style, dramatization, and "lines of flight."[155] As it stood, this evidence was only circumstantial; to demonstrate design's affinity for Deleuze, we need to be certain that it shares his concerns.

The word's history begins in writings on painting and architecture in the Italian Renaissance, as *disegno*, an ambidextrous term for both the project which the painter intends to realize in her painting and as "the part of the painting that is distinct from color," for example the lines, marks, shapes, ratios, or composition.[156] Design's forked meaning was preserved in its transmission into English, by the Earl of Shaftesbury, as "the unity of a project and a drawing," but it suffered a fracture on the way to French, where it split into *dessein* and *dessin*, "project" and "drawing," respectively.[157]

Do we not find a similar "split" in the concepts of *plan* and *agencement*? Our

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[155] *Ligne de fuite*, like most of Deleuze's terms, is tough to pin down, but the term has a non-philosophical association with painting and composition, as the horizon line of perspective drawing where things disappear or emerge. The horizon line suggests a beyond-the-painting within the painting, the "vanishing line" rather than English's "vanishing point." For a French electrician, insulation is necessary to maximize the length of possible leakage currents, to slow them down; this length is called the *ligne de fuite,* "creepage distance." Finally, it can be used to mean "escape route." With these non-philosophical uses in mind, the term is arguably less mysterious.

[156] Cf. Jacqueline Lichtenstein, "Disegno," in *Dictionary of Untranslatables: A Philosophical Lexicon,* ed. Barbara Cassin, trans. Steven Rendall, Christian Hubert, Jeffrey Mehlman, Nathanael Stein, and Michael Syrotinski. Translation ed. Emily Apter, Jacques Lezra, and Michael Wood (Princeton: Princeton University Press, 2004) 224-7.

[157] *Ibid.,* 224.

initial difficulty with *plan* was that it could refer to a program and/or a map, and that

Deleuze appears to call on both senses of the word—perhaps simultaneously, at times. If

we were to understand the concept of *plan* in isolation, it was crucial that we understand

the way Deleuze brought the word's valences together. Were we to understand *plan*

solely as geometric plane, we would miss the fact that an *agencement* combines both a

dessein, an intentional or normative *plan,* and an abstract *dessin* of its surface and

consistency.[158] In Chapter One we saw that some translators and commentators approved

of "assemblage" as a translation, however misguidedly, because they believed it to render

an important feature of *agencement* in French: the fact that it can be read both as an

activity or process and as the state of affairs which results from this process; it was

important for them that *agencement*'s translation handle both interpretations.

NOTE 3: CUVIER AND GEOFFROY

Plan d'organisation, or "body-plan," is a concept on loan from the history of

French naturalism and is central to a famous dispute between Georges Cuvier and

Étienne Geoffroy Sainte-Hilaire. "Plane of organization" can be a misleading translation,

in Deleuze and Guattari's work, because it gives the impression that it is a technical term

devised for the purposes of *Thousand Plateaus*. But as "body-plan" is a concept still used

among biologists, in addition to having a place in the history of comparative anatomy.[159]

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[158] N.B. This is how Deleuze and Guattari characterize the difference between the "body-plan" and the *plan* of composition in *A Thousand Plateaus*. The former, the *plan d'organisation*, is a *dessein*, the teleological perspective on or hidden principle of form and development: "*L'arbre est donné dans le germe, mais en function d'un plan qui n'est pas donné.*" The latter, a "wholly different *plan*, or a wholly different conception of *plan*," is an "abstract *dessin*" (*ATP,* 266-7/325-7).

[159] See, for example, a standard francophone textbook on evolutionary biology. Thierry Lefevre, Michel Raymond, Frédéric Thomas, *Biologie évolutive*, 2nd Édition (Paris : De Boeck Supérieur, 2016). The

Both Cuvier and Geoffroy were comparative anatomists interested in the diversity of biological structures; the question was whether and how ostensibly different forms of life could be made continuous. Cuvier had proposed four *embranchements* for the animal kingdom whose irreducibility precluded any possible continuity: Vertebrata, Articulata, Mollusca, and Radiata.[160] It is one thing to compare the anatomy of a crocodile and a rabbit—after all, they both have spines and a tetrapodal skeletal body-plan. But exceeding the bounds of an *embranchement* would exceed the bounds of comparative anatomy: there was no point, for Cuvier, in comparing crocodiles and crickets; their body-plans are simply too different.

Geoffroy was not content to remain within these bounds. He "could not believe that nature would follow entirely different designs to generate those that, ultimately, are none other than different species belonging to the one and only animal kingdom."[161] Thus, he was unwilling to accept that the structural differences separating the body-plans of different *embranchements* were insurmountable; there must be a single body-plan, a *plan d'organisation* uniting all animal composition. Cuvier was the first to recognize the continuity of forms within each *embranchement*. Such was the characteristic endeavor of comparative anatomy; within Vertebrata, we can pass easily from a rabbit's foot to a crocodile's, from a seal's flipper to a sparrow's wing: these are all "limbs" in the basic vertebrate body-plan. But how could Geoffroy claim to reconcile the endo-skeletal

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concept of body plan, or "*plan d'organisation*" comes up throughout, but see especially the chapters on typology (341-372), development (423-450), and constraints (491-512).

[160] See Cuvier's 1817 *Le Règne animal distribué d'après son organisation*. It is worth noting that Cuvier's four branches were distinguished on the basis of the nervous system's structure.

[161] Alessandro Minelli, *Forms of Becoming: The Evolutionary Biology of Development*, trans. Mark Epstein (Princeton: Princeton University Press, 2009), 6.

structure of vertebrate organisms with the exoskeletons of the Articulata?

Simple: he proposed that we look at Articulata's body-plan as that of Vertebrata, folded inside-out: they share the same basic longitudinal nervous system, with the exception that what is dorsal in the vertebrate (the spinal cord) is ventral in the insect (the gangliar chain).[162] Some of his students proposed a similar folding operation in the comparison of cephalopods (as Mollusca) and human beings (as Vertebrata):

> The squid […] has neither a skull nor a spinal column, but only a very thin internal shell. And the general arrangement of the internal organs in the two animals is also different, because in the squid, as in other cephalopods, the digestive tube, which is relatively short, is folded into a *U* shape, the anal opening relatively close to the mouth. But it is precisely this arrangement of the organs that particularly concerned [Meyranx and Laurencet, Geoffroy's students], by showing that the "simple" bending of the main body axis of a vertebrate, folding the animal in on itself, greatly reduced the difference between he structural design of cephalopods and that of vertebrates.[163]

Although Geoffroy and Cuvier share terminology, their dispositions belie different understandings of *plan*. Cuvier's body-plans are forms of resemblance between concrete anatomical structures, forms that dictate the parts and part relations that categorize animal skeletons, for example. Geoffroy's *plan* is more abstract; instead of parts and part relations, it maps the forces and movements necessary to explain the differences separating actual animal forms. As it were, Cuvier's *plan* represents the condition for possible description—the criteria an organism must meet before we can call it a vertebrate or a mollusk—while Geoffroy's describes the condition for actual existence—what conditions must be like in order for "mollusks" and "vertebrates" to be

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[162] See *Ibid.*, 6-7.

[163] *Ibid*., 8.

possible at all.

TWO HOUSES IN ONE

The *plan d'organisation* of a house might be understood as "form," in the sense of this term that most frequently comes under scrutiny: not form as it appears, but form as ideal, as the standard against which apparent forms are judged and interpreted. Deleuze explains that this *plan* concerns both form and development, that it is both "structural and genetic."[164] It is not the *plan* of the house that we see, but the one that "explains" what we see, the hidden principle behind the house's structure and development, its function and use. Because this principle is not "given for itself but must always be concluded, inferred, induced on the basis of what it organizes," Deleuze also calls it a *plan* of transcendence," that is, "a *dessein*, in the mind of man or in the mind of God."[165] We step into the house and recognize it as a house, with everything that entails. Just as a William Paley might presume a designer responsible for his watch's design, we attribute intention and purpose to the house. From the perspective of its *plan d'organisation*: we know that these are windows; we know the purpose of windows and can infer the intent behind these in particular; we know how the house was built or how it arrived at its current state, by its submission to harsh weather or via the renovation efforts of its previous tenants; the house is divided into "rooms," and we know them to be intended as "bedrooms," a "kitchen," a "bathroom," and so on. To recall our discussion of Louis Hjelmslev, the *plan*

[164] Gilles Deleuze and Claire Parnet, *Dialogues*, trans. Hugh Tomlinson and Barbara Habberjam (New York: Columbia University Press, 1987), 91.

[165] *Ibidem*.

d'organisation concerns "form and substance,"[166] the stratification of pure unformed matter.

The house's pure matter, on the other hand, belongs to its *plan* of consistency. We approach this same house with no supplement from the *plan d'organisation*, without anything that transcends this house "itself," with no regard for purposes, intentions, history, or construction. We do not know that it is a house; we do not know about windows or rooms or renovations. This perspective is from a *plan* of immanence rather than transcendence. According to the *plan d'organisation,* the house might not live up to the architect's intentions. In other words, the architect and her *dessein* transcend, are in a way external to the house as actually constructed. Approached from the immanent *plan* of consistency, though, the house "is what it is"; it is "this" house, and it only extends as far as it does, from "here" to "there"; it has a certain consistency that holds it together, such that its different parts all *feel* like "a home" or "a prison."

The use of indexicals and demonstratives (it, this, here, there) as well as indefinite articles (a home, a prison) is instructive for understanding the second *plan* because Deleuze so often describes it in terms of what he calls "haecceity."[167] If *plans* operate, as we said before, by selection and distribution, then the *plan* of transcendence does so from

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[166] Deleuze and Guattari, *ATP,* 507/632.

[167] This is one of John Duns Scotus' terms for individuating difference. The difference between *this* and *not-this* is among what he calls "ultimate differences," which are simple irreducible differentials for determining concepts [*conceptus simpliciter simplices*]. It may be clear why genus and species fail to qualify as simple concepts, since "man" is the determinable concept "animal," determined by its being "rational." But *haecceity*, or individuating difference, demonstrates why the individual or singular is not an ultimate determination, as well. The "this" in "*this* man" determines the determinable "man." For Duns Scotus' account of the principle of individuation, see his *Ordinatio*, Book II, Distinction III, Part 1, Questions 1-6; Question 2 in particular.

the outside, while the *plan* of consistency is one of immanence because it "possesses no dimension supplementary to what occurs on it; its dimensions grow or decrease with what occurs on it."[168] The house's haecceity extends as far as it does; "this house" has as many rooms as it has, even if I build additional rooms. We could describe this as the sketch or *dessin* of its affects and intensities rather than a *dessein* of its structure and development. To say that it is "a" home or "a" prison indicates a degree of homeness or a prisonness. A home or a prison cohere in such a way that they render certain activities, affects, and elements consistent. Billy Dean and a lawnmower, as haecceities, have different consistencies and behave differently: whatever these two things are, pushing on them or filling them with gasoline will yield different results.

The house's *plan d'organisation* concerns its structure and genesis, its purpose and construction. The *plan* of its consistency, on the other hand, presents us with the unformed substance that consolidates or holds together the house's heterogeneous elements, the relations of haecceities and their "corresponding intensive affects."[169] To invoke more of Deleuze and Guattari's jargon, we can understand these *plans* of the house as its "ecumenon" and "planomenon," respectively. These terms are perhaps not as obscure as they appear. It is first noteworthy that the house is split into ecumenon and planomenon much as Kant divided things into noumena and phenomena: the same thing can be considered both as it is in itself (noumenon) and as it appears (phenomenon). Second, a look at these terms' Greek roots goes a long way toward their definitions and their relationship to the *plans d'organisation* and *de consistance*. *Œcoumène,* outside

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168 Deleuze and Parnet, 93.

169 Deleuze and Guattari, *ATP,* 507/632.

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Deleuze and Guattari, means the inhabited or inhabitable world, and comes from the Greek οἰκουμένος: it is the world as structured, inhabited, or developed. *Planomène* is a neologism, but a few of Deleuze's comments on planets and planetary movement are helpful. In Deleuze's review of his book, he praises Kostas Axelos' "planetary thought," and decades later the "aberrant movement" of the planets will play a special role in *Cinema 2*.[170] Both series of remarks come back to the Greek basis for "planet," πλανάω, which means to wander, or stray. Rather than as intelligible, inhabited space, we might see the earth as a planet: regarding its actual position in space, it has no top and bottom, and drifts along with no concern for how it is interpreted or carved up. On the *plan d'organisation*, we have the house as ecumenon, as inhabited, inhabitable, and intelligible. On the *plan* of its consistency, we have the house as planomenon, as a wandering, lawless haecceity that is only as large as it is.

NOTE 4: LEIBNIZ

Imagine a city. You could think of it from at least two sorts of "perspective," corresponding to two sorts of city *plans*. G. W. Leibniz offers this example on several occasions to account for how the concept of an individual substance can have infinite comprehension, or how a monad's relations can express the entire universe, without collapsing the multiplicity of substances into Many or One.[171] First, there is the city

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[170] See Gilles Deleuze, "How Jarry's Pataphysics Opened the Way for Phenomenology," *DI*, 75. Aberrant movement is the privileged term in David Lapoujade's reading. See David Lapoujade, *Deleuze, les mouvements aberrants* (Paris: Les Éditions de Minuit, 2014).

[171] In addition to §57 of *The Monadology* (cited below), cf. §9 of *The Discourse on Metaphysics*, as well as Leibniz's letter to Des Bosses dated February 15, 1712 (cited below).

"looked down upon from the top of a great tower placed upright in its midst"; second, there are the "almost infinite horizontal perspectives with which it delights the eyes of travelers who approach it from one direction or another."[172] The city appears in two ways; "the difference between the appearance of bodies with respect to us and their appearance with respect to God is in some way like the difference between a drawing in perspective [*scenographium*] and a ground plan [*ichnographium*]."[173] A beetle, a falcon, and I all have different perspectives of the city, and in a way our *drawings* depict many different cities, even though they all express one and the same ground plan; God's *plan* of the city is of the city "itself," as well as all possible perspectives of it.

Leibniz recalls these views of the city, the difference and relationship between *plans*, for the sake of explaining what he means by "expression," a high capacity concept in Leibniz's metaphysics but one criticized for its ambiguity. He specifies that "one thing expresses another […] when there is a constant and regular relation between what can be said about one and about the other. It is in this way that a projection in perspective expresses a geometric figure."[174] Like other philosophical uses of *plan,* such as what we found in Hjelmslev, the expressive relationship between perspective and a geometric figure is one of mutual presupposition and interdependence. The reason for this is not immediately clear, for while a perspective seems to imply something of which it is the

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[172] Gottfried Wilhelm Leibniz, *Philosophical Papers and Letters,* trans., ed. Leroy E. Loemker (Boston: Kluwer, 1989), 142.

[173] Leibniz, "Leibniz to Des Bosses: February 15, 1712," in *The Leibniz-Des Bosses Correspondence,* trans., ed. Brandon C. Look and Donald Rutherford (New Haven: Yale University Press, 2007), 233. Maurice Merleau-Ponty translates Leibniz's "scenograph" and "ichnograph" into *perspective* and *géométral*, respectively. See his *Phénoménologie de la perception* (Paris: Gallimard, 1945), 81.

[174] From a letter to Arnauld on October 9, 1687. As quoted in Leibniz, *Philosophical Papers and Letters,* 339.

perspective, can we not think of something apart from any perspective? In what way does the latter presuppose or depend upon perspectives of it?

We find our answer in what Leibniz does with the concept of expression, with another rehearsal of the city and its *plans*, in his *Monadology.* Leibniz writes:

> The same town, when looked at from different places, appears quite different and is, as it were, multiplied *in perspectives*. In the same way it happens that, because of the infinite multitude of simple substances, there are just as many different universes, which are nevertheless merely perspectives of a single universe according to the different points of view of each monad.[175]

In other words, Leibniz will say that each simple substance, i.e. monad, expresses every other monad, as a "perpetual living mirror of the universe."[176] Whether the world is intelligible apart from any perspective will depend on how we understand perspectivism; following Deleuze's interpretation of Leibniz makes it easier to discern in what sense a geometric figure—the expressed—presupposes or depends upon its projection in perspective—its expression. When Deleuze ascribes to Leibniz a kind of perspectivism, he is careful to specify that this "does not mean a dependence in respect to a pregiven or defined subject," but that the subject "will be what comes to the point of view, or rather what remains in the point of view."[177]

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[175] *Leibniz's* Monadology: *A New Translation and Guide*, trans. Lloyd Strickland (Edinburgh: Edinburgh University Press, 2014), §57.

[176] *Ibidem*. §56.

[177] Gilles Deleuze, *The Fold: Leibniz and the Baroque*, trans. Tom Conley (London: Athlone Press, 1993), 19. Gilles Deleuze, *Le Pli: Leibniz et le Baroque* (Paris: Minuit, 1988), 27. Henceforth *FLB.* As this project proceeds, it will not bother me that my treatment of design—and of affordance, in particular—appears to nudge Deleuze closer to a traditional theory of form; our caveat is that we ought to reevaluate "form" and its conventional relationship with "essence." This project does not find the opportunity to develop this point fully, but a place to start rethinking essence and form comes to us from Deleuze's *Nietzsche and Philosophy*. As with Leibniz, it requires us to think about perspective. Deleuze does not reject essence but rather recasts it; rather than defining essence in terms of the question "What is…?" he reformulates it

If Jon and I, as different monads, perceive the same house from different perspectives, we express the house differently according to our respective distances and relations. "Perspective" here is less a function of our subjective identity than it is of these distances and relations, mapped out and harmonized in advance by God. The existence of the world already implies an infinity of possible horizontal perspectives, and although the world enjoys an "antecedence to monads," it depends on them in that it does not "exist outside of the monads that express it."[178]

THE MEANING OF *PLAN*

Generally considered, *plan* can be translated as program, layout or blueprint, and as plane or level of consideration, among other things. Thus far in our overview we have encountered philosophically motivated uses of the word, and this will help us render it in a way consistent with its place in defining Deleuze and Guattari's concept of *agencement*. First (1.1), in the context of Louis Hjelmslev's distinction between content and

according to "Which…?" questions. This leads Deleuze to claim that "essence is merely the sense and value of the thing" (77/87). He explains: "The question 'what is it?' is a way of establishing a sense seen from another point of view. Essence, being, is a perspectival reality and presupposes a plurality [of senses or perspectives]. When we ask what beauty is, we ask from what standpoint things appear beautiful" (*Ibidem*). Elsewhere, Nietzsche says (through Deleuze), that the value of values and the meaning of sense derive from a perspective, from "perspectives of appraisal [*points de vue d'appréciation*]" (1/1). Gilles Deleuze, *Nietzsche and Philosophy,* trans. Hugh Tomlinson (London: Athlone Press, 1983). Gilles Deleuze, *Nietzsche et la philosophie* (Paris: Presses Universitaires de France, 1962).

[178] *Ibid.,* 60/81. On the ontologically status of perspective as a "real" part of things themselves, see Zizek's reference to parallax. "The common definition of parallax is: the apparent displacement of an object (the shift of its position against a background), caused by a change in observational position that provides a new line of sight. The philosophical twist to be added, of course, is that the observed difference is not simply 'subjective,' due to the fact that the same object which exists 'out there' is seen from two different stations, or points of view. It is rather that, as Hegel would have put it, subject and object are inherently 'mediated,' so that an 'epistemological' shift in the subject's point of view always reflects an 'ontological' shift in the object itself. […] as if the building, in its very material existence, bears the imprint of different and mutually exclusive perspectives" (255). Slavoj Zizek, "The Architectural Parallax," in *The Political Unconscious of Architecture: Re-opening Jameson's Narrative,* ed. Nadir Lahiji (Burlington: Ashgate, 2011), 255-94.

expression, a *plan* names a "series" of forms/substances—"series," to recall that the same

unformed substance is doubled, formed in the *plans* of content and expression, in the

same way as Deleuze describes sense doubled in the "series" of bodies and statements in

The Logic of Sense. Consulting *What is Philosophy* (1.2) led us to think of *plan* as a

"slice of chaos" which bridges heterogeneous concepts and endows them with a so-called

"exoconsistency."

From there, there were several ways to express two basic understandings of the

term: *plan* as map or strategy, and *plan* as continuum. In a bit of foreshadowing, these

correspond to the two sides of the word, design: *dessein* and *dessin*, respectively (1.3).

On the one hand, following Georges Cuvier, a *plan* transcends the logical relationships it

traces. The Vertebrata is a body-plan that entails a constant relation between its parts, a

certain organization strategy; the variation in vertebrate strategies is the effect of the

difference in their functions and purposes. In this view, the vertebrate's anatomy is

grounded in something else; the body-plan reflects its *conditions d'existence*, which are

non-anatomical—and this it is a "*plan* of transcendence." On the other hand, if we follow

Geoffroy Saint-Hilaire, we posit a morphological continuum which unites allegedly

irreducible body-plans, a *plan* of composition that describes form alone, immanently, and

which is irreducible to an external consideration of *conditions d'existence*. Uexküll gave

a similar account of "nature's plan," as the chaos which is "solid enough" to support the

perspectives or *Umwelten* of different organisms, the "affective continuum"[179] which

allowed *Umwelten* to correspond and "fit" together.

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[179] As noted above, Deleuze attributes this phrase to Uexküll's view. *SPP* 124/167.

PLAN AS PERSPECTIVE

Given what we've seen from Leibniz and von Uexküll, our first candidate for how to understand *plan* is as perspective, so long as we do not mischaracterize perspective as merely "subjective." If we are to attribute something like "perspectivism" to Deleuze's work, we ought to carefully repeat his similar remarks on Leibniz. If we hear that someone's philosophy privileges the concept of perspective, this might mean one of several things, and could suggest a conventional sort of relativism that renders impossible any "objective" account of reality, since nothing can occur outside of some perspective. We could interpret perspective to mean the point of view of an individual, the perspective of a so-called "subject position," or the vantage afforded by a particular time and place.[180] I intend something else with perspectivism and encourage the reader to think of "perspective" in a sense primary to the above. It is not simply "what varies with the subject," but the real condition according to which the subject remains in variation.[181] The subject's relationship to perspective indeed entails a sort of relativism, but "not the relativism we take for granted. It is not a variation of truth according to the subject, but the condition in which the truth of a variation appears to the subject."[182]

François Zourabichvili and David Lapoujade, among Deleuze's best readers, have

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[180] For example, respectively: from Jon's perspective, from the perspective of a black woman, this photograph shows the perspective view of the house's entrance.

[181] Deleuze, *FLB,* 20/27.

[182] *Ibidem.* One can discern Deleuze's distinction in the difference between "This is true from my perspective" and "It is true that this is my perspective." The first statement lends itself well to the idea that truth is "relative," i.e. the relativism according to which *nothing* is true since something is true only relative to one's perspective. The second statement concerns the truth *of* perspective, i.e. the recognition that perspective is an important dimension of the truth and how it appears.

both characterized his work under the rubric of perspective. Zourabichvili appeals to a sense of perspective that we are in a better position to understand now that we have come to think of *plans* as heterogeneous *qua* irreducible. Zourabichvili writes:

> [T]he relative exteriority of the represented world—not only of things exterior in relation to a subject, but the respective exteriority of things amongst themselves—is overcome in the direction of a more profound, absolute exteriority: a pure heterogeneity of *plans* or of perspectives.[183]

The references to homogeneity and heterogeneity should be carefully parsed. A homogeneous subjective position subordinates the heterogeneity of bodies, postures, and aptitudes, such that the external world, no matter how variegated, is united in being relative to a point of view. At this level of the analysis, it suffices to understand heterogeneity as "diversity" rather than more thoroughgoing difference in kind. Without going any further, perspective would appear to be a determination of the subject, relegated to what Zourabichvili calls here "relative exteriority." However, Deleuze warned against understanding "perspective" as synonymous to "the subject," if one wants to grasp the meaning of Leibniz's perspectivism, for example. Zourabichvili takes similar precautions with Deleuze's perspectivism. He says that the heterogeneity of the external world— "the diversity of the panorama"—is not at all heterogeneous, or is heterogeneous (diverse) only relative to a homogeneous point of view, unless we "bring into play the differences of point of view."[184] These differences in point of view are heterogeneous *plans,* heterogeneous in the sense I defend, as irreducible.

The connection David Lapoujade draws between *plan* and perspective is the most

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[183] François Zourabichvili, *Deleuze: A Philosophy of the Event*, trans. Kieran Aarons, eds. Gregg Lambert and Daniel W. Smith (Edinburgh: Edinburgh University Press, 2003), 66.

[184] Zourabichvili, 65.

direct, and appears in his definition of *plan* with regard to Deleuze's thought. Echoing

Deleuze and Guattari's use of "cut" in *What is Philosophy*, he writes that

> the *plan* is first of all a transversal *cut,* section, or intersection. That it has strata confirms that *plans* are sectional views, just as geological slices allow us to see the stacking of strata. How would strata be perceptible otherwise? What Deleuze and Guattari call *plan* (even before distinguishing between the different types of *plan*) is what allows us to see, sense, or think: *it is a perspective.*[185]

Thus, again, perspective is not the neutral projection of a subjective identity given

in advance, but the stratified slice or *plan* without which something like subjective

identity would not be possible. It is the slice of the town according to which the town can

appear to me in the way it does. I can slice the town along different *plans*, my perspective

or Jon's, the perspective of content or of expression, organization or consistency, and so

on. These *plans* remain heterogeneous, and yet work together in the *agencement* that

articulates their difference.

What's imperative is that, being a *plan* "of" the town, perspective be understood

as a real aspect of things and not something brought to things by a discrete subject. It

might help to recall the history of the term, *plan*, in cinema, and how this term came to

refer both to what is called "shot" and what is called "take" in English. In the first

decades of French cinema, one did not evaluate a term's cinematography in terms of its

plans but its *vues* or *tableaux*.[186] According to film theorist Emmanuel Siety, these words

prefigure different aspects of the settled term, *plan*, which is a continuous block of space

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[185] Lapoujade, 182. Deleuze and Guattari at times describe the *plan* of immanence as "cutting" sections out of chaos. Cf. Deleuze and Guattari, *WP* 156/147.

[186] I will translate these respectively as "view" and "tableau" (in the sense of an arranged scene, e.g. in painting).

and time.[187] Reviewing both terms individually, Siety identifies two distinct aesthetics, or "two distinct ways of conceptualizing *plan*."[188] According to the first aesthetic, that of the view, the camera "traps" the activity of a given moment, as an "extraordinary submission to the aleatory," such that the guerilla camerawork on the streets of Paris might capture the annoyed face of a passerby in stumbling upon the camera as an obstacle, forced to deviate course and walk around.[189] On the other hand, the tableau characterizes the director's effort to compose a scene, the process of *planification*, to prepare the world such that it can meaningfully set the stage for the events of the film. *Plan* came to replace tableau by way of metonymy: when framing the scene of a tableau, the filmmaker arranges the background [*arrière-plan*], foreground [*avant-plan*], and so on. The foremost *plan*, the *premier plan*, eventually referred not to the figures or subject of the foreground, but the frame of the shot itself, such that "it is no longer a scene that one frames, but a [*premier*] *plan* that one chooses."[190] *Plan* covers both of these aspects or aesthetics in its modern usage: the capture of a single moment (no matter how long), and the selective nature of composition.

PLAN AS ATTRIBUTE

Rather than an indeterminate object which conforms to the subject, a perspective is that which the subject "occupies," and which is built into the abstract but real profile of

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[187] Several of Deleuze's readers, like Bogue, cited above, point out that the French *plan* names both "shot" and "take," which explains Siety's description of *plan* as a block of space *and* time.

[188] Emmanuel Siety, *Le Plan: au commencement du cinema* (Paris: Cahiers du cinema, 2001), 47.

[189] *Ibid.,* 48-50.

[190] *Ibid.,* 54-6.

the object itself. "Perspective" captures a lot of what we have encountered with the general concept of *plan*. If Deleuze's meaning is crowded out by more popular understandings of perspective or relativism, we might additionally recruit terms like consideration or "aspect."[191] Or, to borrow from Spinoza's vocabulary, we might also define *plan* as "attribute."

Content and expression do not have essential or general forms; they only form as the substance or material of a function. Deleuze and Guattari had a name for the formation and distribution of *plans*, a term that speaks to their mutual presupposition and double articulation: *agencement*. The difference between *plans* and their coarticulation of the same unformed substance explains why Deleuze and Guattari call Hjelmslev a "Danish Spinozist geologist."[192] In Deleuze's book on expression and Spinoza, he mentions an important aspect of the latter's alleged "parallelism." In an infamous passage in *The Ethics*, Spinoza claims that the "order and connection of ideas is the same as the order and connection of things."[193] According to Deleuze's reading, not only do things and ideas—content and expression, in our case—share the same order and connection, but they "are the *same things*, distinguished only by the attribute whose concept they

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[191] "Aspect" is a major contender for translating *plan*, since it offers an opportunity to read Deleuze through Dutch philosophers other than Spinoza: Abraham Kuyper, Dirk Hendrik Theodoor Vollenhoven, and especially Herman Dooyeweerd. Dooyeweerd distinguishes independent and coterminal aspects of being, and his "aspect theory" holds that these aspects are united in God's eternal perspective but are necessarily distinct in the spatiotemporal experience of finite creatures. He describes 15 aspects, or ways of being, according to which being is meaningful for human beings. Herman Dooyeweerd, *A New Critique of Theoretical Thought*, v. 2. *The General Theory of the Modal Spheres*, trans. David H. Freeman and William S. Young (Philadelphia: Presbyterian and Reformed, 1953).

[192] Deleuze and Guattari, *ATP,* 43/57-8.

[193] Spinoza, *E2P7.*

involve."[194] The same ceramic jar is both an idea, understood according to the substantial attribute of thought, and a body, understood according to the substantial attribute of extension.

As Deleuze puts it, Spinoza's is less a parallelism than a doctrine of identity; attributes express different essences of the same substance, the same reality, the same things. No wonder, then, that Hjelmslev is described as a Spinozist: the same matter is expressed as content and as expression, formed differently according to either *plan*. Via Hjelmslev and Spinoza, I claim that the first way to understand *plan* in Deleuze's work is as "attribute." In *The Ethics,* Spinoza considers the only two attributes of substance available to us, thought and extension, though substance itself may have infinite further attributes. Likewise, Hjelmslev writes on content and expression, but only because these are the *plans* involved by the sign function. Other semiotics might involve matter as other substances, formed along other planes. An *agencement* is substantially formed on the one hand according to the attribute of content and on the other hand according to the attribute of expression.

THE AGENCEMENT OF *PLANS*

We are trying to lay out the problems that motivate or inform the concept of *agencement*: both in terms of Deleuze and Guattari's word choice and regarding how

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[194] Gilles Deleuze, *Expressionism in Philosophy: Spinoza,* trans. Martin Joughin (New York: Zone, 1990), 109. Gilles Deleuze, *Spinoza et le problème de l'expression* (Paris: Minuit, 1968), 96. Henceforth *EP*. See Spinoza, E2P7S: "[S]ubstance thinking and substance extended are one and the same substance, comprehended now through one attribute, now through the other. So, also, a mode of extension and the idea of that mode are one and the same thing, though expressed in two ways. […] Thus, whether we conceive nature under the attribute of extension, or under the attribute of thought, or under any other attribute, we shall find the same order, or one and the same chain of causes—that is, the same things following in either case."

they describe and develop it. There is no good way of translating *agencement*, and our hope is that design will offer a way to express these same problems. Although we have risked leaning on a good deal of Deleuze's other jargon, *plan* makes long strides toward an understanding of *agencement* and toward an expectation for what design will need to furnish. We are dealing with an *agencement* of *plans,* a multiplicity of perspectives, attributes, or considerations. We have left *agencement* in French, so far, as a sort of place-holder for our sketch of design; in conjunction with what we discussed in the first chapter, our review of *plan* helps fill in the details.

Recall the tetravalent definition we have focused on: suppose we wanted to illustrate its components and their relations, for the reader, with a diagram. There are perhaps more options, but we might go with one of the following (Figures 1, 2):

		Horizontal Axis	
		Plan of Content	*Plan* of Expression
Vertical Axis	(Re)territorializing[195] Sides – Organization	Organization of Content	Organization of Expression
	Deterritorializing Points – Consistency	Consistency of Content	Consistency of Expression

Figure 1 – One way to visualize the "tetravalent definition"

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[195] We will treat the concept of "territorialization" in Chapter Four. For now, simply note that the term belongs to *agencement*'s definition.
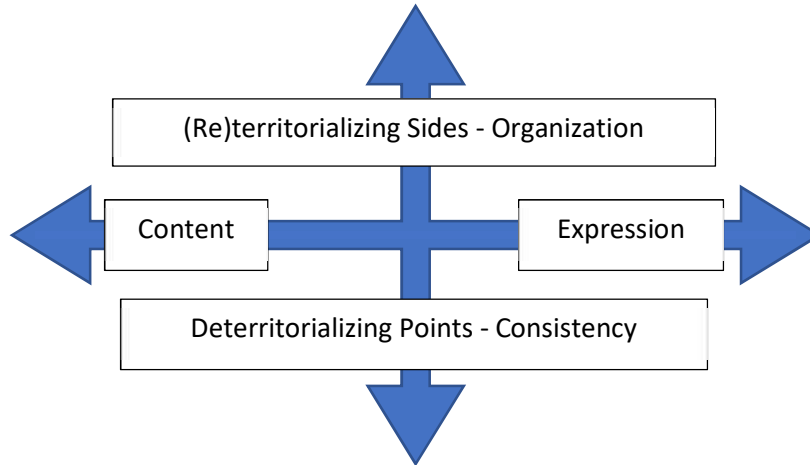
Figure 2 – Another way to visualize the "tetravelent definition"

A more precise description of *plan* helps us decide between these diagrams, or to understand the problems with each. How, for example, ought we to understand the two "axes" of the tetravalent definition? The first axis indicates that the same substance can assume different forms on heterogeneous *plans*: bodies or statements, content or expression. An *agencement* implies that these *plans* are not simply grouped together in an *ensemble,* but are somehow interdependent, despite their heterogeneity.[196] There are relations between bodies and relations between statements, but these relations belong together in an *agencement,* what Siertsema called a "heteroplane function." As we learned from Hjelmslev's notion of commutation, there is not a one-to-one correspondence between *plans*, and thus, second, *agencement* implies the idea that the relation between *plans* is variable; there are different *agencements* of content and expression.

If *agencement* is variable, and if there are different *agencements,* then we might

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[196] Cf. Chapter One for the discussion of *agencement* and *ensemble* as these terms appear in Marcel Boll's presentation of scientific logic.

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need to account for why or how it endures, or, what amounts to the same, how it dissolves or changes. Enter the "second axis" of the tetravalent definition. Regarding the first axis, the *agencement* we call science brings together bodies and statements, content and expression. Upon discovery of something new, science has a grammar, a method, that prescribes how this novelty will be articulated, and thus there is an inertia *agencement* that lends it stability—it "territorializes" or "reterritorializes." But the very same *agencement* of science can lend itself to "non-scientific" consequences, or even undermine its own structure and development—if, for example, a particular scientific tradition supports and flourishes in the context of a democratic citizenry which votes to stymie its operation.

The simultaneity of its inertia and drift—how we will later come to understand reterritorialization and deterritorialization, respectively—on the second axis, follows from the idea that, on the first axis, an *agencement* is understood as the function of heterogeneous *plans* as a multiplicity, that it articulates their difference and implies their consistency.[197] First, then, we have the "endoconsistency" of heterogenous *plans*, and the question is how the perspectives of content and expression hold together. But as variable, as an *agencement* which could be otherwise, it opens up to a continuum of such consistencies: there is an "exoconsistency," a consistency of consistency. The second axis thus comprises two further *plans,* beyond those of content and expression: first, the

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[197] In the same way that sense—*nota bene* that *sens* was Hjelmslev's proposed translation for *mening,* pure matter or "purport"—is both "of" bodies and propositions. Sense "does not exist outside of the proposition which expresses it, [but] it is nevertheless the attribute of states of affairs and not the attribute of the proposition. The event subsists in language, but it happens to things. Things and propositions are less in a situation of radical duality and more on the two sides of a frontier represented by sense. This frontier does not mingle or reunite them (for there is no more monism here than dualism); it is rather something along the line of an articulation of their difference: body/language" (*LS,* 24/37).

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transcendent perspective or *plan* of the *agencement*'s distinction, function, or essence;

second, the perspective of the *agencement*'s consistency, where it's clear how far and in

what directions it can go, its thresholds and limits.

In an interview on the publication of *A Thousand Plateaus,* Catherine Clément

asks Deleuze about nature and culture, since she has the impression that their distinction

has disappeared in his and Guattari's work. He notes two ways of getting around the

nature-culture distinction. The first is to reduce one *plan* to the other, e.g. to "liken

animal behavior to human behavior." If *agencement* is a substitute for behavior, this is

because it embraces the multiplicity of heterogeneous *plans*. Deleuze continues:

> with respect to the idea of *agencement*, the nature-culture distinction no
> longer matters. In a certain way, behavior is still a contour. But an
> *agencement* is first and foremost what keeps very heterogeneous elements
> together: e.g. a sound, a gesture, a position, etc., but natural and artificial
> elements. The problem is one of 'consistency' or 'coherence,' and it is
> prior to the problem of behavior. How do things take on consistency? How
> do they cohere? Even among very different things, an intensive continuity
> can be found.[198]

We are thus dealing with two problems of consistency. To recall only two of the

figures discussed above, we can articulate both problems in the language of von

Uexküll's and Spinoza's work. In the following table (Figure 3) I indicate how both of

these authors might understand the problem of consistency and the problem of the

consistency of consistency.

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[198] Deleuze, "Eight Years,"179.

Consistency of Heterogeneous Plans.
Uexküll: The animal's Umwelt is the agencement of two heterogeneous worlds, the plan of perception [Merkwelt] and the plan of activity [Wirkwelt].
Spinoza: The consistency of attributes in substance. Thought and extension coincide and commutate by virtue of their consistency as attributes of the same substance.
Consistency of Consistency.
Uexküll: The plan of an oak constructed by a squirrel's Umwelt implies its consistency with the plan of the oak itself, which needs to be "solid" enough to support the squirrel's plan. Leads to a consideration of the plan of plans, what Uexküll calls the "unity of nature's plan."
Spinoza: The consistency of attributes *and* substance. Substance lends itself to the attributes of thought and extension in a certain way, such that both attributes share the same order and connection.[199] Leads to the abstract consideration of the modes of substance itself in Part III of the *Ethics*, as "affect."[200]

Figure 3

Two Problems of Consistency, according to Spinoza and von Uexküll

These two problems of consistency form the backbone of the "tetravalent" definition of *agencement*, and they will be crucial for our approach to design: the *plans* of design will need to exhibit both the "internal" and "external" sorts of consistency at work in an *agencement*. These aspects will not be negotiable, since, as I have indicated in the chart below (Figure 4), the non-philosophical definitions of *agencement* we discussed in the previous chapter can all be said to involve both internal and external consistency.

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[199] Spinoza, E2P7.

[200] Although this part of the *Ethics* is ostensibly written on the emotions, the development and description of the emotions there relies on the identity of thought and extension. Anything that "increases or diminishes, helps or hinders the power of activity in our body, the idea thereof increases or diminishes, helps or hinders the power of thought in our mind" (E3P11). As a result, it becomes a matter of nature's order and connection, or a logic of how its modes increase or diminish in their capacity, since "there should be one and the same method of understanding the nature of all things whatsoever, namely, through nature's universal laws and rules" (E3P2S). It is on this point that we might mention Spinoza's marriage to Nietzsche in Deleuze's work, particularly in his early so-called "historical" writings. Spinoza claimed that we do not know what a body can do, and with Nietzsche, we're not even sure what the body *is.* Or, rather, the body—as a distinct, dualistic term—gives way to force relationships. Nietzsche describes a continuum of forces just as Spinoza describes an affective continuum. "Every force is related to others and it either obeys or commands. What defines a body is this relation between dominant and dominated forces" (*Nietzsche,* 40/45).

Definition of *Agencer*	Internal	External
"The act of organizing diverse elements of an ensemble, of adapting them, of combining them to be convenient or pleasant."	The consistency of the diverse elements which are organized, adapted, and combined	The consistency of the agencement and someone or something such that it is deemed convenient or pleasant.
"The act of arranging, harmoniously ordering the parts of an artistic or literary work." →	The consistency of the arranged, ordered parts of an artistic or literary work. →	The consistency of the artwork and someone for whom it is harmonious.
"To combine in a shrewd way and often to dishonest ends"	The consistency of what is combined.	The consistency of the scam with its ends, such that the combination is shrewd and the scam is effective.

Figure 4
Both problems of consistency read through three dictionary definitions of *agencement.*

A GENERAL LOGIC: *PLAN* PHILOSOPHY

Whereas the conventional reading of Deleuze considers *plan* only as part of set phrases like "plane of immanence" and "plane of organization," isolating the term changes the tenor of our discussion of *agencement*. Rather than considering the relationship between two *plans* in particular—content and expression, or organization and consistency—we are led to a general logic of heterogeneity and the superposition of incommensurable considerations or perspectives. The same substance considered as content, as expression, regarding its body-plan or its *plan* consistency, considered from a point of view, considered yesterday, tomorrow, and from the perspective of eternity.

It may seem inappropriate to ascribe Deleuze a general project, but he and Guattari have expressed just such an ambition. On several occasions, Deleuze mentions future projects on the horizon in his and Guattari's collaboration: he claims that the analysis of *agencement* which they initiated "opens up the way to a general logic," one

they had only begun to explore and develop.[201] He believes this general logic could have resulted in a "sort of philosophy of Nature," an engagement with Nature "now that any distinction between nature and artifice is becoming blurred," by virtue of the emphasis on consistency under our review.[202] We saw in the last chapter that Guattari preferred the term, *agencement*, over others in part because it is "rich in extension," and this was reflected in his repeated effort to accommodate as many different semiotics of different natures as possible.[203]

We turn to one last influence on Deleuze and Guattari, one who shared some of their influences and commitments: Gregory Bateson. Much as Guattari and Deleuze both sought as extensive an analysis as possible, Bateson's cybernetic view had far-reaching aspirations. The cybernetic logic of schizophrenia and alcoholism, intercultural contact, grammatical and botanical structure, learning in both animals and humans, evolutionary adaptation, and morphogenesis—Bateson's explanatory framework operated, in cybernetic terms, by identifying homologies in disparate systems.

For example, as part of his "Minimum Requirements for a Theory of Schizophrenia"—presumably the sort of theory Deleuze and Guattari pursue in their collaboration—Bateson emphasizes what he sees as a necessary connection between schizophrenia and the structure of communication. He claims that part of what characterizes the schizophrenic's situation is that he or she cannot decipher the context of

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[201] Deleuze, "Eight Years," 177.

[202] Gilles Deleuze, "On Philosophy," in *Negotiations*, trans. Martin Joughin (New York: Columbia University Press, 1995), 155.

[203] Félix Guattari, "Le divan du pauvre," 399.

context, or meta-communicational information; normally context would dictate how I am to understand my friend's meaning when he claims that he is "going to *get* me someday." He might mean that he intends to buy my lunch, that he hopes to eventually understand me, or perhaps he is announcing his intention to murder me. In order to be certain, I require contextual information, but how do I know what information counts as relevant context? In order to consult the statement's context, I require meta-communicational cues.

But the meta-communicational cues are not given as things in the physical world, and this leads Bateson to posit two distinct worlds with distinct logics and compositions. Getting these worlds straight is part of the precondition for any theory of schizophrenia. The first is the Newtonian world of things, while the second is the world of communication, of messages. He devotes much of his essay to the latter. What I call the reality of a perceived chair only refers to a "message in which I put my trust," the trust I have in sitting on the chair, touching it, lifting it, *etc*., which is communicated by its context.[204] In the world of communication, "I, as a material object, have no relevance and, in this sense, no reality. 'I,' however, exist [in this world] as an essential element in the syntax of my experience and in the experience of others."[205] Each of the two worlds functions differently, to the extent that what qualifies as "real" differs according to the world in question.

Bateson wondered if a future science would be capable of adequately synthesizing

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[204] Gregory Bateson, Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution, and Epistemology (London: Jason Aronson, 1987), 255.

[205] *Ibidem*.

the two worlds of physics and communication, the chair as physical object and the chair as message. It is not the ambition of this essay to decide whether, in final review of his career, Bateson's cybernetic epistemology ultimately succeeded in bridging these worlds. However, we have seen reason to suspect that Deleuze and Guattari had such a science in mind, and hence Deleuze announced the intent of their "general logic" to combine heterogeneous *plans*, incommensurable perspectives of the "same chair."

DESIGN

Our account of *plan*, as a concept in its own right and as the privileged term of an *agencement*, is the product of several readings: we saw it explicitly or implicitly at work in Hjelmslev, Cuvier, Geoffroy Saint-Hilaire, Leibniz, and Uexküll, in addition to several of its appearances in Deleuze and Guattari. In one way or another, this concept's many roles hinge on their *plans* being heterogeneous, irreducible, and yet nevertheless cooperating, coinciding, or commutating. *Plans* describe heterogeneous forms of the same substance, a real substance that nevertheless cannot "exist" outside such formation. Hjelmslev considers the same *s* as both content (as a semantic atom, in *act-iv-ate-s*) and as expression (as a phoneme, /s/), from the "point of view" of different *plans.* In a sense, they are independent since they are mutually irreducible; but in another sense, they are inseparable and each presupposes the other. This is because they can affect one another while maintaining their independence, each as the quasi-cause of the other: thus, a change in content can effect a change in expression, a change in dimension can result in a change in nature.

On the basis of our survey, we arrived at several ways to express the concept of *plan* in other words. Owing in part to Deleuze and Guattari's own depiction of Hjelmslev

as a Spinozist, we might render it as "attribute." Owing to a series of comments on perspective and points of view, we might render it as "perspective" or "consideration." *Plans* are considerations of the "same object," which can only exist under one consideration or another, can only be considered under one attribute or another. This object, an *agencement,* is the frontier, the purport or sense according to which the difference between *plans* is articulated.

It is our contention that design offers a good rubric for expressing these same ideas, and could be a new cipher for interpreting Deleuze's philosophy since it would translate more than a single term but the general problems that motivated it, theoretical currents that sweep most of Deleuze and Guattari's solo and jointly-written work. As "rich in extension" as *agencement* and with many of the same conceptual features at play, design can just as well lead the way to a "general logic" such as Deleuze and Guattari aspire to.

THE WORD "DESIGN"

Translators and commentators on Deleuze have underscored the fact that *agencement* can be read both as a process and as a state of affairs; as we have seen, ever since its start in the Renaissance "design" has posed a similar ambiguity which continues to beleaguer theorists of design. When one speaks of "design," are they referring to a process or a product? Does the word designate the form and function intended by a designer, regardless of her success in realizing them, or to actual form and function, irrespective of any intention? The great historian and theorist of design, Adrian Forty, opens his *Objects of Desire* at the crossroads of this ambivalent word. He considers two of its common uses:

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In one case, it refers to the look of things: saying "I like the design" usually involves notions of beauty, and such judgments are generally made on that basis. […] The second, more exact use of the word "design" refers to the preparation of instructions for the production of manufactured goods, and this is the sense meant when, for example, someone says "I am working on the design of a car."[206]

We could add to this list. After the franchise's initial impact single-handedly launched Sega's market share of 16-bit consoles to 65% in 1992, Sonic the Hedgehog has fumbled through a series of poorly-received games, disappointing both critics and sales projections. When relieved critics praise the level design of the most recent installment, *Sonic Mania*, they likely do not intend the designer's process.[207] But "I like the level design" is more than an aesthetic judgment as well; here, "design" is the extent to which a level can afford the player her intended activity, the communication of this affordance by clear perceptual cues, *and* "the look of things."

The split in design explodes upon review of the many contexts and fields for which "design" is a relevant term. We could divide the concept even further than has been done with French *dessein* and *dessin*: design as form, as function, as form and function, as intentional, as actual and descriptive—and then, design as in architecture, in painting, in software, *etc.* But we ought to take our cue from *agencement.* I share Forty's sentiment; he notes that "it might be tempting to separate" the different uses and definitions of design and treat them in isolation, but he believes that this "would be a great mistake, for the special quality of the word 'design' is that it conveys both senses,

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[206] Adrian Forty, *Objects of Desire* (New York: Pantheon Books, 1986), 6-7.

[207] See Heidi Kemps, "Sonic Mania Review," *IGN,* August 14, 2017, http://www.ign.com/articles/2017/08/14/sonic-mania-review. Matt Espineli, "Sonic Mania Review," *Gamespot,* August 15, 2017, https://www.gamespot.com/reviews/sonic-mania-review/1900-6416729.

and their conjunction in a single word rightly expresses the fact that they are inseparable: the way things look is, in the broadest sense, a result of the conditions of their making."[208] German design researchers Wolfgang Jonas and Uta Brandes have the following to say about design's ambiguous status as theoretical and/or practical: design may be a "fuzzy term," but the fact that it "is continuously oscillating between action (practice) on the one hand, and theory and research on the other—meaning between concrete everyday life and traditional scientific thinking, both of which influence and change each other—has to be considered as an opportunity."[209] In other words, rather than struggle like others do to cleanly separate design-use from design-research, Jonas and Brandes suggest that we embrace design as uniquely situated between both theory and practice.

Design is doubled as *dessein* and *dessin*, like *plan*, and as process and product, like *agencement*. Finally, it is doubled by the dual "problem of consistency" discussed above. I noted that our several dictionary definitions of *agencement* implied both "internal" and "external" types of consistency: the internal consistency of the elements it brings together and an external consistency with someone or something else for which it is pleasant or useful. It is the double consistency that we need to provide in order to adequately justify an interpretation of Deleuze through design: as we turn to design, we ought to take inventory of what we need to find.

DESIGN'S DESIDERATA

[208] Forty, 7.

[209] Uta Brandes, Sonja Stich, and Miriam Wender, *Design by Use: The Everyday Metamorphosis of Things* (Basel: Birkhäuser, 2009), 8. See also Uta Brandes, Wolfgang Jonas, and Meyer Voggenreiter, "Zum Designforschungsbegriff in der DGTF. Ein Annäherungsversuch aus 3 Richtungen," in *Design Report* 1/2 (2007).

Our review of *plan* anticipates some important features of design, the features necessary for design to speak to the concepts and problems at stake in *agencement*.

First Design should comprise heterogeneous considerations or perspectives, different attributes that it brings together.

Second The heterogeneous perspectives must belong to the design; they must be "objective" points of view.

Third Design's perspectives need to be commutative and inseparable, and not merely coextensive.

Fourth The independence and interdependence of design's *plans* should imply both Problems of Consistency.

ARCHAEOLOGY: SERIES AND TYPE

Archaeology may not be the only way to think about design forms, but it has the advantage of invoking the different senses of the word, *plan,* as well as many associated terms which came out of our initial discussion: strata, continuum, series, and so on. Ambiguities cloud any precise definition of design, but many might intuitively accept the terms of Louis Sullivan's immortal rallying cry: "form follows function." Whatever design is, it is taken for granted that it involves something called "form" and something called "function." The phrase traces back to a text Sullivan wrote to accompany his development of the skyscraper. He argues that all things have shape, or form, and that all things are distinguished by their form. Because, he claims, the "heart is ever gladdened" by how life "seeks and takes on its forms in an accord perfectly responsive to its needs," the art of architecture should mimic nature and strive to fulfill functions necessary for life. Hence it is a "pervading law of all things organic and inorganic," that form ought to

follow function.[210]

Unfortunately, what is meant by form or function is often no more definite today than it was at the outset: form is something like "shape," while function vaguely refers to "what shape ought to accomplish." Some designers take this motto to task for its ambiguity, often as part of their skepticism or critique of the "functionalism" which the mantra characterizes.[211] As Jan Michl puts it, in the "discussions about the dictum *form follows function* it was in the main verb 'follows' that kept attracting attention […] while the word function itself was as a rule considered unproblematic."[212] He argues that such designers never had a clear notion of function in mind, that it "operated as a carte blanche: having been empty the notion made the architects and designers free to define it in ways that always legitimized their own aesthetic priorities."[213]

The concept may not be quite as empty as Michl claims, but the fact remains that it, along with form, it should be said, is taken for granted as a meaningful dimension of design. To get a closer look at these terms, I turn to a perhaps unexpected field of study, one for which design is not a matter of practice but only of theory: archaeology. Admittedly, design's role and worth for the archaeological description of artifacts is not always clear and it is seldom a methodologically central term. Form, and especially

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[210] Louis Sullivan, "The Tall Office Building Artistically Considered," in *Lippincott's Magazine* (March 1896), 407-8.

[211] In his definitive account of modern architecture, for instance, Reyner Banham says that "Form Follows Function" is no more than an "empty jingle." *Theory and Design in the First Machine Age* (Cambridge: MIT Press, 1960), 320.

[212] Jan Michl, "Form Follows WHAT? The modernist notion of function as a carte blanche," in *Magazine of the Faculty of Architecture & Town Planning* 10 (1995), 29.

[213] *Ibid.,* 20.

function, however, make frequent appearances in the field; where "function" might be empty elsewhere and serve as a *carte blanche,* it has distinct meanings and purposes in archaeology. If we want a clearer view of our options for understanding form and function in design, we can benefit from an inventory of these meanings and purposes.

Again, design is an ambiguous term for the archaeologist. In many cases it is simply one among others of an artifact's "stylistic elements," as superficial decoration or ornament, or it is a vague reference to the artifact's overall aesthetic form.[214] In both cases the word is far from a technical term and is interchangeable with "decoration" or "pattern." It assumes a clearer and more decisive value in the context of so-called functional analysis. We will return to "function," a cause for confusion in the literature because it is defined in at least two ways according to different methods and distinct archaeological projects. For the moment, we could define the "function" of functional analysis to be more or less as one typically uses the word: an artifact's function is its actual or intended use, what the artifact "does."

There are two main approaches to functional analysis, corresponding to the alternatives in our provisory definition of function. Examining an earthen pot, we can consider its "function" in terms of the intentions it suggests or else regarding its signs of wear: either design or use. On the one hand, a design approach to functional analysis "involves anticipating certain features that might make a pot more useful for a particular task and then testing a hypothesized function by examining pots for the expected

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[214] Importantly, one should not interpret "style" in this context as a synonym for design: as opposed to the style of its production, its dimensions, or its parts, design loosely refers to the artifact's coloration, texture, etc.

constellation of attributes and contextual associations."[215] Here the archaeologist understands design strictly as *dessein*, as the purposes realized or intended to be realized in the artifact. Therefore, the pot is evaluated according to the demands of such a *dessein*; we know that "a well-designed cooking pot needs to be able to withstand the thermal shocks associated with sudden heating and cooling," and that its size needs to "accommodate a typical meal of the type for which it was intended," and so on.[216] On the other hand, the archaeologist perhaps will not begin with a hypothesized function; instead, her use approach to functional analysis will examine the artifact for traces and signs of wear, and from that basis will infer the artifact's function. As she scans the pot, it might "show signs of thermal spalling on parts of the vessel exterior that result from drying wet vessels near an open fire and from rapid heating during cooking," or, if she's lucky, she may find "visible traces of burned food on the interior."[217]

While the sorts of evidence or reasoning in both approaches are important in archaeology, the design approach to function more directly implies a notion indispensable to archaeological inquiry: *type*. Whether she is interested in merely classifying and ordering the history of human production, in reconstructing an image of past ways of life, or in deriving political and cultural context for artifactual evidence, the archaeologist must arrange or construct artifact types to make sense of her data. In other words, she will expect or catalog regular clusters of morphological or functional attributes (if these are

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[215] E.B. Banning, The Archaeologist's Laboratory: The Analysis of Archaeological Data (New York: Kluwer Academic Publishers, 2002), 179.

[216] *Ibidem*.

[217] *Ibid.,* 180.

distinct).

While the debate's details are not at issue here, it is worth mentioning that the nature of "types" was a matter of controversy when so-called "New Archaeology" emerged on the scene in American archaeology.[218] An artefact type allows the archaeologist to track ceramic characteristics that change or remain constant over time, according to different dimensions of variation: shape, ornamentation, materials, method of manufacture, glaze, and so on. Are such types useful labels *constructed* by the archaeologist, or are they essential groups of features *discovered* by the archaeologist? The question was whether types were "definitionally associated" or "empirically associated" sets of attributes.[219]

The rise of evolutionary archaeology has led more recent authors to split the concept of typology to accommodate both sides of the debate. On the one hand, types cannot be discovered, real entities, since there is nothing in the artifact itself to indicate which features of its design are typologically significant and which are not; in practice, design types are only held together by what they have in common rather than by

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[218] For the most part New Archaeology now goes under the name "processual archaeology." Among the best accounts of "The Typology Debates" appears in Alison Wylie's *Thinking from Things: Essays in the Philosophy of Archaeology* (Los Angeles: University of California Press, 2002), 42-77. See also Michael J. O'Brien and Robert D. Leonard, "Style and Function," in *Style and Function: Conceptual Issues in Evolutionary Archaeology*, eds. Teresa D. Hurt and Gordon F. M. Rakita (London: Bergin & Garvey, 2001), 1-25. The main representatives for both sides of the debate are James Ford, who argued that types were theoretical constructs, and Albert Spaulding, who held that types were real entities. See James Ford, "Comment on A. C. Spaulding's 'Statistical Technique for the Discovery of Artifact Types," in *American Antiquity* 19 (1954), 390-391; "On the Concept of Types: The Type Concept Revisited," in *American Anthropologist* 56 (1954), 42-53; "Spaulding's Review of Ford," in *American Anthropologist* 56 (1954), 109-12. See Albert Spaulding, "Statistical Techniques for the Discovery of Artifact Types," in *American Antiquity* 18 (1953), 305-13; "Reply (to Ford)" in *American Anthropologist* 56 (1954), 112-4; "Reply to Ford," in *American Antiquity* 19 (1954), 391-3.

[219] Robert Dunnell, "Methodological Issues in Americanist Artifact Classification," in *Advances in Archaeological Method and Theory* 9 (1986), 166.

essence.[220] On the other hand, if we believe that certain types are more successful—more widely distributed, more enduring—and have been "selected for" during the course of history, then surely types have to be "real" enough to have been units of selection. Thus, authors argue simultaneously that types, as "theoretical units," are not real but are "products of the mind of the investigator," while as "empirical units," they "must be real" since they "have evolutionary significance."[221]

The distinction of artefact design types as theoretical constructs and as empirical realities is most apparent for the typological method of frequency seriation, which takes its cues from stratigraphy on the one hand and evolutionary biology on the other. Stratigraphy originates in the work of Danish scientist-turned-bishop, Nicholas Steno. After his famous anatomical study of the head of a great white shark in 1666, Steno came to the startling realization that its teeth closely resembled the *glossopetrae*, "tongue stones," used in medicine at the time. If *glossopetrae* were in fact shark teeth, then perhaps the stone seashells discovered at high altitudes were not natural illusions formed by the earth but were in fact preserved seashells.[222] This led Steno to believe that the Earth was formed like a crystal, *stratum super stratum*, and that excavated series of rock layers could be read like historical archives. He worked out the logical consequences of having found solids formed within other solids (seashells within rock beds) in his aptly titled *De Solida Intra Solidum.* He there describes the fundamental principles of

[220] Michael J. O'Brien and R. Lee Lyman, Seriation, Stratigraphy, and Index Fossils: The Backbone of Archaeological Dating (New York: Kluwer, 2002), 51-2.

[221] O'Brien and Leonard, 7.

[222] Alan Cutler, The Seashell on the Mountaintop: A Story of Science, Sainthood, and the Humbled Genius Who Discovered a New History of the Earth (New York: Dutton, 2003), 53-62.

stratigraphy: the principle of original horizontality, that strata are ideally horizontal due to the uniform influence of gravity; the law of superposition, that older strata lie beneath younger strata; the principle of lateral continuity, that strata extend continuously until the end of their deposit basin; and the principle of cross-cutting relationships, that a body is younger than the stratum it cuts across.

With these principles in tow, the archaeologist can track historical variation in the distribution and frequency of artifacts and artifact types. She can also note if an artifact type is concurrent, or "associated," with other types or with particular contexts. The so-called "stratigraphic revolution" of the early 20th century consisted precisely in marshalling excavated evidence in view of artifact types, regarding their frequency, distribution, association, and context.[223] In the case of Nels Nelson, one of the major figures associated with this "revolution," his innovation was that he leveraged this information to demonstrate that pottery types developed along "very nearly normal frequency curves [that reflect the fact] a style of pottery… came slowly into vogue, attained a maximum and began a gradual decline."[224] Frequency seriation, the process of ordering artifacts and artifact types according to frequency curve, only involves type as a *post hoc* determination: design types are suggested by their "very nearly normal frequency curve"; the fact that several jugs share the same cluster of features is not enough, on its own, to demonstrate a distinct pottery type. The archaeologist employing this method has no choice but to approach types as theoretical constructs rather than

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[223] O'Brien and Lyman, 149-74.

[224] Nels Nelson, "Chronology of the Tano Ruins, New Mexico," in *American Museum Journal* 15 (1916), 167. As quoted in O'Brien and Lyman, 163.

essential units.

But typological frequency seriation is often performed by researchers with an evolutionary view of archaeological evidence, according to which they distinguish between an artifact's function traits. As opposed to the "function" in functional analysis, understood either as a vase's actual or intended use, depending on whether one takes a design or use approach, the "function" of evolutionary archaeology and frequency seriation is only a name for those features that contribute to an artifact or type's fitness. It has nothing to do with the *purpose* of pottery, intended or otherwise; objections that stylistic features can still be "functional" are thus misguided, since function in this sense is selective by definition.[225] Function, fitness, survival—these terms once again describe the statistical profile of ceramic features; this typological method does not involve speculating whether an artifact is well-suited is for a given purpose or examining it for evidence of use. Selective, or functional, traits and adaptively neutral, or stylistic, traits are distinguished statistically. Robert Dunnell writes:

> Traits that have discrete selective values over measurable amounts of time should be accountable by natural selection and a set of external conditions. Traits identified as adaptively neutral will display a very different kind of behavior because their frequencies in a population are not directly accountable in terms of selection and external contingencies. Their behavior should be more adequately accommodated by stochastic processes.[226]

The main difference separating the evolutionary sense of function from that of functional analysis concerns the reason for examining artifacts or artifact types. The

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[225] Robert Dunnell is very clear on this point in his landmark essay "Style and Function: A Fundamental Dichotomy" in *American Antiquity* 43 (1978), 192-202.

[226] *Ibidem*.

evolutionary archaeologist turns to frequency seriation in order to relate artifacts in terms of heredity and transmission; the way typological series are associated can help the investigator track cultural lifespans or measure the reach of a culture's influence, for example. She might have to assume that clusters of traits are "real" to the extent that artifacts comprise evolutionarily significant units, but as the theoretical units of her analysis artifact types are strictly provisional. Features of an artifact's design are deemed functional when their presence is statistically correlated with the artifact type's survival and transmission, while other features are merely stylistic. This amounts to saying that, as opposed to the functional analysis of artifacts, function and style are only useful categories insofar as they "describe and potentially explain *distributions,* not objects."[227]

Ostensibly, this leaves us with two options when examining an artifact. On the one hand, we employ a functional analysis, and whether we take a design or use approach "style" will not be a significant category. On the other hand, we can adopt an evolutionary approach and employ frequency seriation, for which "function itself" is largely irrelevant. Function here describes a successful trend; the evolutionary archaeology in this case would be uninterested or unable to describe the function of a particular pot, *why* a trait does or does not contribute to a pot's fitness, or how functional

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[227] Ethan E. Cochrane, "Style, Function, and Systematic Empiricism: The Conflation of Process and Pattern," in *Style and Function: Conceptual Issues in Evolutionary Archaeology*, eds. Teresa D. Hurt and Gordon F. M. Rakita (London: Bergin & Garvey, 2001), 186. Cochrane's argument is related to O'Brien and Leonard's distinction between type as a theoretical and as an empirical unit. He argues that there is a "fundamental flaw in many of the attempts to dismantle the style-function dichotomy developed by Dunnell" (*op. cit*.), namely, that critics of the dichotomy conflate "conceptual categories (style and function as universal processes) with empirical categories (style and function as the observed characteristics of particular artifacts)" (184).

traits can convert to/from merely stylistic traits.[228]

There is a third alternative: one which concerns particular artifacts rather than distributions of traits, and yet which still assumes an evolutionary stance toward heredity and transmission. I have been careful to specify seriation as "frequency seriation" in the preceding discussion precisely because the word equivocates the American tradition's method of seriation with a different method developed in European archaeology, what I will refer to as "morphological seriation."

Frequency seriation considers the find circumstances of a ceramic artifact—its relative, stratigraphic situation—and compares these circumstances with those of other artifacts, similar and otherwise. Morphological seriation, on the other hand, "is based on intrinsic properties or attributes of the artifacts and not on their relative vertical positions in a column of sediments; the last is an extrinsic property or attribute."[229] Frequency seriation and the stratigraphic method it entails concern the external circumstance, the frequency and distribution of artifacts; to the statistical trends archaeologists, the particular glaze or handle-shape of a ceramic design are irrelevant beyond their contribution to the artifact's classification. Morphological seriation focuses on the

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[228] This last point by no means escapes the attention of such archaeologists. As discussed above, some critics of the style-function dichotomy object that stylistic traits still serve a purpose, and evolutionary archaeologists are correct to respond that this misguided objection follows from an equivocation of "function." In their attempt to assuage such critics, O'Brien and Leonard note that "traits that are stylistic under one environmental regime may take on functional roles in a different environment. With respect to an aircraft, gray paint may be stylistic in peacetime, while serving as camouflage during combat" (18). While one could certainly track the frequency of gray paint and find a stochastic trend in peacetime (thus: stylistic) and an adaptive trend during combat (thus: functional), this method would not provide any legitimate grounds for explanation. What is the function of gray paint? What in its frequency curve proves that it was used for camouflage? Why or how did a stylistic element become functional?

[229] O'Brien and Lyman, 61.

intrinsic properties of the pottery itself, and conversely, it is the external circumstances which become largely irrelevant.

O'Brien and Lyman remark that the "deceptively simple" method of seriation, of ordering items, is "rarely taught anymore except in the most perfunctory manner, with minimal effort to explore its roots […] or its interesting epistemological underpinnings."[230] While, like many American archaeologists, they strictly have American roots and the development of frequency seriation in mind, following these roots and underpinnings leads us to distinguish frequency and morphological seriation, and this demands a turn to Europe.

In Europe, too, there have been long debates over the methodological value of artifact types. Suppose we order excavated artifacts according to formal resemblance, under the assumption that types develop from the morphologically similar to the dissimilar. Certainly, there are cases when such a seriation can provide a supplemental aid for tidying up an unclear stratigraphic superpositional account, but there were some who worried that the contextual circumstances of the dig site could distract from important aspects of the artifacts themselves. Perhaps seriation has something to tell us in its own right, beyond supplementing stratigraphy. Such was the intuition of General Augustus Henry Pitt-Rivers, whose concern in the late 19th century reflected a commitment to Darwin's evolutionary theory. A military man with a passion for the history and development of firearms, Pitt-Rivers followed Darwin's cue when he turned his attention to anthropology, or so he says; he resolved "to ignore the geographical,

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[230] *Ibid.,* 59.

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temporal, and cultural dimension of artifacts, follow the lead of natural history, and

arrange his collection in a series of sequences composed of closely related forms" (see

Figure 5).[231]

Pitt-Rivers proposed a method for arranging museum displays of artifacts "in

sequence," that is, according to their development "from the simple to the complex, and

from the homogeneous to the heterogeneous."[232] Ultimately these typological series ought

to tell us something about their geographical and cultural circumstances, "the
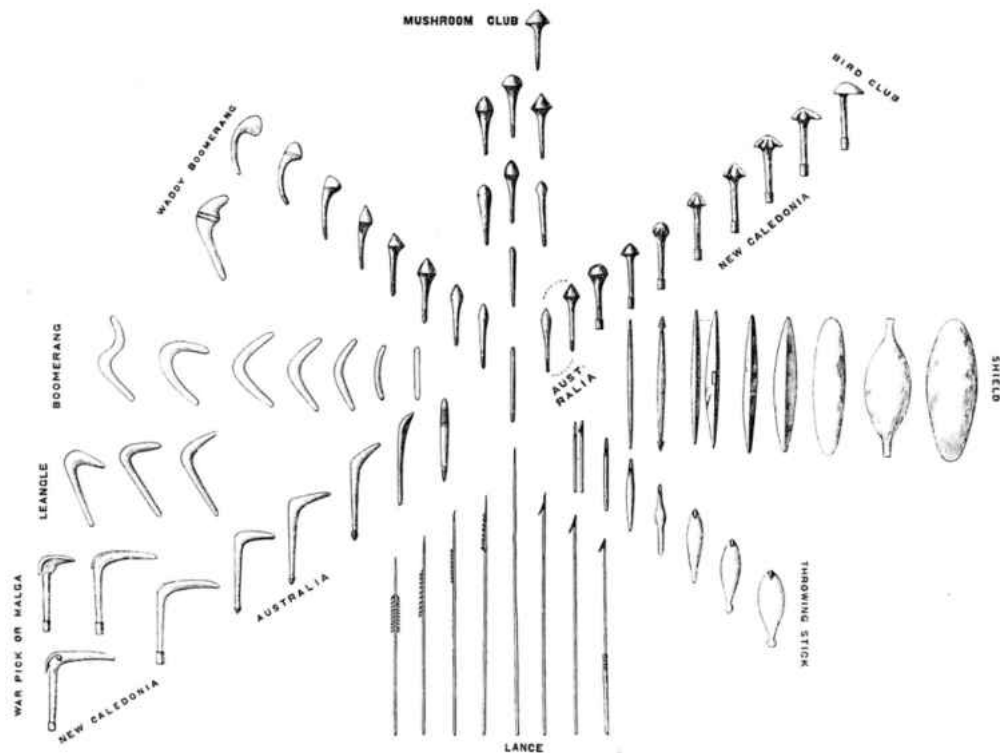
Figure 5
Plate III from Pitt-Rivers, "The Evolution of Culture"
"I have arranged […] drawings of nearly all the weapons used by the Australians, placing
them together according to their affinities in such a manner as to show hypothetically their
derivation from a single form" (37).

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[231] George Basalla, *The Evolution of Technology* (New York: Cambridge University Press, 1988), 17.

[232] Pitt-Rivers, A. H. L. F, "Principles of Classification (1874)" in *The Evolution of Culture, and Other Essays,* ed. J. L. Myers (Oxford: Clarendon, 1906), 2.

development of specific ideas and their transmission from one people to another," but the arrangement itself ought to ignore these dimensions at the outset so that the investigator might minimize the prejudice she contributes to the evidence.[233] At the time museums commonly designed their exhibits according to a "geographical or racial arrangement," whereby all the artifacts associated with a tribe or region were grouped together in a display or room of displays.

Pitt-Rivers believed that the developmental series of material artifacts could better communicate a developmental series of human ideas; by bracketing assumptions about an artifact's geographic or cultural context and initially focusing on its morphology, the archaeologist can establish relationships and continua where her prejudice may have otherwise prevented it. These initial morphological relationships may suggest unexpected cultural ties, channels of cultural transmission, functional variation and development, *etc.* This is because material artifacts are the most enduring, and thus most reliable, evidence the investigator has of the history of human ideas.

> Human ideas, as represented by the various products of human industry, are capable of classification into genera, species, and varieties, in the same manner as the products of the vegetable and animal kingdoms, and in their development from the homogeneous to the heterogeneous they obey the same laws. If, therefore, we can obtain a sufficient number of objects to represent the succession of ideas, it will be found that they are capable of being arranged in museums upon a similar plan.[234]

At roughly the same time, Swedish archaeologists like Oscar Montelius were independently working out a theory of type and method of typological seriation. Renowned for his work on burial sites and on the history of Swedes and other Germanic

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[233] *Ibid.*, 3.

[234] *Ibid.*, 18.

peoples, Montelius had a reputation for the attention to detail in his catalogs of excavated evidence. He thought it essential to examine all available evidence, the set of artifacts and other materials in its entirety.[235] If one neglects some of the available evidence, one risks overlooking the keystone for a systematic view of the origin, order, and development of the artifacts under review. The process of seriation involved, as did Pitt-Rivers's, ordering artifacts according to their general similarity—in other words, not according to a single dimension of variation such as length, handle shape, or ornamental motif, but according to "net" resemblance. Montelius held that one could determine type by the "inner characteristics" of artifacts, whereby "every 'member of the chain' [should be] only minimally distinct from the next."[236]

We saw that O'Brien and Lyman distinguished between the intrinsic and extrinsic properties of artifacts, and what is notable about Montelius for our purposes is not only that he formulates and employs a morphological method of seriation, but that he explicitly refers it to the "inner" character of artifact types. What is more, he argued that the "inner" and "outer" approaches to artifacts should be simultaneously pursued, and that their findings ought to always be in "complete agreement."[237] This claim came at the

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[235] Oscar Montelius, *Die älteren Kulturperioden im Orient und in Europa. I. Die Methode* (Stockholm: A. Asher and Co., 1903), 2. Credit for my initial discovery of this text belongs to an essay by Priyanka Basu: "Ideal and Material Ornament: Rethinking the 'Beginnings' and History of Art," in *Journal of Art Historiography* 9 (December 2013), 1-31.

[236] Montelius, *Die Methode,* 17. As cited in Basu, 18.

[237] Cf. Montelius, "Den förhistoriske fornforskarens metod och material." In *Antiqvarisk Tidskrift för Sverige* 8 (1884). For the claim about agreement: Oscar Montelius, "Spännen från bronsåldern och ur dem närmast utvecklade former. Typologisk studie," *Antiqvarisk Tidskrift för Sverige* 6 Stockholm (1880) 123. As quoted in Bo Gräslund, *The Birth of Prehistoric Chronology: Dating Methods and Dating Systems in Nineteenth-Century Scandinavian Archaeology* (New York: Cambridge University Press, 1987), 86. Gräslund is skeptical of Montelius's self-assessment, and doubts whether he in fact employed both stratigraphy and typology in equal parts (70-85).

behest of his most notable opponent, Sophus Müller. Montelius had certainly consulted

find circumstances, or the contextual relationships among artifacts in an excavated

assemblage,[238] but consistently privileged what we have called morphological seriation

when describing his own method. Contemporaries like Müller and present commentators

like Gräslund argue that Montelius exaggerates his use of morphological seriation, and

that his conclusions owed much more to the "outer" methods of stratigraphy and find

circumstances than they did to morphological type series.[239]

Montelius conceded that both "inner" and "outer" approaches had a place in

archaeological inquiry and that they agreed on the same object of evidence, but his

emphasis remained on the inner approach, the arrangement of types by morphological

development. At least one author today suggests that

> the important question which Gräslund ignores is *why* Montelius was so
> keen to forget the importance of context in chronology […] Part of the
> answer lies in the growth of Darwinism and the often quoted parallels
> between cultural and natural evolution in typological studies such as
> Hildebrand's *Scientific Archaeology* (1873) and Montelius' *Typology or
> the Theory of Evolution Applied to Human Labor* (1899). But I think the
> greater reason must lie with the fact that evolutionary typology was an
> *explanatory* concept […] Indeed, for archaeologists working the late
> nineteenth century, it was far *more* explanatory and interpretively useful
> than mere find combination. Archaeologists just were not interested in
> why objects were associated except as a means to an end.[240]

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[238] Not the translation for *agencement.*

[239] See Gavin Lucas, *Critical Approaches to Fieldwork: Contemporary and Historical Archaeological Practice* (New York: Routledge, 2001). "This question of find association and its relation to typology was the basis of a critique by Sophus Müller against Hildebrand and Montelius in his *A small contribution to the methodology of Prehistoric Archaeology* (1884), who argued that their approach could not possibly be prior to a contextual analysis; Montelius responded by saying that the two went together in practice, but ought to be separated for clarity" (77-8).

[240] Lucas, 78.

CERAMIC STRATIFICATION

The ceramic artifact is subject to different methods, is constitutive of different series, and is formed as the substance of different *plans*. Frequency and morphological seriation entail different terms and procedures, as does functional analysis, but as procedures they are reducible and often confused in actual fieldwork; the genuine heterogeneity belongs less to the methods themselves than to the *plans* they represent, their priorities and their commitments. The same vase as utility, as ceremony, as an index for trends in distribution, as archived in a deposit of sediment, as a material form, as an intended design, as an actual object of use, and so on.

To present these heterogeneous perspectives more clearly, I should review and map the various archaeological distinctions and terms of our account as they overlap or differ in their references. The same design object is often conceptualized as comprising two faces: on the one hand one considers its structure, shape, aesthetic appeal, or in other words, its *form*, while on the other hand one considers the *function*—activity, utility, or purpose—realized by this form.

There are two approaches to understanding the latter: we can examine its form based on how it might have performed its intended function (the design approach to function) or else we can examine the artifact itself for evidence of use and wear in order to derive its function (the use approach to function). For the most part, both approaches concern individual artifacts and it is possible to pursue them without regard for dig site circumstances or larger artifact populations. Suppose we bracket the function of our ceramic artifacts and instead focus on the form alone, and to understand form we rise from individual artifacts to an assemblage or several assemblages of artifacts. Thanks to

contextual information such as we gather from stratigraphy, we can map our artifacts in space and time and track trends in their formal traits. Some traits will be shared; clusters of shared traits will suggest artifact types: the traits that are *functional* to typological determinations are those that trend along "very nearly normal frequency curves," which suggest that "a style of pottery… came slowly into vogue, attained a maximum and began a gradual decline."[241] Other traits, which do not exhibit regular trends, are deemed merely stylistic.

The method of frequency seriation does look at form, but only to the extent that changes in form are measured in populations, according to the frequency and distribution of particular traits over time and space. It would only be somewhat reductive to say that this kind of seriation is interested in statistical trends, and that it cannot say anything meaningful about the form of artifacts itself, their function (as design or use), or how form and function are related; neither can it explain how or why stylistic traits become functional, and *vice versa*.

Morphological seriation does not fare much better in these regards, but it will bring us closer. As another typological method, it too works with large groups of artifacts, but unlike frequency seriation individuals can be significant for determining series. This is because, whereas frequency seriation looked for continuity in frequency trends, we are now looking for morphological continuity; we set aside any external consideration (geography, stratigraphy, prior knowledge of cultural milieus) and arrange artifacts strictly in order of formal resemblance.

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[241] Nelson, 167.

From the order of gradual formal transformation, the external circumstances of an artifact have no bearing on it its membership to a typological series. Its popularity, the extent of its production, its transmission across time and space, the actual purposes to which it is set: these might be conditions that encourage a line of morphological development, but such a line is as it were already implicit in rudimentary forms.[242] Morphological continuity is what binds one member to the next, and it matters little whether a given member was widespread, long-lived, or well-adapted. According to the perspective or *plan* of morphology, a type exists wherever a continuum of forms is discernible.

From the other perspective, the only pertinent fact of a ceramic type's material form is its distinction from other types, such that one can mark the extent and duration of its appearance across strata and across archaeological sites. As discussed above, a series of similarly formed artifacts do not constitute a type in the absence of regular, directional trends in frequency and distribution. The priority of frequency over material and shape suggests a *plan* of populations, of extension and distribution, according to which the proliferation of ceramic types stems from the habits and movements of human beings rather than the potential developments harbored in the material form itself, or the development of human ideas reflected in successive material forms.

SKEUOMORPHS AND RUDIMENTS

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[242] See Figure 5.

Following the chart below (Figure 6), we can approach an artifact's form with a functional analysis (regarding *Function$_b$*), ignore its form and classify the artifact in morphologically determined series, or statistically derive which formal features are functional (*Function$_a$*) and which are stylistic. There is a fourth option, absent in our figure, which will prove instructive both for our present account and for our future discussion of repurposed design. It concerns a phenomenon which is called either "skeuomorphism" or "typological rudiment." To understand these terms, we ought to revisit the form-style dichotomy, precisely in the sense disavowed by evolutionary archaeologists, i.e. as the distinction between function and ornament.
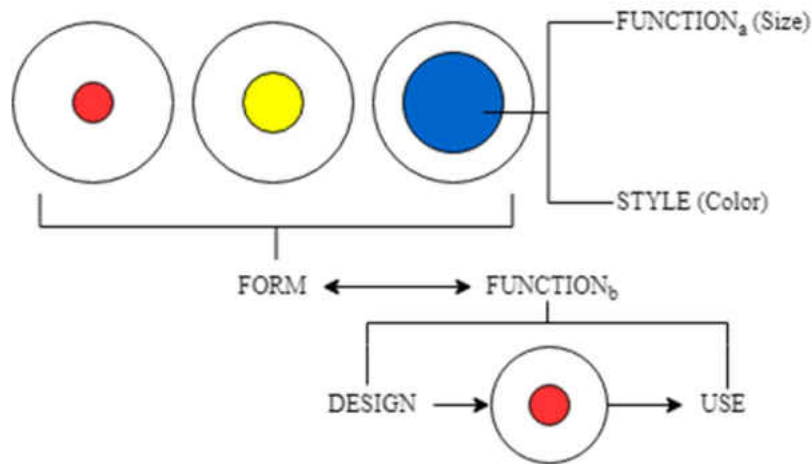
Figure 6 – Different approaches to "function" in archaeology.
Function$_a$ refers to function as understood by evolutionary archaeologists
like Dunnell; as an indicator of fitness or adaptiveness. Function$_b$ is function
as understood in functional analysis, or as it is more commonly understood:
as activity or operation.

Ornament was but one aesthetic term among others until the fervor surrounding the birth of Modern Architecture charged it with new meaning. Where it once referred to decorative motifs and embellishments in particular, it came to stand in for anything and everything in a design's form that did not "serve a purpose." The enduring enmity against ornament is apparent in the very title of Adolf Loos's influential essay, "Ornament and

Crime."[243] Just as the human embryo recapitulates and then surpasses its biological

evolution by the time of birth, Loos felt that the Modern child recapitulated—and *ought*

to surpass—the history of its cultural evolution.[244] While the drive to decorate surfaces

with non-functional embellishments was natural in bygone eras or in "primitive"

civilizations, "what is nature to the Papuan and the child is a symptom of degeneration"

today: "*The evolution of culture is synonymous with the removal of ornament from*

objects of daily use."[245] Function is the purpose or intended activity which ought to direct

design's development while ornament refers to any merely "stylistic" element of the

design, i.e. those features which do not serve its purpose. Although the racial and colonial

connotations have been disavowed, the thrust of Loos's argument lives on in both

descriptive and normative attitudes regarding design: the latter in the belief that design is

most successful and appealing when it minimizes the ornamental or merely stylistic in

order to maximize its functionality; the former in the belief that the history of design has

pursued a progressive arc away from the ornamental toward design as purely functional

as possible.

These two modern beliefs resemble the basic terms of contemporary archaeology,

even if the latter has come to understand "function" in an evolutionary sense. For 20th

century archaeologists like Dunnell, functions have nothing to do with "purpose" or

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[243] Adolf Loos "Ornament and Crime (1908)," in *Crime and Ornament, The Arts and Popular Culture in the Shadow of Adolf Loos*, eds. Bernie Miller and Melony Ward (Toronto: XYZ Books, 2002), 29-36. The original lecture's actual date is probably 1910, and the essay was in fact not published until 1913 in French and 1929 in German. Cf. Christopher Long, "Ornament, Crime, Myth, and Meaning," in the *85th ACSA Annual Meeting Proceedings, Architecture: Material and Imagined* (1997), 440.

[244] Loos, 29.

[245] *Ibid.*, 30.

"use," as he rightly reminds his critics, but they nevertheless sufficiently indicate vectors and reasons for typological transmission and distribution: a pottery type survives because of its functional traits, while its stylistic or ornamental elements are incidental. Unfortunately, such evolutionary archaeology is incapable of explaining the ornamental or the functional (in either sense of the term). What circumstances cause an ornament to become functional, and vice versa? How do pottery types begin and end, and how do they transition? Because these sorts of questions are the most difficult for the evolutionary approach, it is only fitting that we turn to an artifactual phenomenon typically understood as transitional: the skeuomorph, or what in the German literature is called a *typologisches Rudiment.*

A skeuomorph is defined by the presence of design features, often ornamental or without apparent function, which reproduce or mimic something functional in another design, or which borrow characteristics from an altogether different medium. An example familiar to most of us is the common design of graphic user interfaces (GUI), made to resemble office environments before the advent of computers. "Files" are stored in "folders," accessed on one's "desktop." Exemplary is the "Save" icon used by many software applications: the representation of a floppy disk.[246] But skeuomorphs are hardly

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[246] Because I am only interested in skeuomorphism as it appears in archeological typology, I am not taking sides in debates over skeuomorphism as a design strategy. Some such criticism is mild: "GUI was justified using a simplistic idea that since computers are unfamiliar to people, we should help them by making it mimic something users are already well familiar with—the physical world outside of a computer (which in reality was an office environment with folders, desks, printers, etc.). Surprisingly, even in recent years— when 'born digital' generations were already using computer devices even before they ever set foot in an office—this idea was still used to explain GUI." Manovich proceeds to quote recent Apple developer guidelines to that effect. Lev Manovich, *Software Takes Command: Extending the Language of New Media* (New York: Bloomsbury, 2013), 101. A few have harsher words for Apple's design philosophy. See: Austin Car, "Will Apple's Tacky Software-Design Philosophy Cause a Revolt?" *CO.DESIGN,* Fast Company Design, September 11, 2012, https://www.fastcodesign.com/1670760/will-apples-tacky-software-design-philosophy-cause-a-revolt; G.F., "User Interfaces: Skeu you," *The Economist,* November 8, 2012,

new: early pottery mimicked the shape of its predecessors, whether gourd, basket, or

bowl. It is common to find pottery with skeuomorphic surfaces, textured to imitate

basket-weave, netting, cords, or leather (Figure 7). The standard understanding is that the

traits characterized by skeuomorphism are merely ornamental, whereas the borrowed

design elements were once functional or features of the object's material constitution. It

remains to be seen whether skeuomorphism is "merely" ornamental, and, in either case,

what significance can be made of its regular appearance in past and present design forms.

Figure 7
museum.girl, "Basketry skeuomorphism on ceramic vessel […] from a male
grave dated to 550 A.D." 2007.
(http://www.flickriver.com/photos/museum_girl/4675084064/)

In the German-language and Scandinavian archaeological traditions, this

phenomenon (or one closely related to it) is called a typological rudiment, a "shadowy

remnant of what once was."[247] When arranging artifacts according to morphological complexity or specialization, these rudiments signal the introduction of new design types and their ramification from other designs. Within the larger continuum mapped out by morphological seriation, these rudiments mark the seeds of eventual discontinuity, the moments when different purposes and stylistic trends nudge the same design form in different directions. They are valuable evidence for the relationship between instances in a series because, as we will see, skeuomorphism and typological rudiment suggests the direction and impetus for formal development where a "functionalist" account of purpose and use falls short. Standing before a table littered with pottery, an archaeologist or design cataloguer would be hamstrung if she were limited to a consideration of function alone: every artifact before her might be a "vessel used to hold things."

The argument or one of the arguments characteristic of functionalism is that the appearance of new design elements is motivated by the appearance of new needs. In such a view the transition from gourds and baskets to ceramics was necessary, as was the latter's initial skeuomorphism of the former. Against this, one might instead argue that, in the case of ornamentation or the contemporaneous development of designs with similar functions, design change is driven by the genius of talented designers who put their creative stamp on old forms. Design historian Adrian Forty finds both explanations wanting. The functionalist argument fails to account for the immense variety of design forms; Forty asks, "Could Montgomery Ward's 131 different designs of pocket knife be

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[247] "Typologische Rudimente sind schattenhafte Reste dessen, was einst war." Nils Åberg, "Typologie," in *Reallexikon der Vorgeschichte* 13 (Berlin: de Gruyter, 1929), 514.

said to be the result of the discovery of new ways of cutting?"[248] The design genius argument, on the other hand, "betrays a misunderstanding of the process of design and manufacture, for it attributes to designers a power and autonomy they do not in practice possess."[249] Instead, Forty argues that design is in a "direct relationship to the ideas of the society in which they are made," that they bear "silent testimony of the fact that their various designs were intended for different groups of people," and that, therefore, "to know the range of different designs was to know an image of society."[250]

If the differences among pots or pocket knives are irreducible to function, then ostensibly it is a question of their ornamentation, or, to recall our previous discussion, a question of their morphological profile or material form. It is from this perspective that the typological rudiment is an invaluable sign.[251] Invaluable though they might be, what are these rudiments exactly? Typically they take one of three forms: 1) something is integrated into a new ornamental design and receives a new function and meaning; 2) something is "barbarized," i.e. something in antecedent design is imitated but misunderstood, "retains its function, but loses its meaning"; 3) a meaningful or functional design element is retained but loses both meaning and function.[252]

Even more so than the difference between frequency and morphological seriation,

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[248] Forty, 93.

[249] *Ibidem*.

[250] *Ibidem*.

[251] Hence the fitting title for one of our sources. Gerhard Dotzler, *Ornament als Zeichen: Methodologische Probleme der archäologischen Interpretation* (Frankfurt am Main: Verlag Peter Lang, 1984). Any translation of this text is mine.

[252] Dotzler, 19.

the typological rudiment or skeuomorphism reveals the design form to be stratified by different *plans*. There are many ways we could tell this story: we have a continuum of material shapes understood apart from any function or meaning, a continuum of material shapes that do or do not lend themselves to be used and interpreted in certain ways, a continuum of uses or functions, and a continuum of interpretations and associations. Somehow all these continua mark the "same" entity, and the skeuomorph is evidence not only of their simultaneity, but of their mysterious commutation. The typological rudiment marks the ramification of new series as artifacts are put to new purposes, are no longer put to others, take on new social roles, or when different techniques or materials interrupt business as usual: it implies a compatibility of shape and use, of expectation and production, of meaning and function. The *plans* that stratify the same ceramic object must cooperate in a specific way *in order* for us to say that this is functional and that is ornamental, that an artifact design has been "barbarized," and so on.

What do skeuomorphs or typological rudiments mean? We have several options for how we can use them to marshal archaeological interpretation. According to one approach, skeuomorphism marks difficult transition periods in technological development: people sometimes require morphological or superficial remnants of past technology to ease their transition to new technology; artisans sometimes adapt old styles to new materials and methods. Indeed, some archaeologists have insisted that, while most "researchers privilege utilitarian or economic factors in the innovation and adoption of ceramic vessels and other artifacts," skeuomorphism was "instrumental in the acceptance

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of innovations such as pottery."[253] Secondly, if we assume that all ornamental, i.e. allegedly non-functional, characteristics of design types stem from typological rudiments which were once functional, then the task of typology "is to determine the original function for ornaments."[254]

Suppose we took the first approach; consider again the famous example of skeuomorphism in early basket-informed ceramics. Such pottery indicates

> not only that people wanted pottery but also that, even while not entirely accepting its unique physical properties (surface texture, appearance), they manipulated their production and decoration technique in sophisticated ways[, which] suggest that potters were well aware of, and versed in, the physical properties of fired clay.[255]

This brings us to a third way of understanding skeuomorphism, since it is unlikely that people were baffled by pottery and that their worries were assuaged by its basket-inspired surface details, or that artisans only got used to new ceramic techniques with the aid of such patterns. Instead, these forms

> might have a lot more to tell us about social and technological change than whether one material was better, newer, lacking in cultural associations, or more valuable. Skeuomorphism allows people to attribute the power, meaning, and other cultural associations of one object to a new and different one.[256]

The study of ceramic skeuomorphism is important because it "reveals the potter's

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[253] John H. Blitz, "Skeuomorphs, Pottery, and Technological Change," in *American Anthropologist* 117.4 (2015), 665.

[254] Dotzler, 65.

[255] Catherine J. Frieman, "Innovation and Identity: The Language and Reality of Prehistoric Imitation and Technological Change," in *The Archaeology of Hybrid Material Culture*, ed. Jeb J. Card (Carbondale: Southern Illinois University Press, 2013), 321.

[256] Frieman, 323.

culturally determined conception of the proper shape and appearance of a vessel, copied from a familiar nonceramic prototype container."[257]

The second and third approaches to the skeuomorph recall basic aspects of *agencement* and the *plans* it comprises. If the features of design we now understand as functional were once ornamental, or *vice versa*, this suggests that the categories of "function" and "ornament," despite their apparent discontinuity, are in some way continuous. The continuity of these discontinuous attributes reflects the *plans* of the two seriation methods discussed above: on the one hand an artifact is understood according to its function, distribution, and frequency, while on the other hand, we view it in terms of its material form, a form with the potential to develop in different directions and to lend itself to different uses. Deleuze and Guattari might say a *plan d'organisation* on the one hand and a *plan de consistence* on the other.

Design is an ambiguous term, and I've suggested that this ambiguity ought to be embraced rather than differentiated. "The study of ceramic design" may refer to a vase's material, its shape, the process of its making, its use, its ornamentation, its frequency or distribution, its heritage and legacy, and so on. Perhaps not the design "itself," but the study of design reveals a conformity of different considerations or perspectives, aspects under which the same ceramics form as different substances. This is most salient in our third approach to skeuomorphs, according to which basket-inspired pottery reflects material, technical, cultural, and political trends—a confluence of materials and ideas.

CONCLUSION

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[257] Blitz, 667. See also Blitz 666-7 for an excellent account of the literature on ceramic skeuomorphism.

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As we developed our understanding of *agencement* and began to articulate that understanding in the terms of design, our initial breakthrough was that an *agencement* in Deleuze's work was an *agencement* of *plans*. We might have doubled our trouble: now we had two French terms which were difficult to translate, and which had several distinct possible meanings. A survey of its appearances in Deleuze and Guattari's writings as well as a few of the roles it has played for related philosophers gave us a clearer sense of its meaning as well as the meaning of *agencement*. What is more, our survey furnished criteria for design, desiderata for an approach to design suitable for an approach to Deleuze. We had hoped to find a way to think of design such that it comprised heterogeneous aspects or points of view, such that these points of view were not merely subjective attitudes independent of the design itself but were immanent to it, such that these points of view were commutative and interdependent, and finally, such that it implied both Problems of Consistency. In what remains of our project, we will find that other practical and theoretical approaches to design confirm our present archaeologically-informed account.

First, we saw that the different methods for determining archaeological types implied heterogeneous *plans*: one according to a morphological seriation, and one according to a frequency seriation. We might also distinguish, as biologists do regarding the notion of "species", between a vertical and horizontal understanding of type.[258] There

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[258] Simpson distinguishes between a horizontal, genetic concept of species that refers to groups of actually or potentially interbreeding, distinct, natural populations of organisms—horizontal, because contemporary—and a vertical, evolutionary concept of species that refers to lineages which have developed separately and which have characteristic evolutionary roles and tendencies—vertical, because linked in ancestor-descendent sequences. See George Gaylord Simpson, *The Principles of Animal Taxonomy* (New York: Columbia University Press, 1961).

were also different senses of the word, "function," and in all cases, these different approaches and different meanings all laid equal claim on the archaeological artifact, but according to different *plans*: function as use or as design, function as opposed to style, function as opposed to ornament, and so on.

Third—I will come back to the second desideratum—these *plans* are commutative and interdependent. For Hjelmslev, commutation occurs when a "correlation in one plane […] has relation to a correlation in the other plane of language."[259] His language is technically precise: correlation is defined as a disjunctive, "either-or function," while a relation refers to a conjunctive, "both-and function"; the former belongs to a linguistic system—e.g. either singular or plural, either *b* or *p*—while the latter belongs to actual linguistic processes of text or speech—e.g. *r* and *u* and *n*.[260] We know we are dealing with something commutative if we can discern a correlation, or systematic disjunctive alternative, on one *plan* which is analytically heterogeneous but which is in actuality inevitably conjoined with such a disjunctive alternative on another *plan*.[261]

Put another way, in order for *plans* to qualify as commutative, they must meet two main requirements. First, they must be heterogeneous; if either is reducible to the other, we are ultimately dealing with a single *plan* and cannot reasonably say that the "correlation" on one is related to a correlation on *the other*. Second, while they must be irreducible, they must actually appear conjoined in experience; otherwise they do not

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[259] Hjelmslev, *Prolegomenon,* 66.

[260] *Ibid.,* 36.

[261] Siertsema deems it unlikely that the "relation" in Hjelmslev's definition of commutation is the both-and function he describes elsewhere, but I believe that insisting on such a reading highlights the characteristic of *agencement* I have tried to develop: that *plans* are heterogeneous but nevertheless appear conjoined. See Siertsema, 165.

bear a real relationship. If design is commutative, then a change on one *plan* should accompany a change on another *plan,* and *vice versa*: a change in *A* should result in a change in *B,* while a change in *B* should reflect a change in *A.* And a consequence of our two requirements is that, as heterogeneous, *A*'s permutation in *B* will likely not resemble *B*'s permutation in *A.* Consider one of the examples that led Hjelmslev to posit heterogeneous *plans*: *s* exists as a unit of both sound and meaning. From *kite* to *kites*, a change in content (plurality) can indicate a change in expression (the sound /s/) and vice versa. However, plurality does not always demand an added /s/; see for example the permutation of *mouse* to *mice*. Furthermore, from *write* to *writes,* the change in expression (an added /s/) shifts the content from plural to singular, contrary to the added /s/ in *kites*. This lack of symmetry demonstrates the heterogeneity as well as the commutative relationship of these linguistic *plans*.

We identified several candidates for the *plans* of design: because they sound an awful lot like Hjelmslev's own "content and expression," we can refer to the difference between form (as shape) and function (as use) for an example. First, we note that each of these *plans* involves its own correlations, or disjunctive alternatives: cookware can take many forms, it can be shaped in one way or another; cookware can be made to serve many functions, e.g. it can be used for frying or boiling. Second, we note that a change in the form, in materials or dimensions, affects what one can cook and how one cooks it. And with the development of new culinary functions and techniques, we will need to form our cookware differently, to adjust its materials and dimensions.

Fourth, our example of commutative cookware already suggests how design might involve both of the "problems of consistency" we have described. The first

problem of consistency concerns the "endoconsistency" of heterogeneous elements; *plans*

which are heterogeneous stick together, nevertheless. We briefly interpreted this problem

through the theoretical frameworks of Spinoza and von Uexküll: for Spinoza, "internal

consistency" might refer to the fact that the irreducible attributes of thought and

extension nevertheless find their consistency in the same substance; for von Uexküll it

refers us to the *agencement* of an animal's *Merkwelt* and *Wirkwelt*, the link between a

world of activity and a world of perception. On the basis of the term alone, "design"

implies a consistency common to *dessein* and *dessin*—in the abstract *dessin* of our design

we find things we did not intend in our *dessein*, unintended *desseins* lurking in an initial

dessin.

  When different *plans* meet in design, as consistent, we are led to draw a further

plan, one of consistency. From this perspective we might consider the design's unique

way of coordinating its *plans*; on a *plan* of consistency we might track how far we can

"push" this style before the design no longer holds, or before it dissolves, or becomes

something else. It is as if, "beneath" the design understood as function and/or form, we

discover the ground that lends itself to this particular commutation of function and form.

Thus, in addition to its internal consistency, we find design under "external" conditions

which render it functional, pleasing, appropriate, and so on.[262]

  Spinoza's external consistency resides in the relationship between the attributes

and substance itself, rather than the attributes' internal consistency in substance: thought

and extension share an order and connection, which means that we can abstractly

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[262] Recall that the *-gencer* in *agencer* refers both to the creation of something and to the presence of a
pleasing quality. *Ad-gencer* means something like "to bring to be," "to bring into being," or "to bring to the
point of being pleasing or suitable."

consider this order and connection to arrive at an affective continuum—the logic according to which substance lends itself to form as thought in this way, or to form as extension in that way.[263]

Von Uexküll's version of the story appears with the "solid chaos" of the oak tree; the oak is sliced into countless forms according to the different *Umwelten* of its inhabitants (as well as its own *Umwelt*), so that, taken together, the oak tree "itself" can only be chaos. But this chaos was not entirely indeterminate, for it had to be "solid enough" to support its various instantiations and to distinguish it from other chaoses (from the elm tree, from a boulder, from a Jeep Cherokee). With design, we can oppose all other *plans* to that suggested by the skeuomorph and by morphological seriation: the potential of future shapes in a present shape, the *plan* that lends basketry to pottery and which stretches a ceramic vessel across culinary, carrying, and ceremonial purposes. Accordingly, and in view of this brief comparison to Spinoza and von Uexküll, we might distinguish the second problem of consistency from the first by calling its *plan* one of "support," distinct from the previous *plan* of consistency.

Finally, all of this brings us to the *second* of our desiderata, the expectation that the features of our description belong to design, to the "object," and are not merely "subjective" projections onto it. Even though we have limited ourselves to the archaeological study of pottery, our account of Deleuze, his predecessors, and archaeological typology has borne out this requirement. Granted, the oak tree appears differently according to the formal demands of different animal subjects, but there must

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[263] This is in fact the subject of Book III of *The Ethics*.

be something *in* the oak tree which supports these different appearances. In a morphologically determined typological series, a design "supports in advance" its later development, subsequent uses in subsequent contexts. It is as though its eventual functional and ornamental features were "preformed," in what we retroactively determine to be typological rudiments. In Deleuze's parlance, we describe a perspective that is virtual, that is, real without being actual.

In typological rudiments we see, from the present, a past design's potential future. Given a present design form, who is to say what new morphological developments or new functions it will support? It may bear what will be the rudiments for future types. What cements design's relationship to Deleuze and Guattari's theory of *plans* is the idea of support, or of affordance. A design affords or lends itself to certain interpretations and uses; we might justifiably call any discrepancy in interpretation or use a matter of perspective, but only on condition that such "perspective" requires its support in the design "itself." The logic of affordance is implicit in Deleuze's work and even directly stated in Guattari's:

> [Y]ou cannot make a mold for a key out of just anything—you need a particular kind of wax; if you were to try doing it with mashed potato, you could not hold or transfer the diagrammatic outline that makes the key what it is. If you want to reproduce that outline on paper you need a brush that is not too broad, and ink that is neither too thin nor too thick. In other words you must choose materials of expression suited to the features of the machinism you want to transfer.[264]

This logic, according to which the singular traits of a system of connection meet with the "capacity of the materials of expression to use, to activate, to organize that

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[264] Felix Guattari, "Concrete Machines," in *Molecular Revolution,* 155.

system of connection," will be the subject of the next chapter, as we continue on to

discuss the "diagram" and its place in design.[265]

[265] *Ibidem*.

CHAPTER III

DESIGN BETWEEN DESSIN AND DESSEIN:

DIAGRAMS ABSTRACT AND CONCRETE

"Newton did not shew the cause of the apple falling, but he shewed a similitude between the apple and the stars." [266]

"The form, then, of any portion of matter, whether it be living or dead, and the changes of form which are apparent in its movements and in its growth, may in all cases alike be described as due to the action of force. In short, the form of an object is a 'diagram of forces.'"[267]

D'Arcy Wentworth Thompson

An *agencement* crosses two axes: on one axis it is stratified along a *plan* of content and a *plan* of expression; on the other axis, it comprises both a *plan d'organisation* and a *plan* of consistency. So the story goes with Deleuze and Guattari's most detailed definition of the term. We looked more closely at what *plan* meant, both in these four individual cases and in its general significance for the definition of *agencement.* Our inquiry allowed us to think of *plans* as aspects, considerations, or points of view, and the heterogeneity or irreducibility of these points of view helped us define two distinct "problems of consistency." Consistency is first an issue when we try to account for the continuity of the irreducible *plans* proper to an *agencement.* But insofar as this *agencement* can change, can drift away or dissolve, and insofar as it is by definition suitable *for* something or pleasing *to* someone, the question of the

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[266] D'Arcy Wentworth Thompson, *On Growth and Form,* 2nd Edition (Cambridge: Cambridge University Press, 1942), 9.

[267] *Ibid*., 16.

agencement's "external" consistency remains.

In this chapter, I argue that the different ways of combining plans—described by the two problems of consistency--represent different sides of the concept of "diagrams," as these appear in design and in Deleuze. We will describe design according to Deleuze's use of the concrete and abstract: design is abstract when a function of distribution and concrete when collective. The concept of the diagram directs our attention to the virtual "would-bes," the "real possibilities" of an *agencement* in one case and of design in the other.

CHRISTOPHER ALEXANDER'S WHOLE PROBLEM

The two architects perhaps most known for their theoretical development and practical use of diagrams butt heads in their infamous exchange at the Graduate School of Design at Harvard; among other things, Christopher Alexander and Peter Eisenman disagreed on the architectural value of discord, i.e. whether there were circumstances that called for the design of an uncomfortable space, or whether discomfort could be valuable or productive. Alexander stood adamant against the idea; for him, the architect's sacred duty is to foster harmony in the world by attending to the inner principles of form such as are found in nature, to act as a sort of paladin in the service of life, wholeness, and completeness.[268]

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[268] The positive and humanist tones of Alexander's profile cannot be overstated. In his famous debate with Peter Eisenman, when discussing *disharmony* and architectural forms designed to be confrontational and uncomfortable, Alexander exploded that such architects were "screwing up the world." He goes on to decry the idea that discord, failure, or incompleteness might have architectural value, claiming that such views— characteristic in his mind and in others' of postmodernism and deconstructionism—are "really fucking up the whole profession," since architects "are entrusted with the creation of harmony in the world" (247-8). For a transcript of the debate, see Nikos Salingaros, *Unified Architectural Theory: Form, Language, Complexity* (Portland: Sustasis, 2012), 236-49. Paul Rand was responsible for the most prominent logos of

What he calls the "life" of a building or town grows directly from "the inner nature of the people, and the animals, and plants, and matter which are in it."[269] Good, living design is an organic process of cultivating the character particular to a given arrangement of elements; Alexander sometimes calls it life, or wholeness, or completeness, but because it "is never twice the same, because it always takes its shape from the particular place in which it occurs," the standard for good design cannot be universally stated; it is a quality which "cannot be named."[270]

Good architecture is "alive" in the way a campfire might be said to be alive, if "made by someone who really understands a fire."[271] Yet we typically understand life in literal or biological terms, and Alexander wants to insist that there is nothing metaphorical about the nameless quality, even though it applies to non-biological phenomena. We might call it "wholeness," but that could inappropriately place boundaries on the quality or prevent us from thinking of it as open-ended; he then suggests "comfortable," but then worries that some of our uses of the word might distract, such as when used as a euphemism for wealth.[272] Thus Alexander continues—he repeatedly tries to name the hallmark of good design and revokes each candidate no sooner than he proposes it. If the architect's task is to cultivate and support the "nameless

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American society: IBM, UPS, ABC, and more. Much like Alexander, he understands design as an "organic and functional unit, each element of which is integrally related to the others, in harmony with the whole, and essential to the execution of the idea." Paul Rand, *Thoughts on Design* (New York: Wittenborn and Company, 1947), 1.

[269] Christopher Alexander, *The Timeless Way of Building* (New York: Oxford University Press, 1979), 7.

[270] *Ibid.,* 25-6.

[271] *Ibid*., 29.

[272] *Ibid*., 33.

quality" proper to good design, it remains to be seen how this quality can be identified and reproduced, whether by designer or philosopher.

What is most noteworthy for us about Alexander's concern for harmony and wholeness is not the normative, quasi-spiritual value he lends it but the way in which it informs his understanding of diagrams. In his dissertation, before he shifts his vocabulary away from diagrams in favor of a "pattern language," he defines a diagram as "an abstract pattern of physical relationships which resolves a small system of interacting and conflicting forces, and is independent of all other forces, and of all other possible diagrams."[273] As with so many others, Alexander's account of design privileges its relationship to problems and solutions; the abstract pattern of a diagram maps a problem as well as the series of its possible solutions. A design form consists in a concrete instance of or solution to an abstract problem.

While form may be the "ultimate object of design,"[274] a myopic consideration of form at the expense of everything else will prevent the designer from achieving the wholeness or Alexander's nameless quality. In his attempt to trace "design problem[s] to [their] earliest functional origins" in order to "find some sort of pattern in them," he splits the design problem in two halves that together account for why a diagram's forces are interacting and conflicting—why these forces need resolving.[275] Every design problem "begins with an effort to achieve fitness between two entities: the form in question and its

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[273] Christopher Alexander, *Notes on the Synthesis of Form* (Cambridge: Harvard University Press, 1973), *v*.

[274] See *Ibid.,* 15.

[275] *Ibidem*.

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context. The form is the solution to the problem; the context defines the problem."[276]

Form alone is not enough to characterize design, and the distinction and relationship between solution and problem, context and form, suggests what makes design a distinct term from form, shape, or appearance: "when we speak of design, the real object of discussion is not the form alone, but the ensemble comprising the form and its context."[277] The form of a chair refers us to the chair itself, its structure or its composition. The chair's *design*, on the other hand, implies that we ought to consider its form in context, that is, in a field of preferences and desires, possible acts which may or may not be intended, accidental, desirable, consciously performed, and so on. It is the chair's context which constitutes the "problem" of its design, and a design-form's context is complex and dynamic. Hence why design is a problem not only because we can theoretically discern the needs satisfied by a particular form, but, "in real world cases," because the designer must attempt to "make a diagram for forces whose field [they] do not understand."[278]

Hence also why designers working in fields as distant as product design, graphic design, architecture, and engineering often agree in reminding us that a design's problem can be just as elusive as its solution. Nigel Cross, in *Design Thinking*, complicates a famous adage from architect Denys Lasdun: "Our job is to give the client not what he wants, but what he never dreamed he wanted." Cross points out that, after interviewing

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[276] *Ibidem.*

[277] *Ibid.*, 16.

[278] *Ibid.,* 21.

leading product designers and reviewing their careers, "'the solution' is not always a straightforward answer to 'the problem.' A solution may be something that not only the client, but also the designer 'never dreamed he wanted.'"[279] The problem is not clearly given in advance, and the process of design involves the determination of the problem no less than it does the formulation of its solution. Thus, since design comprises both context and form, problem and solution, Alexander's diagrams need to account for both.

PROBLEMS AND SOLUTIONS

Design indisputably has some relationship with problems. One approach to understanding this relationship is to treat a design as a solution to a problem or a set of problems, as the expressed product of a panoply of pressures, preferences, and constraints: from clients, contractors, communities, climate conditions, etc. The risk in characterizing design as solution, however, is that one might lose sight of what we have just described as a hallmark of design—as a concept and as a process. Design problems are not given, ready in advance, and are not dissolved in their design "solutions." Design embodies problems no less than solutions to problems, as succinctly expressed by the series of reflections which accompanied the construction of the Design Research Laboratory's DRL Ten Pavilion: *Nine Problems in the Form of a Pavilion*.[280]

Because Alexander formulated his notion of diagrams in terms of problems and solutions, as the context and form constitutive of design, we turn again to Deleuze, in

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[279] Nigel Cross, Design Thinking: Understanding How Designers Think and Work (New York: Bloomsbury, 2011), 10.

[280] *Nine Problems in the Form of a Pavilion*, eds. Alan Dempsey and Yusuke Obuchi. London: Architectural Association, 2010.

whose career problems are an enduring subject. He opposes two common ways of understanding problems and problem-solving, entrenched both within and without the philosophical tradition. From one end, we might try "tracing problems from supposedly pre-existing propositions"; from the other, we might evaluate given problems "according to the extrinsic and variable form of the possibility of their finding a solution."[281]

The first corresponds to what Deleuze calls an "natural illusion" that results from understanding a problem only in an interrogative form which requires that its solution takes the form of a proposition. Interrogation then "dismembers problems and questions, and reconstitutes them in accordance with the propositions of the common empirical consciousness."[282] In other words, although problems are themselves extra-propositional, as something abstract which only exists as expressed in its solutions, we mistake them for interrogative statements which are "given ready-made," and which "disappear in the responses or the solution."[283] Suppose we understood a problem in the form of a question, "What is half of twenty?" The issue here is that such a question is often framed with a solution already in mind, a proposition given in advance from which the question is derived: "Half of twenty is ten."

Not only is the problem and its solution assumed to be given and ready-made, but this illusion leads us to presume that the sense or standard according to which propositional responses are judged true or false is also given in advance. Deleuze writes:

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[281] Gilles Deleuze, *Difference and Repetition,* trans. Paul Patton (London: Continuum, 2001), 161. Gilles Deleuze, *Différence et repetition* (Paris: Presses Universitaires de France, 1968), 209. Henceforth *DR.*

[282] *Ibid.,* 157/204.

[283] *Ibid.,* 158/205.

> Far from being concerned with solutions, truth and falsehood primarily affect problems. A solution always has the truth it deserves according to the problem to which it is a response, and the problem always has the solution it deserves in proportion to *its own* truth or falsity—in other words, in proportion to its sense.[284]

Even in the case of our simple example, "What is half of twenty?" the problem expressed in the question dictates its requirements and the conditions under which a solution will or will not satisfy its requirements. Among other things, it implies in what sense we should understand the word, "half."

The second common way of approaching problems Deleuze opposes corresponds to the "philosophical illusion," according to which we might recognize the need to "apply the test of truth and falsity to problems themselves," but mistakenly assume that "the truth of a problem consists only in the possibility that it receives a solution."[285] No less than with the natural illusion, judging problems according to their solvability still depends on a standard external to the problems themselves. Deleuze instead wants us to think of problems as harboring an "imperative internal element which decides in the first place its truth or falsity and measures its intrinsic genetic power."[286] The potential solutions to a problem or its possibility of finding a solution at all ought to be "determined by the conditions of the problem, engendered in and by the problem along with the real solutions."[287]

All of this leads to a fundamental difference separating problems and solutions,

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[284] *Ibid.,* 159/206.

[285] *Ibid*., 159/207.

[286] *Ibid.,* 161/210.

[287] *Ibid.,* 162/210.

because the latter can only ever be particular cases or expressions of the former. Propositions of solution, particular instances of the problem, general formulations of the problem—these "find their sense only in the subjacent problem which inspires" or motivates them; the sense according to which such propositions may be interpreted or evaluated is determined "within a complex capable of comprehending imaginary situations and integrating an ideal of continuity."[288] A problem consists in such a complex, the "'how and the circumstances,' from which propositions draw their sense."[289] Because there is something "in" the problem itself that dictates its sense and the sense of its solutions, problems cannot be merely subjective moments of uncertainty. Problems are objective, in that they themselves determine the sense of their objectivity for a subject, rather than having been extrinsically applied to an object by a subject.

From the commonsense approach to problems, a problem disappears once it finds its solution. On this point, Deleuze contends that, since solutions are not independent of their problems as discrete propositions, "a problem does not exist, apart from its solutions."[290] In other words, it is not that problems lack reality, but that they "insist" or persist through their solutions.

What we find then, in another form, is precisely what motivates Alexander's concept of the diagram: in order to truly understand design as a function of problems and solutions, we cannot define a problem too concretely, since it will vary according to the

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[288] *Ibidem.*

[289] *Ibid.,* 163/212.

[290] *Ibidem.*

context which characterizes it. It will need to be abstract enough to address what is expressed in an "infinite variety of designs."[291] Furthermore, Alexander's "nameless quality" is nameless precisely because a design-form's sense of wholeness is determined by its problematic context, and so every diagram will imply its own standard of "fitness." Finally, as suggested by Deleuze, the diagram suggests a clear distinction between problem and solution while nevertheless forbidding us from understanding design solely in terms of one or the other. The designer will have to determine her problem in addition to determining her solution. Her challenge is to find "some kind of harmony between two intangibles: a form which [she has] not yet designed, and a context which [she] cannot properly describe."[292]

DIAGRAMS IN ARCHITECTURE

With Deleuze's comments in hand we have a better sense for what motivates the architectural concept of the diagram, and we return to Alexander and Eisenman to see how this idea develops on its native terrain. We might start by considering Alexander's complaint against the architecture which fails to privilege wholeness, harmony, or his so-called nameless quality. For him, design does not "say" anything; it is not a statement, political or otherwise. Architecture, pursued properly, ought not to result in anything "abstract" because it is by definition aimed at harmony, at producing something whole or concrete. The problem with abstract postmodernist or deconstructionist architecture was that it allowed "the design," "an image" to crowd out the processes that "play a more

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[291] Alexander, *Notes, v.*

[292] *Ibid.,* 26.

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fundamental role in determining the life or death" of a building.[293] In one understanding

of the term, "design" is the imagined final product that guides the making process, and

the materials and procedures entailed by the making process are in the service of this

projected image. Alexander picks up a tile whose surface is glazed with a colorful,

geometric pattern:

> As I thought more about how to do it—if I were making such a tile—I
> began to see that the sharp, almost hard design, the brilliant separation of
> glazes which makes the colors beautiful, and even the design itself, the
> character of straightness, curvature, and the formal quality of the line, are
> all by-products of a particular kind of process which must be used to make
> such a tile.[294]

Alexander's nameless quality and the architecture it motivates concern the "inner

nature" of things, the demands inherent to the interaction of people, events, and materials

involved in a natural or built form and to its making process. In the attempt to

accommodate such varied, often conflicting forces we can proceed on the basis of two

sorts of pictures; two sorts of "design" can guide the process. Against the "images" of

abstract architecture, his natural or timeless way of building involves what he calls "word

pictures in the mind's eye."

> A word picture in the mind's eye is a medium in which we can see only
> what the words describe, and nothing more. A picture on paper or
> computer representation, on the other hand, says too much, and often
> therefore contains information and decisions which are arbitrarily added,
> and which have not—themselves—come from use of structure-preserving
> process.[295]

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[293] Christopher Alexander, *The Nature of Order, Book Two: The Process of Creating Life* (Berkeley: The Center for Environmental Structure, 2002), 3.

[294] *Ibid.,* 6-7.

[295] *Ibid.,* 257.

Pictures in the mind's eye against pictures on paper. The latter risk "saying too much" because they are necessarily particular expressions of the former. "Word pictures" are relations that can be expressed in different ways, and the architect's expression should attend to the inner nature of her design's circumstances. If I want to build something that "towers above me, when I approach it, this says something qualitative about its height, but does not yet describe the exact height, nor does it describe its shape."[296] A picture on paper, which expresses this relation, will imply an actual proportional height, and will have "many features of shape, width, volume, articulation, which have not in fact been generated by the fundamental process."[297]Thus Alexander focuses on what he takes to be the more fundamental pictures, to protect his building from anything extrinsic to its inherent requirements.

His work on diagrams and, later, patterns develops a commitment to his mind's word pictures; the challenge is to put them on paper without letting them devolve into "pictures on paper." One cannot overestimate the scope and significance of the impact of the pattern language he formulated as a result, in the 1970's. None of the patterns he describes are presented as fixed essences but as rules of thumb in response to hypothetical circumstances:

> each pattern represents our current best guess as to what arrangement of the physical environment will work to solve the problem presented. The empirical questions center on the problem—does it occur and is it felt in the way we have described it?—and the solution—does the arrangement we propose in fact resolve the problem? But of course […] the patterns are

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[296] *Ibidem.*

[297] *Ibidem.*

still hypotheses […] and are therefore all tentative, all free to evolve under the impact of new experience and observation.[298]

Pattern language has been a success, not least of all in the so-called "Oregon Experiment," where the University of Oregon campus in Eugene, Oregon offered Alexander and his team the testing grounds for developing the method.[299] It has also been useful for the development of information, software, and architectural patterns in computer science; for example, the collaboratively managed structure called a "wiki" was largely developed as a tool "to facilitate efficient sharing and modifying of patterns."[300]

At any rate, the designer can identify the nameless quality of a well-designed room by carefully attending to the pattern of events that regularly occur there, a pattern which contributed to the room's current form and which likewise shapes our engagement with it. Design becomes an interlocking system of patterns in space and patterns of events. See Alexander's example of a sidewalk:

> The people on the sidewalk, being culture-bound, knowing that the space which they are part of is a sidewalk, and, as part of their culture, they have the pattern of a sidewalk in their minds. It is this pattern in their minds which causes them to behave the way that people do behave on sidewalks, not the purely spatial aspect of the concrete and the walls and curbs. […] Each sidewalk is a unitary system, which includes *both* the field of geometrical relationships which define its concrete geometry *and* the field of human actions, which are associated with it.[301]

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[298] Christopher Alexander, Sara Ishikawa, Murray Silverstein, Max Jacobson, Ingrid Fiksdahl-King, and Shlomo Angel, *A Pattern Language: Towns, Buildings, Construction* (New York: Oxford University Press, 1977), xv.

[299] Indeed, their work in Oregon ultimately resulted in the two main works that describe the method of using pattern languages—the "timeless way" of building: *A Pattern Language* and *The Timeless Way of Building*. See Christopher Alexander, Murray Silverstein, Shlomo Angel, Sara Ishikawa, and Denny Abrams, *The Oregon Experiment* (New York: Oxford University Press, 1975).

[300] Ward Cunningham and Michael W. Mehaffy, "Wiki as pattern language," in *Proceedings of the 20th Conference on Pattern Languages of Programs* (Corryton, TN: The Hillside Group, 2013), 1-14.

[301] Alexander, *Timeless Way,* 72-3.

In this unitary system, patterns of events and patterns in space are interdependent, such that neither set of patterns can exhaustively explain the entire design. A certain arrangement of furniture in a certain kind of space lends itself to the configuration of events characteristic of an "art studio," and we tend to associate this configuration of events with a certain arrangement of furniture in a certain kind of space. The two sorts of patterns exist together; it is not that "space creates events," nor that "it causes them."[302] The nameless quality of good design, its life or wholeness, marks these patterns' mutual fitness.

The patterns most significant for Alexander's architect, entrusted with protecting and procuring life and wholeness, are not those of events or those in space, but the pattern of their interaction. He wants to know precisely "how the structure of the space supports the patterns of events it does, in such a way that if we change the structure of the space, we shall be able to predict what kinds of changes in the patterns of events this change will generate."[303] The two commutative *plans* of events and geometry support and affect each other, and Alexander's work leads us from particular architectural expression to the diagrams or patterns expressed in architecture. In houses we find similar patterns of structural elements and similar patterns of events, but the elements themselves appear differently wherever they occur, so these elements "cannot be the ultimate 'atomic' constituents of space."[304] The nameless quality remains indeterminate only so long as the

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[302] *Ibid.,* 72.

[303] *Ibid.,* 83.

[304] *Ibid*., 84.

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architect focuses on particular shapes and structural elements—pictures on paper—rather than attending to the "fabric of relationships" which "repeats itself and gives the structure to a building or town"; particular elements are "only labels for the patterns of relationships."[305]

EISENMAN'S DIAGRAMS

Alexander and Eisenman's disagreement over the role of architecture reappears in their respective uses and understandings of architectural diagrams. For Alexander, patterns or diagrams characterize the basic relationships that make up problems and the solutions to problems. Because he naturalizes architectural design and understands its form as harmonious and self-preserving, his diagrams are necessarily iterable and constant; incomplete or dissonant architecture cannot endure, whereas the "timeless" way of building works precisely with diagrams or patterns in mind. There is presumably a diagram for every conceivable architectural problem, and if no diagram can be obtained from an actual architectural form this means that it either inadequately solves its own problem or that it is not clearly or actually motivated by a problem. Even if he rewrites the notion of design form to be living and to imply a wholeness or fitness to a problem or context, Alexander remains firmly planted in the modernist tradition of architecture: "form follows function," still and always. The architecture's duty is to foster harmony in the world, and diagrams are the means for doing so.

In their debate, Eisenman claimed that discord might be a legitimate goal for an architectural design, and for this reason stood accused of "screwing up the world." While

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[305] *Ibidem.*

a bit harsh, there are grounds to see this as a compliment—provided, at least, that we take up Eisenman's side of the story. As with Alexander, his take on the concept and use of diagrams reflects his position on architecture.

At one point in the debate Eisenman discusses a building in Logroño, Spain, built by his friend, Rafael Moneo, which included an arcade of extremely thin columns (Figure 8). Alexander may have been unfamiliar with the building, but had a few choice words on the subject, even for a second-hand account.

Figure 8 – Rafael Moneo's project in Logroño

Alexander: The thing that strikes me about your friend's building—if I understood you correctly—is that somehow in some intentional way it is not harmonious. That is, Moneo intentionally wants to produce an effect of disharmony. Maybe even incongruity.

Eisenman: That is correct.

Alexander: I find that incomprehensible. I find it very irresponsible. I find it nutty. I feel sorry for the man. I also feel incredibly angry because he is screwing up the world.

Audience: (Applause)

Eisenman: Precisely the reaction that you elicited from the group. That is, they feel comfortable clapping. The need to clap worries me because it means that mass psychology is taking over.[306]

Eisenman, for his part, is skeptical of the reverent and unexamined demand for comfort—his interlocutor's as well as that of the audience. If architecture should only strive to make people comfortable and to satisfy natural needs, where does that leave the architect who takes issue with these comforts, or who disagrees that such needs are as "natural" as they appear to be? Eisenman believes that architecture offers a means to challenge assumptions, that perhaps a deliberate sense of discomfort can alert people to the forces that underpin their sense of comfort and its urgency.

The primary purpose of the diagram for Alexander is to map the relationship between patterns of events and patterns in space, such that we can assess whether form follows function as closely as we would like, or in a way that feels "whole." While he assumes, in his own way, that architectural form is inevitably tied to function, his framework suggests a challenge to this assumption. On the one hand he holds that design consists in a mutual fitness between spatial patterns and patterns of events, but on the other hand he recognizes that these two sets of patterns can be considered independently, and that the patterns or diagrams he describes are tentative and open to evolve. Form, the set of patterns in space, can very well lend itself to new functions, new patterns of events, uses, and associations. From his earliest writings on the diagram, Eisenman has used the

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[306] Christopher Alexander and Peter Eisenman, "Contrasting Concepts of Harmony in Architecture: The 1982 Debate Between Christopher Alexander and Peter Eisenman – An Early Discussion of the 'New Sciences' of Organized Complexity in Architecture," in *Katarxis* 3 (2004). Accessed April 11, 2018. http://www.katarxis3.com/Alexander_Eisenman_Debate.htm

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concept to suggest that "the substrate of form [as] architecture's interiority, could be detached from such programmatic concerns."[307]

This is not to suggest that form, architectural or otherwise, ought to oppose function. What the diagram does is dissolve any necessary bond between the two, such that even when form does "follow function," we might isolate the design's formal dimension irrespective of any presumed function. The diagram is Eisenman's device for testing architecture's potential. When I consider a building and put aside my assumptions and expectations for what sort of building it is, how it might be labeled or the sort of events I might associate with its spatial patterns, its intended inhabitants, and so on, what do I have left? Whereas Alexander's diagram mapped the relationship between form and function in the context of a problem to be solved, Eisenman's diagram sweeps function away so that we might better understand "the formal" itself: what it is, how it serves the function(s) that it does, and how it might do otherwise.

Eisenman offers a few disclaimers regarding his idea of the formal; I will mention three. First, the formal character of architecture at stake in the diagram is not synonymous with its "aesthetic," since Eisenman is concerned with the form itself and not how it appeals to the senses. So, it is not: this is how the house *looks*, regardless of what it is called or how it is used. Second, it is not to be confused with a "stable set of forms."[308] The diagram traces an abstract array of forces and lines, not the predetermined architectural furniture comprised in a building—façades, rooms, arcades, plinths, windows, etc. Third, Eisenman's ideal of the formal simultaneously articulates "generic

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[307] Peter Eisenman, *Diagram Diaries* (London: Thames & Hudson, 1999), 50.

[308] *Ibid.,* 51.

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form, such as linearity—as opposed to a specific line—and the idea of a process of form," processes and relationships only implicit in the "actual physical character of the form."[309]

Sequences of repeated geometrical procedures, the distorting effect of superposed images, small partial adjustments that snowball into a transformation of the whole (Figure 9)—the diagram offers Eisenman a lens through which one can detect and describe the formal dimension of built artifacts, as well as a way of "searching for a process," a method for both understanding and creating.[310] On this point, at least, he and Alexander have something in common. While they understand the task of architecture differently and conceptualized diagrams differently, both architects understand the use of diagrams as equally theoretical and practical: the diagram is something to be prescribed, realized in an actual architectural form, *and* it is something described, recognized in an actual architectural form.
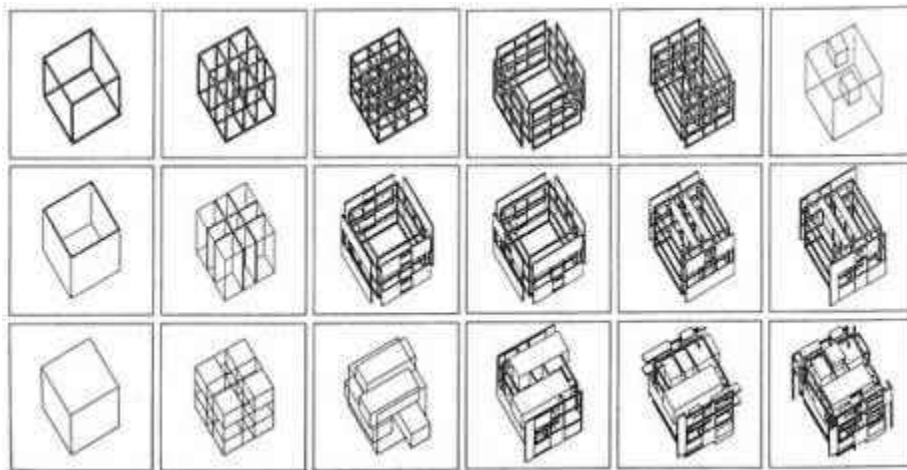
Figure 9 - Peter Eisenman, Diagrams of transformation of House IV, 1971

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[309] *Ibid.,* 52.

[310] *Ibid.,* 54-5.

DIAGRAMS, REGARDING CONTINUITY

In the preceding chapter we reported two ways of talking about consistency and claimed that the concept of *agencement* was formulated to address two distinct problems, one corresponding to a question of internal consistency and the other to a question of external consistency. In the first, the problem is how elements can interact and belong together in the same *agencement* despite being heterogeneous; in the second, the problem is where such an *agencement* stands regarding outside forces, regarding different *agencements*. In both cases we are at liberty to frame things in the more classical or conventional terms of continuity or of "the continuum." At the end of the day, Deleuze seeks a vision of the world without any gaps, whereby we can find the irreducible nevertheless continuous: the continuity of discontinuity.[311]

For the purposes of this chapter, slightly adjusting our language to talk about continuity offers a few advantages. We have seen that not only are problems and problem-solving hallmarks of the concept of design, but that this is more so the case when we take our cues from Deleuze in our approach to problems. We will have a better handle on the diagram's role in the definition of *agencement* (and by extension, design) if

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[311] An unfortunate oversight in our account is the way Deleuze treats continuity and discontinuity in his early book on Henri Bergson. Gilles Deleuze, *Bergsonism,* trans. Hugh Tomlinson and Barbara Habberjam (New York: Zone, 1988). Gilles Deleuze, *Le bergsonisme* (Paris: Presses Universitaires de France, 1966). Glossing over much of the detail in his interpretation, for now I will only mention Deleuze's comments on how Bergson understands the real. Bergson's reality involves two basic steps which line up with our presentation thus far: first, the real is naturally articulated into differences in kind; second, "it is also that which intersects again along paths converging toward the same ideal or virtual point" (29/20-1). These differences in kind are heterogeneous, or irreducible, tendencies, intensities, or directions. Yet despite their difference, they converge onto the same reality. Such is Bergson's two-step method, according to Deleuze: pursue dualism, first, until it comes back around to, second, a restored monism (see 73/71). Deleuze (and Guattari) offer a similar two-step (or two-at-once-step) in their tetravalent definition of *agencement*. One separates heterogeneous *plans* and recognizes their irreducible character, and then one finds the *plan* according to which they "hold together," i.e. how they converge despite their divergence (or the continuity of their discontinuity).

we can more precisely trace its significance for thinking about consistency. As luck would have it, precisely those figures to whom Deleuze's concept of the diagram owes most each addressed their projects to the problem of continuity or of the continuum. We will begin with a head-to-head comparison of so-called "diagrammatism" with its most famous alternative: Kant's schematism. To work out the meaning of diagrammatism, we will first call on Foucault to whom Deleuze explicitly applied this term, and then on Leibniz to foreground its value for thinking about continuity. Continuity will also prove helpful when reading Deleuze's diagram role models: the catastrophic diagrams in the painting of Francis Bacon and Charles Sanders Peirce's theory of signs.

DIAGRAMMATISM VERSUS SCHEMATISM

Deleuze singles out "diagram" as a crucial term for Michel Foucault's philosophy. He has something like the pattern of the coordination of patterns in mind. Alexander's diagrams describe the way spatial patterns and patterns of events support and presuppose each other. In Foucault, the sayable and the visible, the discursive and the non-discursive, represent distinct forms that nevertheless work together to characterize a historical period. On the one hand, the eighteenth century saw the emergence of a form of content, a new way of distributing via "the prison"; at the same time, penal law as a form of expression emerged, a "new way of articulating infractions, sentences, and their subjects."[312] The form of the prison and the form of penal law presuppose one another, and "yet there is no common form, no conformity, not even correspondence" between

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[312] Deleuze, *Foucault,* 31/39.

them.[313] As before, these forms belong to heterogeneous or irreducible *plans,* and their commutation poses important difficulties for Deleuze (and Foucault). First, if these forms are irreducible, can we account for their communication by positing a cause common to both, i.e. immanent explanation that preserves their heterogeneity? Second, given such a cause, how would we account for the variable concrete instances of these *plans'* *agencement*, adjustment, and interpenetration [*l'agencement, l'ajustement des deux forms, leur mutuelle penetration*]?[314]

According to Deleuze, Foucault responds to both problems with the idea of the diagram. Foucault calls the Panopticon the abstract "diagram of a power mechanism" with variable instantiations, a certain way of "placing [*implantation*] bodies in space, of distributing and relating individuals, of organizing hierarchically, of arranging [*disposition*] centers and channels of power, of defining instruments and modes of intervention" which can be actualized "in hospitals, ateliers, schools, [and] prisons."[315] Foucault is dealing with pure forces or relations that abstract from the concrete forms of content and expression, and the abstract diagram of these forces helps him explain the coadaptation of heterogeneous forms. Deleuze likens his "diagrammatism" to Kant's schematism.[316]

The diagram leads a double life. On the one hand, "Panopticism" names the

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[313] *Ibid.*, 33/41.

[314] *Ibidem.*

[315] Michel Foucault, *Surveillir et punir: naissance de la prison* (Paris: Gallimard, 1975)*,* 207. It's worth noting that Foucault also refers to this "diagram" as *l'agencement panoptique* (210).

[316] Deleuze, *Foucault*, 82/88.

agencement of materials that characterizes prison and which expresses a certain way of thinking, talking, and behaving, but on the other hand, Foucault also "views it abstractly as a machine" that affects and is expressed in this *agencement,* and which "in general passes through every [one of its] articulable function[s]."[317] As an "abstract formula" which binds visible and sayable forms, the diagram's double character is what draws Foucault so near to Kant.

Foucault's version of the panopticon is less a particular prison arrangement than it is the *way* such a prison is arranged. According to our discussion of *agencement* thus far, the panopticon diagram consists neither exclusively in relations of ideas nor exclusively in spatial relations, but in the realization of one sort of relation in the other. Deleuze reminds us that Kant's schematism entails a similar dynamic and risks a similar misinterpretation: the schema "does not consist in an image but *in spatio-temporal relations which embody or realize relations which are in fact conceptual.*"[318]

Kant underscores a difficult consequence in the development of his critical project. He establishes that experience draws on the use of two faculties, among others, which are heterogeneous in their operation and in their contribution to experience. On the one hand, we have the categories and concepts of the understanding, while on the other hand, there are empirical appearances of sensible intuition. But if the latter are to be objects of our experience such that we can apply our concepts to them, then "the former

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[317] *Ibid.,* 34/41.

[318] Gilles Deleuze, *Kant's Critical Philosophy: The Doctrine of the Faculties*, trans. Hugh Tomlinson and Barbara Habberjam (London: The Athlone Press, 1984), 18. Gilles Deleuze, *La philosophie critique de Kant* (Paris: Presses Universitaires de France, 1963), 29. Henceforth *KCP.*

must be homogeneous to the latter, i.e. the concept must contain that which is represented in the object that is to be subsumed under it."[319] How do we apply a conceptual category to a sensible intuition, if the former is not empirical and the latter is not in itself conceptual? Kant has no choice but to introduce a third component, the schema:

> Now it is clear that there must be a third thing, which must stand in homogeneity with the category on the one hand and the appearance on the other, and makes possible the application of the former to the latter. This mediating representation must be pure (without anything empirical) and yet intellectual on the one hand and sensible on the other.[320]

Although it is the product of the imagination, as pure and non-empirical, the schema is not to be confused with an image because the imagination in this case "has as its aim no individual intuition but rather only the unity in the determination of sensibility."[321] Much like Alexander's pictures-on-paper, "no image of a triangle would ever be adequate to the concept of it," since "it would not attain the generality of the concept, which makes this valid for all triangles, right or acute, etc., but would always be limited to one part of this sphere."[322] The schematic form is paradoxically *both* conceptual and empirical, without thereby compromising the heterogeneity of concepts and intuitions. It is not a conceptual form or a sensible form, but the form of these forms' mediation, the form of their agreement. As a rule of application or determination, the

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[319] I follow Tomlinson and Habberjam in my references to Kant. Immanuel Kant, *Critique of Pure Reason* (1781), trans. Norman Kemp Smith (New York: Macmillan, 1964), A137/B176. Pagination refers to either the original first or second edition of Kant's work (A or B).

[320] *Ibid.,* B177/A138.

[321] *Ibid.,* B179/A140.

[322] *Ibid.,* B180/A141.

schema regulates both how I might realize a concept in empirical form, as well as how I might recognize a concept in its empirical application.

Deleuze admires Kant for positing a "difference in nature" between the "faculties as sources of representations," and for having realized what follows from their heterogeneity, having recognized that some sort of synthesis is required "to explain how passive sensibility accords with active understanding."[323] Unfortunately, Kantian schematism comes up short, and this is perhaps where we can begin to discern the meaning of "diagrammatism" and its advance over schematism. Kant calls upon a synthetic exercise of the imagination to mediate the heterogeneity of sensibility and understanding, but doing so only kicks the can down the road: "for the imagination and the understanding themselves differ in nature, and the accord between these two active faculties is no less 'mysterious.'"[324]

DIAGRAM OVER MONOGRAM

What, if any, advantage does the diagram have over Kant's schemata? We can point to key differences separating his schematism from Foucault's diagrammatism,[325] as well as a minor but revealing part of how Kant defines schema. In the case of sensible intuitions, the schema

> is a product and as it were a *monogram* of pure *a priori* imagination, through which and in accordance with which the images first become possible, but which must be connected with the concept, to which they are

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[323] Deleuze, *KCP,* 22/34.

[324] *Ibidem*.

[325] I.e. the version of Foucault we find in Deleuze's reading, which builds around the diagram as a primary concept.

in themselves never fully congruent, always only by means of the schema they designate.[326]

Consider the difference between a monogram and diagram. A monogram unites several letters, words, or images into a single image [*mono-gram*]; perhaps most familiar are those monograms that serve as corporate logos. Schematism entails that the concept and image are united in a monogram stamped onto every instance of the same concept or image. A diagram also connects different terms, but the sort of connection it expresses and its mode of expression is quite different to that of the monogram. The initial letters of *signum sectionis* fuse into the monogram, §, whereas a diagram such as $S \rightarrow S$ expresses a relation or set of relations: what-S-stands for is somehow related to what-S-stands-for. The monogram dictates and is attached to the figures that realize it, but the diagram expresses something "in" the figure which can be realized in still other figures.

This frees the diagram, and diagrammatism, to operate regarding any heterogeneous relationship. Schematism reconciled sensibility and the understanding via an *a priori* use of the imagination, but was not equipped to reconcile any other such difference—between either sensibility or the understanding with the imagination itself, for instance. Concept and intuition come together in an image, a monogram, but this remains an "image," and this sort of image is different in kind from concepts and sensible intuitions.[327] As we will later see, the diagram is a peculiar sort of icon, in that it

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[326] Kant, *Critique,* A141-2/B181. Emphasis mine. Note that I'm not getting into the distinction between sensible and transcendental schemata which call on imagination in different ways.

[327] That is, sensible intuitions somehow independent of their relevant schemata. I ought to note that Kant *does* claim schemata to be "homogeneous" with both concepts and intuitions (without rendering these homogeneous with each other).

expresses relations themselves and not just related things. According to Deleuze's reading, like Kant, Foucault needed a third agency to mediate heterogeneous forms, and the diagram names both the abstract formula for the determination of, e.g., Panopticism and the concrete profile of the *agencement* in which this determination is determinable.[328]

FRANCIS BACON'S CATASTROPHE

There are many ways to begin a painting, and many artists begin their struggle against empty canvases and tired clichés by sketching out their ideas. 20th century British painter, Francis Bacon, does not sketch: he begins with random marks on the canvas and the "diagrams" these marks reveal.[329] Beyond his reading of Foucault, the only substantial reference Deleuze makes to diagrams independently of his collaboration with Guattari resides in his *Francis Bacon: The Logic of Sensation*. Deleuze arguably took some liberties with Foucault when he centered his interpretation around the notion of the diagram, but while it was not a frequent term in Foucault's vocabulary it nevertheless did appear in his work. The same cannot be said of Bacon; diagram is Deleuze's translation of what Bacon calls a "graph" in interviews regarding his method.[330] That the term's use in this instance is unambiguously Deleuze's decision makes it all the more instructive for our interpretation.

On the face of it, the diagram leads a very different life in *Francis Bacon* than it

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[328] For this discussion—the second occasion where Deleuze compares Foucault's project to Kant's schematism—see *Foucault,* 68-9.

[329] Cf. Gilles Deleuze, *Francis Bacon: The Logic of Sensation,* trans. Daniel W. Smith (London: Continuum, 2003), 99.

[330] Cf. David Sylvester, The Brutality of Fact: Interviews with Francis Bacon 1962-1979 (New York: Thames & Hudson, 1987), 56.

does elsewhere: it is not as clearly associated with Kantian schematism, it does not appear to mediate between heterogeneous elements, and there is no mention of concrete *agencements* or abstract machines. Bear in mind, however, the advantage the diagram enjoys over Kant's monogram: the monogram mediates the heterogeneous by means of an image, whereas the diagram depicts relations which cannot be exhausted by any image.[331] Reviewing its role in *Francis Bacon,* with some attention paid to the work of mathematician René Thom, who looms in the background and exerts a strong influence on much of Deleuze's work, will underscore his advance on Kantian schematism, and advance that will prepare us for a crucial aspect of Peirce's formulation: whereas the schema links already-given conceptual and sensible forms, the diagram reaches further to link the already-given with the not-yet-given, or the old with the new.

In *Semio Physics*, René Thom follows up on his initial formulation of catastrophe theory and carries out two main tasks, or two versions of the same task. First, in response to the work of Jean Petitot, he wants to develop a "physics of meaning," or a general theory of intelligibility; in this regard, the main hypothesis is that "only certain configurations of elements really make sense and can be used as a basis for intelligible construction that allows linguistic description."[332] Secondly, Thom was astonished to find that Aristotle had "already achieved" much of catastrophe theory's philosophical project, and so he wanted to articulate his first task and rearticulate his standing theory in direct

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[331] Consider Deleuze and Guattari's frequent claim that the diagram is "*surlinéaire*." What matters most about the diagram is not written or marked by lines on a page but is somehow "above" such lines, as the set of relations which diffenciate/differentiate them.

[332] René Thom, *Semio Physics: A Sketch*, trans. Vendla Meyer (Redwood, CA: Addison Wesley, 1989), vii.

contact with Aristotle's metaphysics.[333] Rather than a first philosophy which comes "after physics," *metaphysics,* Thom is after "something that might be called 'protophysics,' source and reservoir of all permanent intuition, of all those archetypal metaphors that have nourished man's imagination over the ages."[334]

The project develops two basic concepts that together form a common language for mathematically describing linguistic, sociological, physical, and biological phenomena—and perhaps more, besides: saliences and pregnances. It is the arrangement or *agencement* of these two forms that furnishes the world with "generaticity," i.e. forms and figures can be generated for and by us, things can appear or appear as meaningful, and our milieu makes certain activity available to us. On the one hand there are salient forms, namely any form "clearly separate from the continuous background against which it stands out."[335] In order for anything to figure as meaningful, it must first be salient or discernable. Naturally, salience alone is insufficient for sense, as there are countless forms which are capable of discerning but remain unnoticed. Of the many discontinuities we can perceive, "it is necessary for some pragmatic or communicatory interest to focus our attention" to certain forms and features.[336] In other words, some saliences are pregnant.

> *Pregnances* are non-localized entities emitted and received by salient
> forms. When a salient form seizes a pregnance, it is invaded by this
> pregnance and consequently undergoes transformations in its inner state

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[333] *Ibid.,* viii.

[334] *Ibid*., 3.

[335] *Ibidem.*

[336] *Ibid*., 4.

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which can in turn produce outward manifestations in its form: we call these *figurative effects*.[337]

The pregnance itself is not any single form but a neighborhood, and a pregnant form is a salient form which is able to charge other forms: my hunger is not itself a salient form, but it motivates and associates a neighborhood of saliences; mere saliences can now achieve an alimentary sense as food, as cutlery, as restaurant signs, as condiments, as spoiled or fresh. As mentioned above, the figurative logic of salience and pregnance was Thom's way of redescribing his earlier work on catastrophe and morphogenesis. There, catastrophes were described as developments which appear to be discontinuous, as a change in form. The qualitative discontinuity appears on a plane transversal to the continuous function of a system's factors. Small wonder, then, that Thom opens *Semiophysics* with a discussion of discontinuity and heralds Aristotle as the first and, for "maybe thousands of years […] the only one to think in terms of the continuous."[338]

It is not immediately clear where Bacon stands in relation to the problem of continuity, and it is very unlikely that he drew on Thom when developing his method of painting. Nevertheless, Thom allows us to reinterpret Bacon's description of diagrams as "catastrophes," and through the lens of catastrophe theory and "semiophysics" his artistic intervention will carry over into a broader view of the diagram. Again, Bacon does not begin with sketches but with free marks, thrown onto the canvas haphazardly. After the marks have been made,

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[337] *Ibid*., 16.

[338] *Ibid.,* viii.

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you survey the thing like you would a sort of graph [*diagramme*]. And you see within this graph the possibilities of all types of fact being planted. […] But you see, for instance, if you think of a portrait, you maybe have to put the mouth somewhere, but you suddenly see through this graph that the mouth could go right across the face. And in a way you would love to be able in a portrait to make a Sahara of the appearance.[339]

We begin a painting primed with assumptions about the forms and figures we might wish to paint; the challenge is to paint something new, to paint a portrait that remains a portrait without falling back on conventions or clichés. In other words, we approach the canvas with facts already in tow, whereas the diagram of free marks isn't pinned down by any of our assumptions and only suggests possibilities, which it renders continuous. I could build off these random marks and make them into a desert, but they also suggest a human face. The painting stretches between these possible facts; "in the midst of the figurative and probabilistic givens, a *catastrophe* [overcomes] the canvas."[340] The chaos separating a human face from the Sahara desert prepares the painting for a "new order," the possibility of a figure that is both face and desert: the diagram reveals what is Sahara-like in the human face and what is facial about the Sahara.[341]

Deleuze presents us with three options available to the painter who wishes to break with the figurative given. First, she may employ a "digital" method whereby the figure is reduced to a code of abstract features: the face becomes a group of lines and shapes with simple, blocked regions of color. The digital approach won't do, however,

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[339] Sylvester, 56.

[340] Deleuze, *Francis Bacon,* 100.

[341] Cf. *Ibid.,* 102.

since it "can easily become a simple symbolic coding of the figurative."[342] She can replace eyes with colored squares and the profile with abstract lines, but she preserves the portrait's cliché figure, nonetheless. Second, she may use an analogic rather than digital approach. Like the diagram, especially à la Peirce, analogy involves resemblance, as opposed to the substitution of a digital code. Deleuze says that there are two distinct roles resemblance might play in analogy, and as a result there are two different analogic forms of painting.

In one instance, resemblance is the analogy's origin; in the other, it is the result.[343] With the first, a difference in the final depiction reflects a difference in the thing depicted, as when the chemical relations of a photograph "captures relations of light."[344] Regarding painting, this amounts to reproducing diagram's chaos or catastrophe without leveraging it to uncover something new. The painter succeeds in disrupting figurative expectations, but her success is won by muddying up the canvas to such an extent that no figuration is possible whatsoever. But for Bacon, Deleuze tells us, the goal is not simply to dissolve the figurative but to arrive at a "new figuration." He writes:

> The diagram […] must remain operative and controlled. The violent methods must not be given free reign, and the necessary catastrophe must not submerge the whole. The diagram is a possibility of fact—it is not the fact itself. Not all the figurative givens have to disappear; and above all, a new figuration, that of the Figure, should emerge from the diagram and make the sensation clear and precise. To emerge from the catastrophe…[345]

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[342] *Ibid.*, 109.

[343] Cf. *Ibid.,* 115-6.

[344] *Ibid.*, 115.

[345] *Ibid.*, 110.

With the other form of analogy, whereby resemblance is a product, any resemblance between a human face, the Sahara desert, and rhinoceros skin appears "abruptly as the result of relations that are completely different than those it is supposed to reproduce: resemblance then emerges as the brutal product of nonresembling means."[346] There is nothing similar or analogous in the processes responsible for forming the face, desert, or rhinoceros, and yet the diagram renders these continuous and leads us to discover a resemblance that defies our assumptions and expectations about form or figure. Neither is the painting a mere depiction of the diagram "itself"; it does not linger at the moment of catastrophe but suffers it in order to emerge as something new. With only slight difficulty, we might re-name these two sorts of analogy in accordance with a distinction from evolutionary biology (Figure 10): the first, where resemblance is the producer, describes what biologists call "homology." The bat's wing and the human hand are both pentadactyl limbs and share a common ancestor, even though they have come to assume different forms and very different functions. The second, where resemblance is the product, is more properly called "analogy"; we discover a resemblance between shark
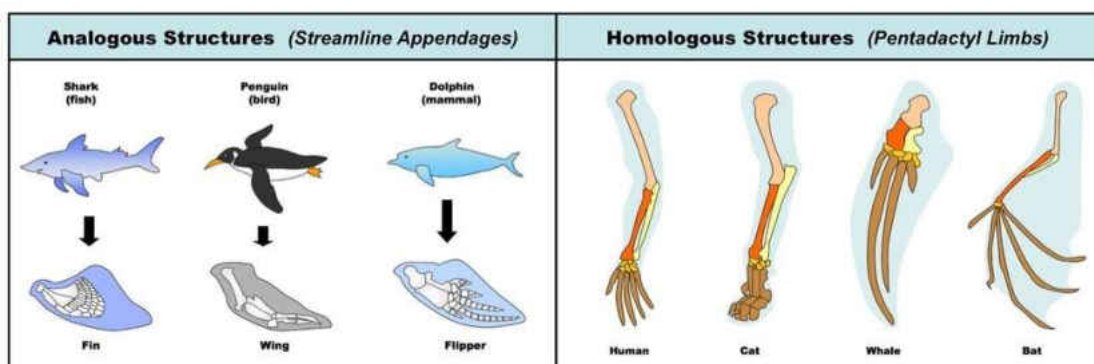
Figure 10 – Analogous versus Homologous Structures, http://www.old-ib.bioninja.com.au/options/option-d-evolution-2/d5-phylogeny-and-systematic.html

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[346] *Ibid.*, 115.

fins and dolphin flippers, even though they arrived at these forms independently.

Bacon's relevance to the problem of continuity should now be more apparent. Different figures describe the problem in different terms and under different circumstances, but in most instances the question is one of explaining what appears as discontinuous as in fact continuous. For example, something new emerges and, since something cannot come from nothing, we need a way to explain how it fits into or is continuous with what came before. Or we think of mind and body as mutually irreducible, and need some way to explain their correspondence in a single account. In his method of painting, Bacon does not want to arrive at a continuum which would dissolve apparent discontinuity, but instead discovers a continuity in his diagram that he can leverage to carve up the continuum into *new* discontinuous forms. He does not want to explain the new but to produce it. With the figurative equivalents of "mind" and "body," he does not want a single account that resolves their discontinuity, but instead wants to see through their continuity to arrive at forms other than mind and body.

CHARLES SANDERS PEIRCE'S ICON

Guattari is clear that his diagrams derive from the work of Charles Sanders Peirce, who also exerted a tremendous influence over Deleuze, particularly in his late work on cinema.[347] Guattari adopts Peirce's sense of the "diagrammatic" as an antidote for theories of behavior and communication that privilege or isolate information assumed to

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[347] Cf. Félix Guattari, "Towards a Micro-Politics of Desire," in *Molecular Revolution: Psychiatry and Politics*, trans. Rosemary Sheed and introduced by David Cooper (New York: Penguin, 1984), 94-95. As for Deleuze's cinematic use of Peirce, the reader will find extensive references to the latter's Firstness, Secondness, and Thirdness throughout both *Cinema 1* and *Cinema 2*.

be explicit "terms of communication."[348] On the contrary, he emphasis what he calls "machinic information": the non-representational element which "adds to a representation," whereby one can produce new signs and new conjunctions of signs and things.[349] This, in fact, is the context for one of *agencement*'s earliest appearances. On the one hand, language as denotation always concerns particular territory, and consists in the use of images, indexes, and concepts to pin this territory down *as* territory (so-called "re-territorialization"). Guattari believes that the diagrammatic, in Peirce's sense, surpasses denotation and describes an aspect of language beyond individual utterances [*énoncés*] and particular subjects: a collective *agencement* of utterance [*énonciation*] which actualizes an abstract interchange between "non-semiotically formed *matter* […] and semiotically formed *substances*."[350] Because so many of these terms derive directly or indirectly from his work, we will make better sense of what Guattari is up to if we review the terms of Peirce's semiotic theory.

For our purposes, we need to understand the nature of the diagram in particular, and how it stands apart from other sorts of signs. Or rather, Peirce's index, symbol, and icon represent not three distinct signs but three ways a sign might relate to its object. Indices function according to physical effect or contiguity, an actual relationship between object and sign. For example, smoke signifies fire as its index because it is the effect of fire and because it is found in close proximity to fire. Symbols signify their objects according to established convention or habit. Due to the conventions of traffic law, a

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[348] *Ibid.,* 88.

[349] *Ibid.,* 95.

[350] *Ibid.,* 96. In this last phrase, Guattari employs Hjelmslev's terminology.

driver in the United States recognizes the symbol of a red octagon as a sign that they should stop their vehicle.

Diagrams belong to a third category: they function as icons. An icon is a "sign which stands for something merely because it resembles it"; take for example the figure on a pedestrian crossing sign, which represents the pedestrian it resembles.[351] Peirce's distinction is subtle, since he recognizes that in practice the signifying operation of such a representation is rarely purely iconic, since the traffic sign also, *e.g., indicates* the presence of human life and *symbolizes* a pedestrian in a particular way according to convention. Consider geometrical diagrams: a triangle represents a set of relations which it resembles or reproduces, but insofar as it "has a general signification," or stands in for triangles in general, it is "not a pure icon."[352]

But while no sign is purely iconic, the icon—and the diagram in particular—has "an immensely fundamental role" in Peirce's theory as "the only signs realizing meaning."[353]

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[351] I will adhere to the convention of citing Peirce by volume and standard pagination for references to the *Collected Papers of Charles Sanders Peirce,* 8 vols., eds. Charles Hartshorne, Paul Weiss, and Arthur W. Burks (Cambridge: Harvard University Press, 1931-1958). Charles S. Peirce, "On the Algebra of Logic: A contribution to the philosophy of notation" (1885), 3.362.

[352] *Ibidem*.

[353] Frederik Stjernfelt, *Diagrammatology: An Investigation on the Borderlines of Phenomenology, Ontology, and Semiotics* (Dordrecht: Springer, 2007), 29. It is interesting to note that Deleuze does make a brief appearance in Stjernfelt's book, as *an adversary.* Stjernfelt's general aim is recruit Peirce, and Husserl to no small extent, to resuscitate "the iconic" in the study of semiotics in light of wide prejudices against it. He recognizes and endorses the widespread suspicion or criticism notions of representation were subject to in the 20th century but worries that this bred an anti-iconic tendency "in so far as iconicity has very often been spontaneously identified with psychological imagery." He sees the tendency in scientific inquiry, where "the abolition of iconical intuition of the object became conceived of as a necessary prerequisite for thought to become scientific," but he finds "poststructuralism" and "philosophy of difference" no less guilty, and calls Deleuze out by name (51). It is true that some of Deleuze's expressed reservations with Peirce's diagram are perhaps misplaced, but when compared to the other French philosophers Stjernfelt names—Lévi-Strauss, Lyotard, Greimas, Barthes, Lacan, Derrida, Foucault—Deleuze is arguably the most

Thus, the typical index contains an icon: the footstep on the beach as the prototypical index is an evident example of this: we are able to recognize it as a footprint only because it looks like a foot, because it is an icon of a foot. And thus any symbol intends an iconic interpretant. […] Continuity is at stake in relation to the icon to the extent that the icon, while not in itself general, is the bearer of potential generality. The footprint on the beach refers (potentially) iconically to all feet of approximately (give and take a certain margin dependent on the granularity and wetness of the sand) this shape and size, as well as to all artificial feet, etc. of the same size—that is, in turn, to a continuum of possible feet.[354]

The icon's privilege can be put another way: icons are fundamental because they function on the basis of the qualities of the object itself that make it representable, or that make it possible to navigate between model and copy, general and particular. If a traffic sign bears the image of a pedestrian, it only represents the pedestrian by depicting those of the pedestrian's qualities such as can communicate the idea of a pedestrian. In other words, it will not do to merely depict "a person," "a person near a street," or "a walking person." The iconic image must depict the qualities necessary to communicate "a person walking near or across a street." It is not only a matter of physical effect, contiguity, or social convention; the icon's semiotic function depends on the nature of the thing itself. This is what Peirce means when he says that an icon is a 'Representamen whose Representative Quality is a Firstness of it as a First," that is to say, "a quality that it has *qua* thing" which "renders it fit to be a representamen."[355] Even if it does not appear in isolate, the "pure icon" can be understood as a sort of possibility, the possibility of the

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explicitly indebted to Peirce, his most vocal enthusiast, and it seems a mistake for Stjernfelt to overlook is *extensive* use of Peirce's terminology (diagram included).

[354] *Ibid.*, 29.

[355] Peirce, 2.276. Capitalization Peirce's.

thing to be represented.[356]

It is very common for the same object to evoke multiple signs or alterations in signs; although they direct us to the same object, we can distinguish and classify these multiple signs according to the nature of their relationship to it, and we can thereby consider their relationship to each other. We reason that a fire is burning in the presence of its *indices*, smoke and ash, but this indication is a contingent result of the fire's physical effect. Neither smoke nor ash are necessarily the result of fire, and there is no necessary connection between smoke and ash. My surname and my identification number are symbolic representations of my identity, but that I am their common object is the result of convention and historical contingency. But in the case of diagrams, as icons of relations, the unity of particular diagrams is not contingent but necessary:

> What [a math textbook] invariably does is first to describe in general terms a diagram […] There will probably be a figure of such a diagram in the book. Do not copy that, but make one of your own, following exactly the general description. Now the book, which understands that you have done this, invariably goes on to speak of alterations to be made in that diagram […] Now the book proceeds to compare the original diagram with the altered diagram, and to call upon you to remark certain exact relations between them […] Your diagram shows only one way out of an infinite variety of ways in which the diagram might have been constructed.[357]

The claim is that different instances diagram the same object not by virtue of having been written by the same person (as with an index), nor by force of habit (as with

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[356] *Ibidem.*

[357] Charles S. Peirce, *The New Elements of Mathematics IV: Mathematical Philosophy,* ed. Carolyn Eisele. (Atlantic Highlands, N.J.: Humanities Press, 1976), 4.200. I should note that I've omitted parts of this quote that address its immediate context. Peirce is discussing some of the difficulties in mathematical education, and so the quote continues: there is an infinity variety of possible diagrams, "so that although the relation which the book says will exist may do so in this case, yet that does not prove that it would be so in every case." Hence *NEM.*

symbols), but because diagrams depict relations, and the same relations can be diagrammed in different ways, across different media, and with different levels of precision. Whether it has a single or an infinite number of instances, no diagram "can present more than a single object, while the verbal expression of the proposition to be proved is necessarily general."[358] The unity in variety of diagrams explains Peirce's ambiguity between drawn, particular diagrams, on the one hand, and "the" diagram communicated by these particular diagrams, on the other. Outside the technical terms of his semiotics, he defines the diagram "in the peculiar sense of a concrete, but possibly changing, mental image of such a thing as it represents. A drawing or model may be employed to aid the imagination; but the essential thing to be performed is the act of imagining."[359]

We might piece these observations together and say that diagrams are particular types of icons, while the Diagram belongs to the "middle part" of our reasoning, between model and copy, general and particular. It belongs to the imagination, the object's possibility *qua* object of becoming an image. Particular diagrams depict the same objective relations with regard to their shared diagrammatic features. We said that no diagram can present more than a single object, but it would perhaps be more accurate to say that no diagram can present more than a single object at once and under the same aspect. For a particular diagram will likely have significant but non-diagrammatic features, i.e. indexical and symbolic elements; in considering its perceived form, another perspective might distribute the diagrammatic and non-diagrammatic differently, such

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[358] *Ibid.,* 4.219.

[359] *Ibidem.*

that "one and the same construction may be, when regarded in two different ways, two altogether different diagrams; and that to which it testifies in the one capacity, it must not be considered as testifying to in the other capacity."[360] This means that not only is the same Diagram expressed by many diagrams, but the same diagram can express simultaneous but heterogeneous Diagrams.

THE PURE DREAM IN THE MIDDLE PART OF OUR REASONING

Iconic signification, or the Diagram, belongs to the "middle part of our reasoning," and if we stare at a complex sign like a painting long enough or closely enough,

> we forget that abstraction in great measure, and the diagram is for us the very thing. So in contemplating a painting, there is a moment when we lose the consciousness that is not the thing, the distinction of the real and the copy disappears, and it is for the moment a pure dream—not any particular existence, and yet not general.[361]

I believe that the moment when a painting becomes a pure dream, when, as a diagram, it blurs the distinction between general and particular, is crucial for understanding Deleuze and Guattari's references to diagrams: they are somehow between the abstract and concrete, are neither particular nor general, and consist in a sort of "dream." In a way, although icons are technically defined as functions of resemblance, this dream is no longer a matter of formal resemblance: it is not the painting's resemblance of a landscape, but the quality the painting and landscape have in common that makes it possible for the painting to resemble it. We find a similar theme developed

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[360] *Ibid.,* 4.324

[361] *Ibidem*.

in the work of Deleuze and Guattari, who often write on the "middle parts" of relations.

DISEGNO: BETWEEN DESSEIN AND DESSIN

Before turning to two key "middles" in Deleuze and Guattari's corpus—the concept of becoming as it appears in *A Thousand Plateaus* and the concept of drama or dream in *Difference and Repetition*—we should recall how "design" itself depicts a sort of middle ground in a way similar to Peirce's notion of the diagram. Design has been a difficult term to comprehend from the start. We have found at the level of the words themselves that it and *agencement* are ambiguous for similar reasons, but what's more, we find that developing an account of design comprehensive of its ambiguity entails working through some of the same conceptual problems which motivated Deleuze's use of *agencement* and which plagued efforts to translate the latter. *Disegno*, which originally referred strictly to drawing, featured prominently in Late Renaissance debates on aesthetics. Federico Zuccari, for example, divided the concept as "internal" and "external." A drawing is a "*disegno esterno,*" but in fact "all visible expressions of mental images fall into this category: letters, figures, ciphers, notes, etc."[362] Even more broadly speaking, external *disegno* included "the external forms of natural objects, which Zuccari understood to be the visible guise of *disegno interno,* the archetypal ideas according to which God created the things of this world."[363] He offered a speculative etymology for *disegno* to account for this distinction: the *disegno* we see in the world is a

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[362] Julian Brooks and Robert Williams, *Taddeo and Federico Zuccaro: Artist-Brothers in Renaissance Rome* (Los Angeles: Getty Trust Publications, 2007), 115.

[363] *Ibidem*.

"sign of God," *segno di Dio.*[364] Whereas *disegno interno* could only be one, as the inner principle for forming form, the formed forms of *disegno esterno* are various, multiple because actualized in sensible reality.[365] *Disegno* "itself," then, would be the actualization of *disegno interno* in *disegno esterno;* hence its central status for many Renaissance authors. The word's ambivalence was preserved in *disegno'*s transmission into English; art historians and present-day design theorists have a common difficulty: "grasping the problem of *disegno* in its full complexity" means grappling with "the fact that it is both a pure act of thought as well as its visible result, in which the physical work of the artist participates as well."[366]

Architectural metaphors are hardly rare in the history of philosophy. While some scholars understand such metaphors as mere symptoms of systematic or "architectonic" ambition, Claudia Brodsky Lacour takes René Descartes's architectural language to demonstrate the kind of writing characteristic of modernity, what she calls "drawing a line."[367] By this she means the way that Descartes, in his *Discours de la méthode*,[368] "produces *discursively*" a line which is "based on no previously available figure or

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[364] Cf. Federico Zuccari, *L'Idea de' Pittori, Scultori ed Architetti* (Rome: Marco Pagliarini,1768). Originally written in 1607. Zuccari was not the only, nor the first, Italian theorist to develop *disegno interno* and *disegno esterno* through a more or less explicit Neoplatonism. See also Romano Alberti's 1604 *Origine e Progresso dell'Academia del Disegno,* and Giorgio Vasari's *Vite de' più eccelenti pittori, scultori e architettori* from 1568.

[365] Cf. Zuccari, 18-9.

[366] Lichtenstein, 225.

[367] Claudia Brodsky Lacour, Lines of Thought: Discourse, Architectonics, and the Origin of Modern Philosophy (Durham: Duke University Press, 1996), 1-5.

[368] Lacour reminds us that, although Descartes's title is often translated as *Discourse on Method*, the French tells a different story: The *Discourse of Method*, method's discourse, the method which is discourse.

form."[369] In other words, she intends both senses of drawing: creating and pulling out. If Descartes's *Discourse* invokes architectural metaphors and is intended to put down a solid foundation for the edifice of knowledge, then he develops this point by drawing a "line through representation by reinventing discourse as [architectural] notation."[370] Drawing from both the *Discourse* as well as his correspondence, she writes:

> Unlike an imagined architect designing "*places regulières*" without any external or historical encumbrance whatsoever, Descartes's discoursing on or "talking about" method is both historical and projected forward, both representational and intentional. Descartes's stated "design" (*dessein*), his intention or motive, is thus not the "design" (*dessin*), outline, or ground plan the architect draws "*à sa fantasie*."[371]

Opposed to this interpretation of Descartes would be any approach which privileges either term: for example, creating something new by sheer force of one's intention or *dessein*, regardless of historical circumstances, or merely tracing and describing a *dessin* of such circumstances. Lacour's claim is that *dessein* and *dessin* need each other. Descartes's "design," understood as "neither term alone but rather his use of and reliance on the two terms individually," names the "exchange between *dessein* and *dessin*," the shared ground of given and intentional forms, the interaction of which allegedly constitutes his method.[372] The designer *draws* something new by *drawing* it out of what's already given; her *dessein* is realized in a *dessin*.

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[369] *Ibid.*, 5.

[370] *Ibidem*.

[371] *Ibid.,* 35, referring to René Descartes, *Discours de la méthode* (Paris: Vrin, 1962): "[J]amais mon dessein ne s'est étendu plus avant que de tâcher à reformer mes propres pensées, et de bâtir dans un fonds qui est tout à moi" (15).

[372] Lacour, 35.

BECOMING

Near the beginning of *The Science of Logic*, G. W. F. Hegel introduces "becoming" as a key logical mediator between "pure being" on the one hand, and existence on the other. Pure being, since it has no content, is from a certain vantage indistinguishable from pure non-being; we can only really talk about being and nothingness with regard to existence, that is, insofar as "being has passed over into nothing and nothing into being." Hegel therefore understands becoming as "a movement in which the two are distinguished, but by a distinction which has just as immediately dissolved itself."[373] It is reasonable to read this moment, the distinction-and-unity of being and nothing in a "third" moment of being, as indicative for the rest of Hegel's project, his basic dialectical procedure.

At first light, we find Hegel's use of becoming similar to Deleuze's, but, although we cannot enter into a more rigorous comparison between Hegel and Deleuze at the moment, there are important differences separating the two. The main sticking point is becoming's place in the above sequence, and the methodological consequences of the authors' priorities. Where Hegel derives an abstract becoming by combining a general sense of being and a general sense of non-being, Deleuze's becoming enjoys priority over any sense of being or reality. His becoming is a purposeless, meaningless continuum in which being is only an instant and from which the ground to determine intelligibility is

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[373] G. W. F. Hegel, *The Science of Logic,* trans., ed. George di Giovanni (Cambridge: Cambridge University Press, 2010), 60. Translation refers the reader to the German pagination: *Gesammelte Werke,* vol. 21, *Wissenschaft der Logik, Teil I: Die objektive Logik; Band I: Die Lehre vom Sein (1832),* eds. Friedrich Hogemann and Walter Jaeschke (Hamburg: Meiner, 1985), 69.

selected.[374]

Like the dream Peirce located in the middle part of our reasoning which renders the model and copy, landscape and painting continuous, Deleuze and Guattari attribute what they define as becoming to the "middle" of things. They contrast two paradigms for thinking about life forms, ones we might recognize from our tour of archaeology in the previous chapter. On the one hand, natural history concerned itself with the relationships between animal organisms, "the sum and value of [their] differences," in order to discern "progressions and regressions, continuities and major breaks" in their various forms.[375] On the other hand, evolutionism, after Darwin, focuses on kindship and filiation, such that what matters most are the "highly variable degrees of difference with respect to the ancestor."[376] The latter may have more explanatory power than the former, but Deleuze and Guattari draw a surprising lesson from natural history.

While it may not be able to think "in terms of production (from A to x)" and can only proceed "in terms of relationships (between A and B)," thinking in terms of production has its drawbacks: a strict adherence to filiation or descent may be too reductive.[377] The relationship between animals A and B only dissolves in the evolutionist

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[374] For an excellent discussion of this point in the context of Deleuze's reading of Henri Bergson vis à vis Hegel's dialectic method, see Samantha Bankston, *Deleuze and Becoming* (London: Bloomsbury, 2017), 20-1. Despite their differences, both philosophers emphasize becoming and this emphasis is emblematic of their general projects. See, for example, Anne Sauvagnargues, "Hegel and Deleuze: Difference or Contradiction?" in *Hegel and Deleuze: Together Again for the First Time,* eds. Karen Houle and Jim Vernon (Evanston, IL: Northwestern University Press, 2013), 38-53.

[375] Deleuze and Guattari, *ATP,* 234/286.

[376] *Ibidem*.

[377] *Ibid.,* 235/286.

schema, A to *x,* if the *only* relationship between A and B is adequately addressed in A to *x*—if the relationship A-and-B describes is nothing but a weaker form of the A-to-*x* function. There are two complications. First, "the relationships between animals are the object not only of science but also of dreams, symbolism, art and poetry, practice and practical use."[378] Second, "the relationships between animals are bound up with the relations between man and animal, man and woman, man and child, man and the elements, man and the physical and microphysical universe."[379] Thus, that which is "between" A and B is a variable relation that changes as its terms appear in different domains, and as it intersects with other variable relations that do or do not share one (or more) of its terms. The terms and domains become tangled and interlocked as a "block," in which they are inseparable. This variable "between" is what Deleuze and Guattari characterize as "becoming."

Let us see the basic difference between Hegel's and Deleuze and Guattari's becoming through an example: a werewolf—that is, in rough non-philosophical terms, a human being turns into a wolf. In ordinary language we might say that a human "becomes" a wolf once their appearance comes to perfectly resemble or imitate that of a wolf. Applying the basic structure we encountered above from Hegel's *Science of Logic,* we would parse the werewolf as: (Human) → Non (Human) Being, where the transition of one to the other, in becoming, allows us to distinguish between being and non-being. In this case becoming has no content, no reality of its own, since its effect is to render being as being and non-being as non-being. Our ordinary understanding does the same,

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[378] *Ibid.,* 235/287.

[379] *Ibidem.*

ultimately, since the terminal states (human, wolf) are significant whereas the transition itself is an empty operator for linking one to the other.

How would Deleuze and Guattari make sense of the werewolf? As opposed to the above views, they insist on the reality of becoming in its own right: "The becoming-animal of the human being is real, even if the animal the human being becomes is not."[380] In both of the above views, removing the terminus, *wolf,* destroys the thought experiment. I do not "become" anything if my being does not transition into something it is not. But although I do not resemble a wolf in my appearance or apparent behavior, I am stratified by *plans* that may secretly link me to the wolf in a "dark *agencement* which stirs what is deepest within" me, and I can perhaps be dragged along toward becoming a wolf without every actually becoming a wolf.[381] In that case becoming-wolf would be different from human-being but it wouldn't exactly be the latter's non-being, since in their *agencement* human and wolf would have "something in common" in becoming-wolf. Hegel argues that without becoming, that is, abstracted from any determinate existence, being and non-being are one and the same. They invert Hegel's schema: for him, being and nothing are the same without the becoming of real existence, whereas in their case, they elevate becoming such that it no longer matters whether it is "real" or not, whether its terms are present or absent. In Hegel's case, becoming is the mode whereby we can discern being; as it were, it is the opposite in the case of Deleuze and Guattari.

The concept of becoming is a complex one, but I believe that one of their

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[380] *Ibid.,* 238/291.

[381] *Ibid.,* 242/296.

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examples helps clarify the matter: the difference between a "childhood memory" and a "childhood block, or becoming-child."[382] Guattari tells us that memory involves both deterritorialization and reterritorialization: i.e. on the one hand we select and abstract certain features which remind us, and on the other hand we "reassemble a whole that can be presented as a thing," such that we can *see* our childhood in the that which reminds us.[383] Our nostalgia comes from something in a given scene which appears to escape beyond it: "What is actually there to see seems to be concealing something else."[384] He distinguishes between memory and block because the former might be confused for the "scene" which we would remember, whereas our childhood forms a block, a constellation of features in the present[385] If something I do reminds me of my childhood, it is not just that "I'm acting like a child," but that I participate in a block or constellation of features whereby I can recognize my childhood in the present. The diagram which brings the landscape and painting together presents us with a block that involves what is scenic about painting and what is painterly about landscapes.

THE DRAMATIZATION OF AN IDEA

Early on in his career, before his collaboration with Guattari brought him to the concept of the diagram, Deleuze had experimented with other alternatives to Kant's schematism. In the years surrounding the publication of *Difference and Repetition*, he often described the spatiotemporal dynamism of an idea according to which it is

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[382] *Ibid.,* 294/360.

[383] Félix Guattari, "Concrete Machines," 154.

[384] *Ibidem*.

[385] *Ibidem*.

actualized, according to which it is articulated in problems or in solutions. He called this dynamism a "drama," or a dramatization of the idea. The concept of "drama" is another instance of Deleuze working "between" things: similar to Kant's schematism, the drama helps us mediate between an idea and its actualization. Insofar as the diagram was another way for Deleuze and Guattari to negotiate their concerns with schematism, dramatization's role in this regard can shed further light on how we should interpret the diagram.

Deleuze and Guattari have a habit of switching out their terminology; long before they would give up their desiring-machines in *A Thousand Plateaus,* Deleuze's drama all but disappeared by the time the two thinkers met. The basic concern with continuity remains: an idea takes on a new form in new circumstances, which may imply that the element necessary for its differentiation was already present, inherent to the idea itself. The new should be continuous with the already-given, and the form of all three—the new, the given, their continuity—is supplied by its dramatization, the idea as "in itself a system of *differential* relations and the result of a distribution of remarkable or singular points (ideal events)."[386]

Kantian schematism is only equipped to answer the question, "What is this?" That is, the schema's mediation between concept and intuition functions in a way limited to recognition and reproduction. Hence why it is so often characterized as a procedure: being able to "draw a line" with my imagination helps me to apply the concept, "line," to

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[386] Gilles Deleuze, "The Method of Dramatization," in *Desert Islands and Other Texts: 1953-1974*, ed. David Lapoujade, trans. Michael Taormina (New York: Semiotext(e), 2004), 94. "La méthode de dramatisation," in *L'Île déserte: textes et entretiens 1953-1974,* ed. David Lapoujade (Paris: Minuit, 2002), 132.

the sensible lines of my intuition. Schematism's implicit demand is to account for conceptual judgments.[387] What is this? By what right do I apply a concept to an intuition? Given an intuition, what concept corresponds? Such are the questions which motivate Kant's schemata. Deleuze, on the other hand, proposes other questions that indicate a more complex scene: Who? How much? How? Where? When?[388]

To reiterate, it is not a matter of applying a concept, "line," to an intuition, but of a differential system of relations, or an "Idea," which dictates how to distinguish different lines, different senses of linearity, and so on. We saw earlier that a problem expressed an internal character which differentially determined the form of its solvability, the standard against which we can judge its possible solutions: Deleuze said another name for this internal character was *sense*. Something similar is going on with the dramatization of concepts. The differential element of an Idea determines the sense according to which we should understand "line."

We should take "drama" literally: in order for lines to be differenciated/differentiated, or in order for this to "play out," "the stage must be set." It is like a conceptual screenplay: there are roles, rules, relationships, themes, and motifs; the audience's variability, the director's concealed but demanding stage direction, and the venue's particularity provide a selective pressure for new and different performances of the same "script." This is not to mention the many dramas involved in the main drama:

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[387] *DR*, 218. "A schema is indeed a rule of determination for time and of construction for space, but it is conceived and put to work in relation to concepts understood in terms of logical possibility: this is so much part of its nature that it does no more than convert logical possibility into transcendental possibility. It brings spatio-temporal relations into correspondence with the logical relations of the concept."

[388] See Deleuze, "Method of Dramatization," 94/131.

the dramas of the actors' individual lives, their interpersonal dramas, their drama with the director, and so on.

Whereas the schema "does not account for the power *with which* it acts,"[389] the differential dynamism expressed in the drama already includes the subject and conditions for the incarnation of ideal relations and the specification of concepts—even if this subject only exists in a larval form. Larval because "there are movements which the embryo alone can endure," and at the level of dramatic dynamism itself, the only subjects are "rough drafts, not yet qualified or composed, rather patients than agents."[390] The drama's subject is still unqualified and will be qualified only as it is subject to the complex of relations comprised in an Idea. One of Deleuze's oldest examples is that of the island, which is dramatized at several levels.

> Take the Idea of an Island: geographical dramatization differenciates it or divides the concept into two types, the original oceanic type which signals an eruption or raising above the sea, and the continental drift type which results from a disarticulation or fracture. The Island dreamer, however, rediscovers this double dynamism because he dreams of becoming infinitely cut off, at the end of a long drift, but also of an absolute beginning by means of a radical foundation.[391]

The Island dreamer is not yet a fully composed individual but is dramatic role conditioned by the dramatic constraints placed on it by the Idea of an Island. The drama's geological moments take on a particular sense, according to which the island's concept can be divided and according to which they can resonate with other, non-geological

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[389] *DR*, 218.

[390] Deleuze, "Method of Dramatization," 97/136.

[391] *DR,* 219-20. See also one of Deleuze's earliest publications, "Desert Islands," in *Desert Islands and Other Texts: 1953-1974,* ed. David Lapoujade, trans. Michael Taormina (New York: Semiotext(e), 2004), 9-14.

situations. By means of this sense, and the drama which expresses it, all of these discontinuous elements are rendered continuous.

Deleuze and Guattari's use of the diagram will resemble that of each of these three concepts: *disegno*, becoming, and drama. *Disegno* was drawn between the "internal" and "external," just as Descartes developed a method of discourse that mediated between *dessin* and *dessein*. Like becoming, the diagram will suggest a virtual continuum anterior to actualized forms; and like Deleuze's dream, it is made up of differential relations which condition the way in which such forms are actualized—the rules, the roles, the script. We turn now to see how Deleuze and Guattari discussion the diagram in particular, especially with reference to the "abstract" and "concrete."

BETWEEN THE ABSTRACT AND THE CONCRETE

We saw that Foucault conceived of the diagram—Panopticism, in his case—as both an actual *agencement* of forms and the abstract formula which runs through the *agencement* and binds its forms together as an abstract machine. When wielded by Deleuze and Guattari, the diagram is likewise doubled: it has two different states, or links two different kinds of consideration. It renders indissoluble the connection between the collective, concrete *agencement* of heterogeneous forms and the singular, abstract formula expressed in this *agencement*.[392] Among the most helpful exercises for understanding *agencement* from Chapter One was holding it up against the many terms Deleuze and Guattari believed it to have replaced—including one of their own terms, from *Anti-Oedipus,* "machines." The diagram's two states or the two forms of

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[392] Deleuze and Guattari, *ATP*, 100/127.

Panopticism in Foucault come to light when we consider two everyday uses of the word, machine.

In one case we might refer to a particular collection of parts: when my computer breaks down, for instance, I might exclaim, "This dang machine!" I have in mind a set of components which together instantiate a general mechanism. But on the other hand, I might talk about "the machine" in abstract terms, the mechanism which is instantiated in the particular case: this is certainly the case when we talk about fighting the "machine" or system of modern politics.[393] Fighting the machine cannot simply mean opposing this or that congressperson or policy, since these are only particular components which are interchangeable or mutable; fighting the against the machine means resisting something like the abstract grammar or mechanism at work in every particular instance.[394]

The distinction between concrete and abstract—whether it concerns *agencements,* machines, or diagrams—is well-worn in Deleuze's career. In the part of *Thousand Plateaus* most explicitly devoted to linguistics, Deleuze and Guattari offer the abstract

[393] Consider the work of one of Deleuze and Guattari's great American influences: Lewis Mumford. Cf. The two-volume *The Myth of the Machine* (New York: Harcourt Brace Jovanovich, 1967-1970). Mumford's development of the term, machine, as well as the baggage associated with the word "mechanism," may explain why they prefer "abstract machine" over abstract mechanism, where I think the latter would do just fine. Hence my reference to "mechanism" above should not in any way be misunderstood as mechanistic commitment.

[394] The reader should recall Deleuze's love for jurisprudence, which he understands as the philosophy of case law over and against natural law or human rights. Rather than deferring to essential, eternal laws and principles which are universally constant, jurisprudence by precedence entails that the law is determined by each new case no less than each case is determined by the law. He offers the example of smoking in taxi cabs: at one point drivers could not forbid their passengers from smoking, since a cab was treated like a "rolling apartment" and passengers like tenants, and apartment-owners were not allowed to prohibit their tenants from smoking. But then it became universally forbidden to smoke in cabs, once taxis were judged to be a public service, and smoking is forbidden in all public services. Where smoking is allowed or forbidden, what counts as a residence, what qualifies as a public service—these are not given in advance; past cases of their application offers precedence for the law to stretch and fit new cases, which will in turn determine the law's flexibility with future cases. Jurisprudence entails a *plastic* form of law.

machine as an alternative to the tendency in linguistics to propose general or universal

constants, rules, and categories for any possible particular instance of speech. It is true,

they credit Hjelmslev with saying, that the abstract machine of language "necessarily

includes unexploited possibilities or potentialities," but the parameters for such

unexploited potential are not universally constant; it is not as though new slang or the

Latin's development into French was already given in advance at the outset of human

language.[395]

> [T]he abstract machine of language is not universal, or even general, but singular; it is not actual, but virtual-real; it has, not invariable or obligatory rules, but optional rules that ceaselessly vary with the variation itself, as in a game in which each move changes the rules. That is why abstract machines and *agencements* of enunciation are complementary, and present in each other. The abstract machine is like the diagram of an *agencement*.[396]

I would like to offer an example of such a game, in which "each move changes

the rules," that I think well exhibits the distinctions Deleuze and Guattari develop here.

Magic: The Gathering was the first game to incorporate the collectible aspect of trading

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[395] See Hjelmslev, *Language: An Introduction*, trans. Francis J. Whitfield (Madison: University of Wisconsin Press, 1970), 39ff. Deleuze and Guattari later turn to "atypical expressions" like e.e. Cummings's "he danced his did." They refer to such expressions as *tenseurs*, and although they cite Sephiha's work on the *intensif*, the *tenseur*'s importance is much more obvious in view of its likely source: Gustave Guillaume. Although Guillaume is not often cited in *Thousand Plateaus*, his work on the verb and the article betray the unmistakable debt owed him. In this instance I have in mind his *tenseur binaire*. The power of language and of the human mind, for Guillaume, lies in the "ability to particularize and generalize," and the abstract mechanism of human language is formed by these two tensions or tendencies (118). This of course might in part explain why the abstract machine cannot be general or particular, for it is precisely the way in which one negotiates between one and the other. The *tenseur binaire* is but one example of Guillaume's many diagrams, which he privileges because, by "bringing out a system of relationships better than words can," diagrams reflect how "the economy of language consists in making sayable—in translating into something that can be *said*—certain mechanisms which, deep in our minds, are already seeable" (18-19). Gustave Guillaume, *Foundations for a Science of Language*, trans. Walter Hirtle and John Hewson (Amsterdam: John Benjamins, 1984).

[396] Deleuze and Guattari, *ATP*, 100/127.

cards and thus initiated a new genre: the trading card game. Each of two or more players will compete with individual decks either randomly drawn from a larger stock of cards or carefully selected under agreed upon constraints. Their battle involves several card types; they cast spells against their opponent, summon creatures to do their bidding, and use artifacts and enchantments to augment themselves or their summoned entourage. All of these are only operative if fueled by a magic resource, "mana," of which there are five different kinds all produced by what are called "land cards."

Beyond these card types and the basic stages of gameplay—players take turns, and their turns comprise several phases that dictate the number and order of possible plays—a game of *Magic* is unpredictable; the cards themselves stipulate the rules of the game in which they are included, and there are, as I write this, some 15,865 official cards.[397] "Scour the Laboratory" is an instant spell that allows the player to draw three cards from their deck, and normally costs four mana (of any sort) in addition to two blue, or water, mana. If the player has four or more card types in their discard pile ("graveyard"), however, the spell costs slightly less. The "Fugitive Druid" is a creature which can attack for three points of damage and defend for two—but it stipulates a new rule that anyone who enchants it will permit its owner to draw an extra card (Figure 11).

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[397] See *Gatherer*, Wizards of the Coast's official card database. http://gatherer.wizards.com. Accessed on July 22, 2018.

Figure 11 – Two sample *Magic: The Gathering* playing cards from *The Gatherer, op. cit.*

Any analysis of individual acts in the game would miss the point if it attempted to isolate such acts from the concrete *agencement* of cards, rules, motivations, *etc.* which conditions and is conditioned by each individual act. But individual concrete *agencements* or games are not entirely random or contingent; there is an abstract style that determines how new rules will be determined. A diagram of *Magic: The Gathering* would not offer an exhaustive list of all possible rules and all possible consequences following all possible combinations of rules, but the "style" which dictates how a game adapts to its rules. This is what makes it a "concrete universal," because it is only universal wherever the name, *Magic*, applies. The concrete *agencement* is collective because it involves different components and *plans*, whereas, as a proper noun, the

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abstract machine describes the distribution of something singular.[398] Rules emerge and are accommodated *like so*—otherwise, we aren't playing *Magic*. Hence abstract machines describe "rules of *'planification*,' of diagramming," since an *agencement*'s complex relations are not random.[399]

The difference between concrete *agencement*[400] and abstract machine is not one drawn between distinct entities, even if these two are "entirely different";[401] the concrete and abstract are functions or descriptions of the same entity, depending on whether we are concerned with the first or second problems of consistency, respectively. The nature of the concrete, the *agencement machinique,* as opposed to the *machine abstraite,* is sketched out in a dense passage of *A Thousand Plateaus*, and we can parse out its parallel sets of claims as follows (Figure 12):

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[398] Deleuze and Guattari write: "The abstract machine is always singular, designated by the proper name of a group or individual, while the assemblage of enunciation is always collective, in the individual as in the group. The Lenin abstract machine, and the Bolshevik collective assemblage… The same goes for literature, for music. There is no primacy of the individual; there is instead an indissolubility of a singular Abstract and a collective Concrete" (*ATP,* 100/127).

[399] *Ibid.,* 70/91. Deleuze and Guattari often say that the Abstract Machine draws at the same time as it is drawn—that it develops the concrete while being enveloped in the latter. This formulation expresses a long-running and deeply-rooted idea in Deleuze's career; we find versions of it as early as the latter's *Nietzsche and Philosophy.* "Power is *the one that* wills in the will [*la puissance est* ce qui *veut dans la volonté*]. Power is the genetic and differential element in the will. […] The genetic element (power) determines the relation of force with force and qualifies related forces. As plastic element it simultaneously determines and is determined, simultaneously qualifies and is qualified" (*Nietzsche,* 85/96-7).

[400] Or "concrete machine," after the title of Guattari's essay. *Op cit.*

[401] Deleuze and Guattari, *ATP,* 71/91.

	Version of Description		
	1	2	3
What is an *agencement* necessary for?	It performs the co-adaptations of content and expression, and ensure their biunivocal [cf. "commutative"] relationships.	It is necessary for the articulations of the organic stratum.	It is necessary for "states of affairs" and "regimes of signs" to intertwine.
	It ensures a relationship between a stratum and substratum.	It is necessary for the relationship between two strata.	
	Through the *plan* of consistency, it effects an abstract machine on a stratum, between strata, and between the strata and the *plan* itself.	It is necessary for an organism to be caught in and utilized by a social field.	It is necessary for all of these stratified relationships to be organized, rather than random.

Figure 12 – Itemization of three lists describing *agencement* in *ATP,* 71/91.

REAL POSSIBILITY: WHAT "WOULD BE" DESIGN

The abstract machine or diagram is like the *modus operandi* which marks the continuity of an *agencement.* At a certain juncture we identify the Panopticon as the abstract diagram which describes the design of the prison and the design of criminology. Prison walls and penal law are different in kind; their continuity resides in the abstract "style" they share, a style which informs them equally and which they equally develop. Deleuze and Guattari's use of the diagram allows us to reconcile some of the seeming contradictions of social philosophy: in one sense, the institution of new policies and the election of new politicians give the impression that "things change," but in another sense, the critic recognizes that "nothing has changed." The diagram addresses the continuity according to which heterogeneous registers and fields can conspire, as well as the continuity of this conspiracy's developments (e.g. its perpetuation, its shifts in direction, its dissolution…).

The diagram isn't all Deleuze and Guattari borrow from Peirce; Peirce's philosophy, according to at least one ambitious interpretation, rests on and is built up

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around a commitment to the idea of continuity.[402] Peirce was enthusiastic about Cantor's

set theory and the Continuum Hypothesis, but had one critical reservation: he agreed with

the hypothesis that no transfinite number existed between real numbers and integers, but

"did not subscribe to the implicit addition that the real numbers, in turn, correspond to the

continuum."[403] Cantor's set theory views sets as series of individual numbers, whereas

Peirce sought a "version of set theory which made evident that the continuum

transgressed any attempt at formalizing it as a line built up from points, [as] a set

consisting of individual numbers."[404]

That the real continuity exceeds formalization forms the core commitment to a

web of related issues. According to Stjernfelt, Peirce invokes continuity to address six

distinct concerns:

1. While not equivalent to generality, continuity explains how a concept's intensional meaning outstrips its finite extension (no matter how large).
2. Since actual events belong to a real continuum of potential events, novel events cannot be said to arrive *ex nihil.*
3. Likewise, continuity allows Peirce to be a realist with regard to general tendencies.
4. Because the laws and tendencies of reality are continuous, the processes of learning and research are likewise continuous; knowledge has no beginning or end.
5. As a result, continuity is "the idea of fallibilism objectified," or the pragmatist doctrine that "our knowledge is never absolute but always swims, as it were, in a continuum of uncertainty and of indeterminacy."[405]

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[402] Stjernfelt, 3.

[403] *Ibid.*, 4.

[404] *Ibidem.*

[405] Peirce, "Untitled manuscript (1897)," *CS* 1.171.

6. Peirce can build up a new logic and epistemology around diagrams, since "diagram manipulation [is] basically continuous and hence able to mirror real continuity."[406]

Several (if not all) of these concerns are relevant to design. We have mentioned the word's many uses and ambiguous definition, and the difficulty in pinning it down reflects the ways continuity is at stake in the concept. We talk of design as an abstract, intentional *dessein* or program which is realized in individual designs (1). If the (planned) design is continuous with the (used) design, then both intended and unintended purposes belong to a real continuum of possibility (2, 3). Finally, when we understand design as the "diagram" of an entity, we find in the diagram a continuity that mirrors this continuum of possibilities and find that we can track or manipulate such a diagram (6).

In light of the claim that an abstract machine "necessarily includes unexploited possibilities,"[407] Peirce's reference to real possibilities warrants further discussion. His position on the Continuum Hypothesis demonstrates his commitment to realism, and as 1, 2, and 3 above might suggest, such realism requires "reversing the order of Aristotle's evolution by making the form come first, and the individuation of that form come later."[408] In other words, a concept's generality is prior to its actual extension, and the continuum of possible events in a general tendency is anterior to any actual events. Peirce's twist on this, what he considers to be a basic tenet of realism—putting form before individuation—is that he splits "the form in two: form as mere possibility in

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[406] Stjernfelt, 6. For full description of all six items, see Stjernfelt, 6-10.

[407] Cf. Deleuze and Guattari, *ATP*, 100/127.

[408] Peirce, Lowell Lectures, 1903, *CS* 1.22.

Firstness, anterior to anything actual, and form as realized possibility in Thirdness, where it governs Secondness in the shape of habits."[409] Form in this double sense is what is "communicated" in the diagram or design, as "a power [or] the fact that something would happen under certain conditions."

Thus the aspect of continuity which interests us most is that of "Would-Bes" or "Real Possibilities," the real continuum of possibilities which belong to a form prior to its actualization. The formal relations depicted in an equation or diagram—these "regularities, tendencies, dispositions, patterns, may possess real existence, independent of any observer."[410] Real possibility is a relational conditional which exists virtually in a design even if it is never actualized. As icons which depict relations, the diagram is thus our only representative means for charting in the actual form a continuum of real possibility larger than the actual form, for uncovering the virtual in the actual. It is the only icon which communicates possibility itself, and this is why Peirce attaches so much importance to diagrammatic reasoning as a methodology.[411] They are the signs we get more "out" of than we "put in"; I can draw up a diagram of my house and learn

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[409] Stjernfelt, 37-38. A note on Peirce's terminology, which I do not yet have the occasion to discuss at length. We find a good presentation of Firstness, Secondness, and Thirdness in a letter Peirce wrote to Lady Welby in 1904. "Firstness is the mode of being of that which is such as it is, positively and without reference to anything else. Secondness is the mode of being of that which is such as it is, with respect to a second but regardless of any third. Thirdness is the mode of being of that which is such as it is, in bringing a second and third into relation to each other" (*CP* 8.327). Thus, Firstness might be understood as pure quality "in itself," Secondness is the incarnation of such quality as it appears to someone (a "second"), while Thirdness is the generality that allows us to identify the same Firstness in different Secondnesses.

[410] Stjernfelt, 38.

[411] Cf. Sun-Joo Shin, *The Iconic Logic of Peirce's Graphs* (Cambridge: MIT Press, 2002). Shin offers a comprehensive and compelling defense of diagrammatic systems in logic. She understands Peirce's "diagram" in broad terms, much as Stjernfelt does.

something from it.[412]

GUATTARI'S MASHED POTATOES: ON AFFORDANCE

Among Stjernfelt's examples of world-bes or real possibilities is a concept now celebrated in design and in the cognitive theorists most interested in design-thinking, and one which fits comfortably into Guattari's description of the "diagrammatic": affordance. Designers and philosophers alike tend to focus on practical considerations of design, on the methods and types of reasoning employed in the process of design. Accordingly, they discuss design as "design-thinking," as a method for solving problems, and their goal is to arrive at an optimum method or to extract elements of this method for application "outside" design. Some authors, on the other hand, focus on the material or "ontological condition of design," rather than via a theoretical manifesto for an abstract, experimental design method. As the argument goes, such manifestoes "often forget that design cannot be seen and analyzed only according to its intentions […] but that it must also be analyzed according to what it does and does not do to other actors and to other environments beside the actor, environment, and function for which it was originally designed."[413] Intentions have their effect upon design forms, but design in turn affects its environment and, as a result, the intentions of its users and makers. A chair appears as a complex of affordances: "the capabilities of wood, skills and labor in the workshop as a

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[412] "For a great distinguishing property of the icon is that by direct observation of it other truths concerning its object can be discovered than those which suffice to determine its construction." Peirce, "That Categorical and Hypothetical Propositions are one in essence, with some connected matters," in *CP* 2.279.

[413] Mahmoud Keshavarz, Design-Politics: An Inquiry into Passports, Camps and Borders (Malmö: Malmö University, 2016), 86.

site of production, and the possibilities of the designed chair being oriented in one direction and not the other, thus shape spaces that," for example, dictate the range of activity afforded to different kinds of bodies.[414]

The term, affordance, originates in the work of James Gibson, pioneer of ecological psychology. In his *Ecological Approach to Visual Perception*, he challenges what he takes to be a pervasive and mistaken assumption about visual perception, an assumption with potentially disastrous consequences for psychology: that "vision is simplest when the eye is held still," and that "each fixation of the eye is analogous to an exposure of the film in a camera, so that what the brain gets is something like a sequence of snapshots."[415] On observing actual animal perception, however, he notes that "if an animal has eyes at all it swivels its head around and it goes from place to place. The single, frozen field of view provides only impoverished information about the world."[416] Once we treat the animal as a living, moving, and motivated thing and remember that its perception is part of its organism, we cannot treat the information its perceives as neutral, as if we could understand its "snapshots" in isolation from everything else about the animal.

No animal exists without its surroundings, no more than an environment exists independently of any inhabitants. The bulk of *The Ecological Approach* is devoted to the development of the necessary terms for diagramming an animal's relationship with its

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[414] *Ibid.*, 87.

[415] James J. Gibson, *The Ecological Approach to Visual Perception* (New York: Taylor & Francis, 1986), 1.

[416] *Ibid.*, 2.

environment; Gibson proposes a world of paths, surfaces, lines, and points. In one sense, different animals share the same surroundings, but since their perception is bound up with their anatomy, their biological needs, and so on, each animal will carve up these surroundings into different environments. From the same landscape, animals disagree on what they pick out as "shelter," "food," "threat," "mate," "obstacle," etc. It is this aspect of the animal-environment relationship which Gibson calls affordance: "the *affordances* of the environment are what it *offers* the animal, what it *provides* or *furnishes*, either for good or ill."[417]

The concept of affordance thus has three main components: the animal, the environment, and the potential activity which the latter affords the former (Figure 13).[418] The afforded activity does not exist outside the animal-environment relationship. That a surface affords crawling to a millipede is not equivalent to saying that the surface is flat; its affordance to the millipede says something about the nature of both surface and millipede, and the nature of their interaction. The surface must exhibit certain qualities in order to be crawlable for the millipede, and the millipede must be properly equipped to find the surface crawlable; the
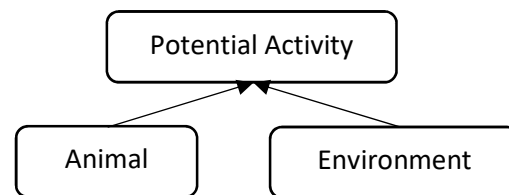
Figure 13
The components of affordance

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[417] *Ibid.*, 127.

[418] There is a lot of debate as to whether perception should count as a distinct fourth component. Is perception simply another afforded activity? Or is it more rudimentary, as part of an affordance's necessary condition of possibility. The debate comes down to whether affordances can be "directly perceived," a claim that traces back to Gibson himself, since an environment cannot support the animal's activity if the animal is unaware of its affordance, or whether the environment's affordances are available even before the animal has perceived them. See Don Norman, *The Design of Everyday Things, Revised and Expanded Edition* (New York: Basic Books, 2013), 12. These issues with perception will be pertinent to our discussion in the following chapter, and so I leave them aside for now.

affordance of crawlability only emerges when the millipede's environmental context includes such a surface.

After collecting different accounts and possible definitions for "diagram" from far and wide, we return to Guattari's essay, "Concrete Machines." I take it to be an authoritative account of the matter, the reasons for which should be clearer given the context and concepts discussed above. Although Deleuze himself certainly has a stake in their use of the term and although it has a specific value for his career, his own motivations were first expressed in dreams and dramatism, and by his own admission, diagrams were Guattari's domain. The essay will not offer us a formal definition, but I wager that, given what we have seen in our discussion of architectural diagrams, Kantian schematism, Deleuze and Guattari's other concepts of dramatization and becoming, the history of the word *disegno*, Francis Bacon's painting, and René Thom's catastrophe theory, Guattari's *use* of the term will be more instructive than adding yet another possible definition to our list. The essay is doubly significant, since in addition to settling our account of diagrams, it solders Deleuze and Guattari's diagram (and *agencement*) to a discussion of design: first, because it is amenable to Gibson's affordance, a darling concept in design literature; second, because Guattari's own examples are of design—key molds and aircraft blueprints.

So, to recall: Guattari proposes a "childhood block" rather than a "childhood memory." We discussed the former as it related to the concept of becoming, but the distinction offers a good means for isolating what it means to be "diagrammatic," or what sort of relationship this entails. Childhood appears to me in the present not as an isolated entity or feature, as a memory, but as a whole block of such features, "constellations or

masses of the kind that actualize intensities… as concrete machines."[419] Like the

agencements which would come to replace them, these concrete machines both "stratify"

different *plans* to regulate their commutative interchange, as well as diagram the

possibility for things to escape and drift off to become something else. [420] What it means

to diagram in this instance is closely linked to what Guattari calls "diagrammatic

redundancy." A concrete machine's diagrammatic redundancies "work on reality itself,"

and one should recall that even in Peirce the diagram depicts real possibilities and not

merely subjective resemblances: that's why one can get more out of a diagram than one

puts in, or how one can *learn* from a diagram of what they already know.[421]

To explain what Guattari means, consider two of his examples. First, he describes

what is entailed by the blueprints for a Concord aircraft:

> what is noted at the semiotic register is the de-territorialized articulations
> of the various things that go to make up the aircraft—aluminum, electrical
> fluxes, semiotic fluxes as expressed materially and so on. But such a
> blueprint is only of interest in so far as its articulations are sufficiently de-
> territorialized and can be made to correspond with the de-territorialized
> articulations of the materials of expression. […] [T]he relevant features of
> the materials of expression involved—their raw materials, we might say—
> must be compatible with the nature of the articulatory features of de-
> territorialization of the material field.[422]

Only certain features of certain materials, e.g. aluminum, will serve to express the

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[419] Guattari, "Concrete Machines," 154.

[420] *Ibid.,* 160. I am doing my best to avoid getting caught in Guattari's highly technical jargon. It is worth mentioning, though, if for no other reason than to flag its resemblance to what will appear in *A Thousand Plateaus.* He says that concrete machines "manipulate both molecular multiplicities and mass stratifications" (160), and notes that, "Thus concrete machines can be said to be molar in their stratifying aspect and molecular in their diagrammatic de-territorializing aspects" (160n4).

[421] See above. Also see Stjernfelt, who clarifies that Peirce's diagrams entail "operational" rather than "subjective resemblance" (90).

[422] Guattari, "Concrete Machines," 154-5.

relations necessary for an aircraft, and aluminum will only serve certain possible relations

and purposes. Hence the diagram is so often referred to as an "interchange," since the

relationship between *plans* (in this case, between airplane and aluminum) is not random

but regulated by certain immanent requirements. It is not a stretch to refer these

requirements, which Guattari calls "support," to Gibson's notion of affordance. For

further evidence, we turn to the second example, that of key design.

> You cannot make a mold for a key out of just anything—you need a
> particular kind of wax; if you were to try doing it with mashed potato, you
> could not hold or transfer the diagrammatic outline that makes the key
> what it is. If you want to reproduce that outline on paper you need a brush
> that is not too broad, and ink that is neither too thin nor too thick. In other
> words, you must choose materials of expression suited to the features of
> the machinism you want to transfer. Diagrammatic redundancy thus
> depends, on the one hand, on the de-territorializing articulations of the
> various material and semiotic strata [BG: *plans*] that are to be connected
> together (aluminum, steel, information, equations, etc.) and, on the other,
> on the capacity of the materials of expression to use, to activate, to
> organize that system of connection.[423]

We can conclude from Guattari's example here that the concept of diagram we

have been struggling with, which is relevant to *agencement* as well as to design,

combines two components from our survey: first, Gibson's notion of affordance, which

allows us to think of design as serving a purpose without necessarily *having* a purpose *in

esse*, and as perfectly determinate without committing us to determinism; second, the idea

of continuity, whereby the reality of an affordance exceeds its actuality, since a surface

does not "suddenly" become walkable for a millipede upon its arrival (*natura non facit

saltus*).

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[423] *Ibid.,* 156.

ABSTRACT AND CONCRETE DESIGN

But although Guattari's "concrete machines" ultimately appeared under the guise of "*agencement*," it would be a mistake to understand this as proof that *agencements* and so-called abstract machines are separate entities. I have been trying to arrive at a sense of design that encompasses both *dessein* and *dessin* as different aspects or states of what is really a single concept. Do not Deleuze and Guattari often insist on the diagram's double status? I believe this is why they qualify it as *concrete* when they describe an *agencement*'s relationship to the abstract machine, and why in its earliest appearances the opposition was between *agencement machinique* and *machine abstraite*. Since the tetravalent definition with which this project began comprises two "axes," we can take the claim that *agencement*/design *is* a diagram quite literally. They write:

> We may distinguish in the abstract machine two states of the diagram, one in which variables of content and expression are distributed according to their heterogeneous forms in reciprocal presupposition on a *plan* of consistency, and another in which it is no longer even possible to distinguish between variables of content and expression because the variability of that same *plan* has prevailed over the duality of forms, rendering them "indiscernible." (The first state relations to still relative movements of deterritorialization; in the second, an absolute threshold of deterritorialization has been reached.)[424]

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[424] Deleuze and Guattari, *ATP,* 91/116. I included the parenthetical remark in the passage in order to anticipate a seemingly reasonable objection: how can I claim that an *agencement* is both concrete and abstract when Deleuze and Guattari here claim that the two states of the diagram belong to the abstract machine (and not *agencement*)? Do they not also say that the abstract machine *is* the diagram of an *agencement* (*Ibidem*)? If the passage is taken in isolation, I concede. However, I refer the reader to the account Guattari gave of "machines" (above), and the things he and Deleuze list for which an *agencement* "is necessary" (see Figure 12) The parenthetical in the above passage says it all: the abstract machine or diagram *states* the relations performed in the concrete machine/*agencement* as described in these other passages. But given what we have seen about the diagram's unique relationship to continuity, we have to admit that the relations depicted *in* the diagram are continuous with the diagrammatic relations which depict such relations. The abstract/concrete relationship is thus another instance of Deleuze's obsession with the expressed/expression relationship, the abstract is that which is expressed in the concrete and which does not exist outside its expression; it is "enveloped" by the concrete which "develops" it. Another brief comment from *Thousand Plateaus* may be instructive on this point, since it involves aspects Louis Hjelmslev's work which we have discussed at length: they write that the "form of content and form of

We could distinguish a sense of concrete and abstract design which likewise does not sort out two different "kinds" of design, as, for example, when someone is furniture-shopping and turns their nose up at dining room set for being "too abstract." What does it mean for something to be concrete or abstract? Consider last chapter's findings: the term or object of an *agencement* is a *plan*, and following Hjelmslev, it assumes different substantial forms on each of its different *plans,* which are irreducible but for the unformed, material "purport" they share. Now, typically, we might think of abstraction as the "process of extracting pure or essential Forms, emptying a space of its concrete contents."[425] In other words, we understand the *abs-tractus*[426] as the sort of skeleton we "pull out" of concrete experience. We could adjust this understanding: the truly abstract is not the skeleton we remove, as a pure or essential Form, but what remains once this skeleton is removed, as "Form withdrawn from matter."[427] The abstract is enveloped in each of the different formations on different *plans*, and we say something is "concrete"

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expression involve two parallel formalizations in presupposition: it is obvious that their segments constantly intertwine, embed themselves in one another; but this is accomplished by the abstract machine from which the two forms derive, and by machinic *agencements* that regulate their relations" (68/88). The first part of this claim should be familiar from Hjelmslev's own account, and we might accordingly translate the rest in his terms: content and expression both derive from the same unformed *sens, mening,* or purport (read: abstract machine); once this purport is "realized" in language, its forms are regulated and regulative according to the system, or language (*agencement*), which expresses it. We also find a similar formulation in Deleuze's work on Friedrich Nietzsche, in his interpretation of the "will to power" as an affective force relationship: "The relationship between forces in each case is determined to the extent that each force is *affected* by other, inferior or superior, forces. It follows that will to power is manifested as a capacity for being affected. […] The will to power is always determined at the same time as it determines, qualified at the same time as it qualifies" (*Nietzsche,* 62/70).

[425] John Rajchman, *Constructions* (Cambridge: MIT Press, 1998), 56.

[426] *ab-* "away"; *tractus* "pulled, drawn"

[427] Rajchman, 65.

when these *plans* conspire.[428]

It may already be clear how the abstract and concrete both belong to design, but this is a good opportunity to return to the figures with whom we began and the debate that separated them: Christopher Alexander and Peter Eisenman. The two states of the diagram, the abstract and the concrete, the Diagram and diagram—we can now see that theirs was not a simple disagreement between two authors who happened to independently develop their respective versions of architectural diagrams. Rather, the two architects engage with "different states" of the diagram, and so naturally conceive of architecture and the purpose of architecture differently. It first appears that their dispute concerns the value of discord for the architect: is it the ultimate and definitive enemy of the architectural pursuit of harmony, wholeness, and life, as Alexander believes, or does it nevertheless offer an opportunity for architecture to critically engage in social and political life by shaking up sedimented views and practices, as Eisenman argues? In fact, the dispute concerns the nature of the diagram: both architects assume different aspects of the diagrammatic and cannot find a common ground because they do not conceive of design or of the diagram in a way that comprises both.

Although the diagrams or patterns catalogued in his *Pattern Language* can be instantiated in different ways and are purportedly "abstract" accounts of architectural problems/solutions, Alexander's diagrams are not abstract enough. Ultimately, his diagrams *concretely* bring together and negotiate the difference between patterns of events, on the one hand, and geometrical patterns in space, on the other. This is what it

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[428] The Latin *concresco* means to thicken or congeal: from *con-* "with, together; complete"; *cresco* "to grow, come to be, become visible."

means to say that a pattern or diagram expresses a problem or solution; it describes the "ultimate object of design": Form. Alexander is not interested in withdrawing this Form to arrive at an abstract, unformed matter wider than the given, but wants a Form which conforms to, is comfortable with, the given. A design is interpreted and ought to be judged according to how well it solves its problem, or how smoothly patterns of events meet patterns in space, and the diagram is the concrete description of the paradigm for doing that well. It is no wonder that he cannot ascribe any architectural value to discord.

Eisenman's diagrams are abstract where Alexander's are concrete. If the latter are a response to the question—How does a good design do its job so well?—Eisenman is trying to figure out what architecture is on its own terms, when we take away the "jobs" and outside demands placed upon it. This sense of abstraction is much closer than what we developed above. As we saw before, he saw diagrams as a means to describe "the formal," i.e. not Form as essence or purpose, not a set of forms, or even the concrete process of construction, but that which is *in* form more than any of these, the formal capacity to escape or defy intentions, to be repurposed, to be obtuse, et cetera. He thought that the diagram, understood in this way, privileged architecture as a means for abstracting Form and hinting that the world offers still unexploited "real possibilities." It is no surprise that he underscores discord as not incidentally permissible but necessarily valuable to the work of architecture. Alexander says that architecture's service to society is in making its life easier, while Eisenman claims that architecture's gift to society is a glimpse at another life.

We saw in the last chapter that the *plans* of an *agencement* communicated despite their heterogeneity. Now we have two ways of diagramming their communication and

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have found that a diagram's continuity entails unexploited affordances, or "real possibilities," and degrees of variation. A few things remain to be seen. We have mentioned that the "abstract" aspect of the diagram suggests the possibility of drift but have not established drift as a prominent feature for either *agencement* or design. In the following chapter we will need to discover a necessary relation between heterogeneity and continuity, and one which is particular to both design and *agencement*.

A design, as both concrete and abstract, is a diagram of real possibilities, according to which it lends itself to certain acts and certain actors. As we will see in the following chapter, this is regardless of whether these acts were intended: some of its aspects will function as the design's "active site" when engaged by a user in a milieu and will not appear outside this relationship. But the design's affordances are still there, nevertheless, virtual if not actual. It is both *dessein* and *dessin*, concrete and abstract, diagram and Diagram: on the one hand it is the organized arrangement of affordances and functions which appear in the context of certain intentions or purposes; on the other hand it is the continuous matter that holds a singular but still indeterminate field of affordances together, such that it will afford this in one context but not in another, and such that it can be differentiated from other designs.

CHAPTER IV

WHEN GAMES CHEAT BY THE RULES: DRIFT AND UNINTENDED DESIGN EFFECTS

Our initial engagement with *agencement* has led us far and wide, but some work remains to fit our findings together. In the second chapter, we saw that *plans* somehow held together despite being different in kind. Following Spinoza or Hjelmslev, we should think of them as attributes, which each express the same substance, which can only take form under one attribute or another, and so every attribute has an equally legitimate claim on that substance and do not parcel it into discrete regions. Following Leibniz or von Uexküll, we should think of these *plans* as "perspectives," as Deleuze's version of the monad. In this view, a *plan* is not a perspective that belongs to the subject but the perspective which the subject inhabits—not what is seen but what enables one to see— and therefore there can be irreducible perspectives on the same substance without these in turn constituting different substances.

In the third chapter we consulted the architectural diagrams of both Christopher Alexander and Peter Eisenman to describe the two ways in which an *agencement* or design is "diagrammatic." According to Alexander, a diagram is the concrete solution to a problem that negotiates between patterns of events on the one hand and geometric patterns in space on the other. For Eisenman, a design's diagram reveals the continuity of its real possibilities, according to which it might assume new patterns or negotiate its heterogeneous patterns in unforeseen ways.

As it stands, we lack a strong connection between these two chapters, and this is

largely because we have merely stated the problem—as the two problems of consistency, or as the problem of continuity, for example—without explaining how an *agencement* or design actually addresses, solves, or realizes it. The same design is stratified by different *plans*, and it negotiates their concrete interchange and develops/envelops an abstract continuum of their real possibilities—but how exactly does this negotiation take place? And what are the consequences or advantages for thinking of design in this way? The present chapter is my response to the first question, while the second question will be addressed in the final chapter.

WHAT SETS DELEUZE APART?

An *agencement* involves heterogeneous *plans* or considerations, and we can diagram its heterogeneous nature in concrete ways (in actual designs) or in an abstract way (regarding their consistency, or the singular style of holding-together which the concrete expresses). Can this be made clearer? How does an *agencement* negotiate between *plans*? One way to approach the question is to treat it with suspicion. One might object that this new terminological framework is superfluous: either it fails to actually describe a distinct process or phenomenon, or it is adequately accounted for by another set of terms. Since the project behind one's terms matters more than the terms themselves, as I have maintained, then I begin by holding Deleuze's project up to other ostensibly similar authors to determine what sets his work apart and what justifies the use of Deleuzian terms. Rather than returning to consult his and Guattari's influences, as we have done, this time we will cross-reference their jargon with less immediately related figures. We will look at Donald Davidson's so-called anomalous monism, Herman Dooyeweerd's aspect theory, and Arthur Koestler's notion of bisociation. We will

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consider what heterogeneity means for each author and see how they deal with it in their respective projects.

A. COMPARED TO DONALD DAVIDSON

Donald Davidson's impact on the philosophy of mind and the philosophy of language in the 20th century betrays his inheritance from American Pragmatism, and a few words about this inheritance are warranted. Having studied logic under Josiah Royce and later having been in close contact with Harvard's collection of Peirce's manuscripts, C. I. Lewis was by most accounts a realist, but nevertheless distinguished between the world as it is revealed in practice and the world as it is categorized and structured by thought. Every object is thus split: on the one hand there is the *a priori* apple as the "product of the activity of thought," while on the other hand there is the "givenness" of the apple, "independent of such activity."[429] Regarding what he calls the empirical content of experience, all that is given is the fact that things are given; the rest is built up from *a priori* concepts which we apply. Something like "objectivity" only applies to the given since its givenness is out of my control and insofar as it meets or defies my expectations.[430]

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[429] C. I. Lewis, *Mind and the World Order: Outline of a Theory of Knowledge* (New York: Dover, 1929), 37. Note that Lewis uses "a priori" as a relative rather than absolute term: our idea of an apple or our ideas about apples are prior to a given experience of apples; if I encounter an apple later this afternoon I will do so with concepts in hand, prepared ahead of time. He should not be understood as saying that our concepts are prior to *all* experience.

[430] Lewis's example is of opening a drawer to whether chalk is inside. A given drawer is understood as a "drawer" when understood as being able to be opened, closed, able to contain a certain amount of certain kinds things, as a component of furniture, and so on. If this is my conceptual schema, I can form a proposition which is verifiable or falsifiable: there is chalk in the drawer. When I open the drawer, either I will find chalk or I will not find chalk—*but the possibility of being mistaken about this drawer's contents demonstrates the drawer's objectivity*, according to Lewis. Cf. *Ibid.,* 194.

All objectivity means for Lewis is this: we can assume the reality of an agreed upon reference to "something out there" if there is an agreement in our activity involving the reference and if we can coordinate our plans around it; the respective content of our individual experience, on the other hand, only needs to be consistent enough to allow for our practical agreement: "On a day which is terribly long to me and abominably short to you, we meet, by agreement, at three o'clock, and thus demonstrate that we have a world in common."[431] Much of Lewis's *Mind and the World Order* can be read as a warning to not confuse empirical givens with conceptual schemas and a reminder that we can only decide between forms of logic to the extent that they rely on empirical givens. The distinction is important, among other reasons, since it addresses why multiple systems of logic can lay equal claim to the same phenomena, and it speaks to the fact that logical principles and categories seems to always involve extra-logical rules of application:

> The laws of logic are purely formal; they forbid nothing but what concerns the use of terms and the corresponding modes of classification and analysis. The law of contradiction tells us that nothing can be both white and not white, but it does not and can not tell us whether black is not white or soft or square is not white. […] They are legislative because they are addressed to ourselves—because definition, classification, and inference represent no operation in the world of things, but only our categorial attitudes of mind. Furthermore, the ultimate criteria of the laws of logic are pragmatic.[432]

Lewis's student, W.V. O. Quine, shared many of his sentiments, implicitly if not explicitly: he was a committed realist on the subject of truth with the famous caveat that truth is the value of a variable. See, for example, the second chapter of his *Word and Object*, where he lays out the basic form of his so-called "principle of indeterminacy of

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[431] *Ibid.,* 80.

[432] *Ibid.,* 246-7.

translation." There it is clear what Quine shares with his mentor and what furthermore is lent to Davidson's project. We can re-describe mental or behavioral events, such as we report in propositions involving verbs like believe, desire, or remember, in terms of physical or physiological events. Quine's view is that the translation of one set of terms or events into the other is "less than determinate." In other words,

> manuals for translating one language into another can be set up in divergent ways, all compatible with the totality of speech dispositions, yet incompatible with one another. In countless places they will diverge in giving, as their respective translations of a sentence of the one language, sentences of the other language which stand to each other in no plausible sort of equivalence however loose.[433]

As Davidson develops this principle, he does not break with his teacher or his teacher's teacher: his so-called "anomalous monism" features ideas precious to both Lewis and Quine and demonstrates the degree to which all three men inherit the Kantian approach to heterogeneity previously discussed. He quotes Kant as saying that speculative philosophy's task is to show that the sense according to which human beings are free and the sense according to which human beings are subject to nature "not only […] can very well co-exist, but that both must be thought *as necessarily united* in the same subject."[434] The agreement of practical experience convinced Lewis of a certain monism, and Davidson likewise defends the identity of mental and physical events.[435]

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[433] *Ibid.,* 24. For further reference, see *Ibid.,* 23-72.

[434] Immanuel Kant, *Fundamental Principles of the Metaphysics of Ethics,* trans. Thomas Kingsmill Abbott (London: Longmans, Green, 1916), 76. As cited in Donald Davidson, "Mental Events," in *Essays on Actions and Events* (Oxford: Clarendon, 1980), 225. Emphasis in original.

[435] Among other things, I insist on including C. I. Lewis in this discussion because I believe his pragmatist commitments obviate some of the classic criticism leveled at Davidson. Exemplary here is Louise Antony's "Anomalous monism and the problem of explanatory force," in *Philosophical Review* 98 (April 1989), 153-187. Antony leverages Davidson's Quinean heritage to argue that his commitment to Quine's principle of indeterminacy "is opposed in principle to there being any systematic nomic relation between psychological

What is more, however, is that, like Lewis and Quine, he identifies the mental with the

physical without reducing the former to the latter: it is an identity of kinds, aspects, or

properties rather than an identity of individual events.[436]

To see why this is so, consider the three planks of anomalous monism:

1. The Principle of Causal Interaction: At least some mental events interact causally with physical events. If "someone sank the *Bismarck,* then various mental events such as perceivings, notings, calculations… played a causal role in the sinking of the *Bismarck*."'
2. The Principle of the Nomological Character of Causality: "events related as cause and effect fall under strict deterministic laws."
3. The Anomalism of the Mental: "there are no strict deterministic laws on the basis of which mental events can be predicted and explained." [437]

Davidson fends off the contradiction these three commitments might invite in

large part by carefully discerning how we ought to understand *what* is related as identical

or as causal. Rather than individual entities, his three principles apply only to types,

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and physical kinds" (183). As a result, anomalous monism forfeits any of the physical's explanatory force. She is lead to this conclusion because she assumes—whether rightly or wrongly in the case of Quine is not my concern—that the psychological and physical wind up as equivalent descriptions without any firm ground to determine a lawlike relation between them. She objects: "It is the acceptability of particular rationalizations that metaphysically ground psycho-physical identities, and not the other way around… there is no objective attachment between the interpretive psychological story we decide to tell and the physiological goings-on in a person's body" (184). First, this seems to largely agree with Davidson's position. Second, she assumes that Davidson takes psycho-physical identity for granted, but we could happily accept her characterization of Davidson's monism in light of Lewis's work on the "world in common." Identity grounded in practical agreement might not be an obstacle to determining a systematic nomic relation between descriptive kinds.

[436] Obviously, it requires some effort to reconcile Lewis's and Quine's language with Davidson's. Note also that, while Davidson talks about kinds, I mention aspect and property to evoke interpretations of Davidson which characterize his anomalous monism as a "double aspect ontology" or "property dualism." For the former, see in particular Gordon G. Brittan, Jr's "Davidson, Kant, and Double-Aspect Ontologies," in *Dialogues with Davidson: Acting, Interpreting, and Understanding* (Cambridge: MIT Press, 2011). While he doesn't refer explicitly to "property dualism," influential critic of Davidson's position, Ted Honderich discusses anomalous monism in terms of properties and the relationship between their respective descriptions. See "The Argument for Anomalous Monism," in *Analysis* 42 (1982), 59-64.

[437] Davidson, "Mental Events," 208.

kinds, or properties—we may add *plans* to this list, after our discussion of figures like

Hjelmslev. The claim that the *plans* of expression and content stratify the same purport

does not require that each term on one *plan* is necessarily and invariably linked to a

single term on the other *plan*; a consequence of their distinction as different *plans* is that

they are "heteronomic," to return to Davidson's language. The laws of content differ

from those of expression.[438] Therefore, Davidson holds that the same events which are

describable as physical can at least sometimes be described as a different kind of event,

as mental. Whether describing their identity or their causal interaction, the

psychophysical relationship is one between kinds rather than individual entities.[439]

B. COMPARED TO HERMAN DOOYEWEERD

Davidson's anomalous monism can be understood as a property dualism or

double aspect theory of mind, but Herman Dooyeweerd's philosophy offers a more

thoroughgoing form of aspect theory that is not limited to two aspects or kinds of event.

As the English title of his *magnum opus* suggests, *A New Critique of Theoretical Thought*

aims to explain the conditions of possibility for "theoretical analysis, through which

reality appears to split up into various modal aspects," as opposed to naïve pre-theoretical

experience where, e.g., no distinction is made between number and spatial extension.[440]

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[438] I admit that I am ignoring a point of contention concerning Anomalous Monism's Principle of Causal Interaction. An ambiguity that Honderich discusses is whether the mental *qua* mental interacts causally with the physical.

[439] See his discussion of Charles Taylor and identity theory (212).

[440] Herman Dooyeweerd, *A New Critique of Theoretical Thought I: The Necessary Presuppositions of Philosophy*, trans. William S. Young and David H. Freeman (Philadelphia: The Presbyterian and Reformed Publishing Company, 1969), 3.

Dooyeweerd opens with a clear definition for what he means by "modal aspect":

> the fundamental universal modalities […] which do not refer to the
> concrete 'what' of things or events, but are only the different modes of the
> universal 'how' which determines the aspects of our theoretical view of
> reality. For instance, the historical aspect of temporal reality is not at all
> identical with what actually happened in the past. Rather it is the particular
> mode of being which determines the historical view of the actual events in
> human society. These events have of course many more modal aspects
> than the historical. There does not exist a purely historical reality. The
> same holds good for all other modal aspects.[441]

The distinctions of the theoretical attitude refer to and express a real unity which
is above and beyond any single modal aspect, and the "universal character of *referring*
and *expressing,* which is proper to our entire created cosmos, stamps created reality as
meaning, in accordance with its dependent non-self-sufficient nature."[442] Meaning is the
translation for the Dutch, *zin,* the equivalent for French *sens.* When Dooyeweerd claims
that "meaning [is] the mode of being of all that is created," he means that although I
"actually" exist equally in every aspect and even beyond every aspect, I am limited to
understanding being under one modal aspect, one sense, or another at a time.[443]

To ground the possibility of our making theoretical distinctions between aspects
he invokes a fundamental difference between God and His creation, a temporal
difference. The modal aspects of theoretical thought are aspects of temporal experience,
and transcendental philosophy in Dooyeweerd's view entails abstracting from temporal

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[441] *Ibid.*, 3n1.

[442] *Ibid.*, 4.

[443] To quote the translator's note on this remark: "In the original Dutch text this passage reads: 'De *zin* is het *zijn* van alle creatuurlijk *zijnde*.' 'Het zijn van het zijnde' has no more equivalent in English than Martin Heidegger's 'das Sein des Seienden," which is its German equivalent" (4n3).

experience to the "cosmic order" behind individual aspects. Theoretical thought thus requires a distinction between two sorts of time and, correspondingly, two sorts of law (Dooyeweerd is ultimately a philosopher of law).[444] Creaturely existence, viz. temporal experience, is finite: there are limits to what I can think "at one time," and so I interpret a thing as numerical, linguistic, aesthetic, logical, etc. According to creaturely time, each aspect enjoys a sort of sovereignty whereby they each have jurisdiction over all of creation while at the same time resisting any reduction of one to the other: when we consider things in their numerical aspect, we are beholden to numerical laws; when in the economic aspect, we deal in economic laws, and so on. From the creaturely perspective, each aspect has its own laws, and together the fifteen modal aspects of temporal experience are like fifteen simultaneous clocks which all keep time in their own way.

The closest we can come to understanding God's time is what Dooyeweerd calls "cosmic time," which is the "indissoluble correlation of order and duration" which all modal aspects have in common.[445] When they apply to the same phenomenon, different aspects will agree in the order of their rendered events despite the irreducibility of their respective laws. He privileges order as the purview of eternal time, as opposed to cardinal numbers which only describe one aspect of experience. The cosmic law which corresponds to cosmic time is the object of his career.

Whatever the other differences separating them, Davidson and Dooyeweerd

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[444] N.B. The original title of *A New Critique of Theoretical Thought* is *De Wijsbegeerte der Wetsidee*, the philosophy of the idea of law. As the translators indicate in their preface, while Dooyeweerd began his career "seeking a distinctively Christian foundation for his own special field of Jurisprudence, [he] found himself involved in more general philosophical questions" (xii).

[445] *Ibid.,* 24.

diverge on the role played by "heterogeneous *plans*" in their respective projects.

Davidson's anomalous monism is a conclusion drawn by the demands of ordinary

experience, and ordinary language in particular: the way we talk precludes both dualism

and reductive monism. Dooyeweerd, on the other hand, *begins* with "modal sovereignty"

and "the temporal coherence of all the law-spheres" as a basic condition for his entire

project. As created beings, we of course interpret things in simultaneous but distinct

senses ("modal aspects"); the problem is whether and how philosophy can transcend

modal law to reach cosmic law—which makes his a uniquely Christian mission:

> The question: *what is meaning*? cannot be answered without our reflecting on the *origin* and *unity* of all temporal meaning, because this answer depends on the cosmonomic Idea of philosophical thought. Not a single temporal structure of meaning exists in itself (an sich). That which *makes it into meaning* lies *beyond the limit of time*. Meaning is 'ex origine' the convergence of all temporal aspects of existence into one supratemporal focus […] which has meaning and hence existence only in virtue of the sovereign creative act of God.[446]

C. COMPARED TO ARTHUR KOESTLER

Whether God's creative act, a comedian's clever turn of phrase, or novel

developments in biological morphogenesis, Arthur Koestler's *The Act of Creation*

attempts to describe the logical structure underpinning all "patterns of creative

activity."[447] In all cases the process depends upon the discovery of hidden connections

revealed by bisociated frames of reference. Other kinds of activity can adequately be

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[446] Herman Dooyeweerd, *A New Critique of Theoretical Thought II: The General Theory of the Modal Spheres*, trans. William S. Young and David H. Freeman (Philadelphia: The Presbyterian and Reformed Publishing Company, 1969), 30.

[447] Koestler, 27. Cf. *Ibid.,* 631.

understood in one frame of reference, on a single *plan*, but creativity entails perceiving a situation "in two self-consistent but habitually incompatible frames," such that it is "not merely linked to one associative context, but *bisociated* with two."[448] Koestler's name for these frames of reference or associative contexts is "matrix." We might find in conversation that we can associate the same topic of discussion to different contexts, can express the same subject according to the "codes," or rules of expression, of different matrices.[449] Suppose we are discussing Napoleon's defeat at Waterloo; we can talk about it "'in terms of' (a) historic significance, (b) military strategy, (c) the condition of his liver, (d) the constellation of the planets."[450]

Borrowing from the language of the previous chapter, the matrix refers to a *plan* "as such," in the abstract, while code is the concrete way forms are realized on that *plan*. The situation of the creative act is complex since events are bisociated with more than one matrix and are therefore coded in more than one way, but these terms are insufficient to account for specific creative acts, i.e. code isn't quite "concrete" enough until we can account for how it is actualized and under what conditions. Thus, in addition to bisociation, matrix, and code, Koestler's framework also entails that one have a choice of *strategy* given the requirements imposed by an *environment*. To put these components together, consider his own example of a game of chess—games and the concept of play being a central feature of his work:

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[448] *Ibid*., 35.

[449] Cf. *Ibid.,* 38.

[450] *Ibid*., 40.

When you sit in front of the chessboard your *code* is the rule of the game determining which moves are permitted, your *matrix* is the total of possible choices before you. Lastly, the choice of the actual move among the variety of permissible moves is a matter of *strategy*, guided by the lie of the land—the '*environment*' of other chessmen on the board. We have seen that comic effects are produced by the sudden clash of incompatible matrices: to the experienced chess player a rook moving bishopwise is decidedly 'funny.' [451]

This grammar lets Koestler treat a broad array of different phenomena. While the bulk of the project is devoted to humor, he can just as easily interpret biological mutations, the "transformations of fins into legs, legs into arms, arms into wings, gills into lungs, scales into feathers," as "witty answers to the challenges of environment."[452]

At the heart of his examples is the hidden affinity between what we assume are incompatible matrices: a play on words or a transformation and repurposing of previous biological structures is only possible if these words or structures are bisociated, capable of being read in different ways and subject to differently coded matrices. In Koestler's case, then, the negotiation of heterogeneous *plans* is not a problem to be solved but a fundamental condition of things which is necessary for solving problems. I claimed above that creativity is different from normal activity, and this is not entirely accurate. The truth is that things are *already* bisociated to multiple matrices, and that the creative act simply makes use of previously hidden connections. Reality's fundamentally multidimensional condition is what motivates Koestler's ardent resistance to any form of reductionism.[453] Even if the most reductionist neuroscientist realizes their wildest dreams,

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[451] *Ibid.,* 40-2.

[452] *Ibid*., 466.

[453] For a good summary of Koestler's anti-reductionism as well as an account of his engagement with contemporary scientific communities, see James F. Stark, "Anti-reductionism at the confluence of

he argues, they would not have the adequate tools for a full account of the world, and *a fortiori* for novel developments (i.e. creativity).

> Perhaps one day a super-EEG will be constructed which will record all the thoughts […] which the stream of consciousness carries through the subject's wired skull; yet even such a record, far more complete than anything James Joyce could dream of, would be but a poor pointer to the multi-dimensional patterns underlying the linear stream. […] The super-EEG […] would still need a psychoanalyst or a Joyce-interpreter to divine the meaning behind the meaning: the connotations of individual words, their unconscious echoes, the motivation behind it all, the rules of the patient's game, hidden to himself, and the memories which crop up as landmarks in his internal, mental environment.[454]

This "meaning behind the meaning" is not a bad place to start for a re-description of Deleuze and Guattari's notion of *agencement*.

In all three cases—Davidson, Dooyeweerd, and Koestler—we recognize several of the features we've attributed to design and to Deleuze: heterogeneous *plans* that come together despite their heterogeneity. The three authors represent a development which progressively comes to resemble Deleuze's position. Davidson's property dualism allows him to remain a monist about reality while admitting that reality exhibits physical and psychic properties which are irreducible—irreducible since anomalous, as there is no necessary nomic relation between physical and psychic properties. It is under a similar consideration that Deleuze and Guattari are able to bring together their monist emphasis on immanence rather than transcendence and their pluralist emphasis on difference rather than identity. Anticipating the accusation that their work merely swaps out one dualism

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philosophy and science: Arthur Koestler and the biological periphery," *Notes and Records of the Royal Society of London* 70.3 (September 2016), 269-86.

[454] Koestler, 630.

for another, they write:

> We employ a dualism of models only in order to arrive at a process that challenges all models […] To arrive at the magic formula we all seek—PLURALISM = MONISM—via all the dualisms that are the enemy, an entirely necessary enemy, the furniture we are forever rearranging.[455]

It is the fact that their various dualisms, or their pluralism in a broader view, i.e. the many different sets of terms they did or could adopt and abandon, are anomalous in Davidson's sense which prevents Deleuze and Guattari from settling on a final vocabulary.

This brings us back to Dooyeweerd. His advance over Davidson is that he conceives of things beyond a psychological-physiological dualism: substance is meaningful in up to fifteen ways, from different "perspectives," if we recall our discussion in Chapter Two. Not only that, but we can distinguish two different ways in which *plans* are opposed. Davidson only discusses the mental and the physical as heteronomic descriptions or classifications of events; Dooyeweerd does the same by proposing his fifteen heteronomic modal aspects of temporal experience. The difference is that he also distinguishes between the modal aspects themselves, taken together or individually, and the cosmic order of time and law which both resides within and lies beyond them as their divine root. For Deleuze, it is not only the *plans* themselves which are heterogeneous; so too are the *plans* according to which these *plans* are understood, considered according to their consistency and according to their organization.

Koestler comes the closest to Deleuze's philosophy. Recall from our initial discussion that among other things, Guattari wanted *agencement* to serve two closely-related purposes: first, he wanted a concept that would require interweaving very

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[455] Deleuze and Guattari, *ATP* 20-1/31.

different semiotics and registers instead of resorting to a simple dichotomy between the semiotic and non-semiotic or linguistic and non-linguistic: he wanted a multiplicity of heterogeneous *plans*. Second, he wanted a concept that could work comfortably at different scales and levels of analysis; rather than a vocabulary that only addressed individual behavior *or* historical developments *or* brain chemistry, he wanted something operative on a "pre-" and "post" personal, as well as personal, level.

Koestler's outlook satisfies Guattari's requirement because it involves an indefinite number of matrices and codes to bisociate or stratify a given situation, and his schema is abstract enough to cast a wide ontological net. He has the advantage of focusing on creativity as a basic pattern of reality and experience, as opposed to Dooyeweerd for whom everything depends on a single creative act, that of God. As a result, we are not merely dealing with heterogeneous descriptions of the same reality, which is arguably static in Davidson and certainly so in Dooyeweerd, but with a dynamic relationship between different matrices, or *plans,* which results in something new: creation.

It is precisely with regard to creation that we can see Deleuze's advantage over all three authors. In his presentation, "What is the Creative Act?" Deleuze offers creativity as a rubric for distinguishing between different disciplines or modes of thought: we can define philosophy by identifying "what it does," i.e. its particular sort of activity and particular sort of product.[456] Cinema creates blocks of time and action by composing and sequencing *plans*, science creates functions across sets of data, and philosophy creates

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[456] Gilles Deleuze, "What is the Creative Act?" In *Two Regimes of Madness,* ed. David Lapoujade, trans. Ames Hodges and Mike Taormina (New York: Semiotext(e), 2006), 312-24. Gilles Deleuze, "Qu'est-ce que l'acte de creation?" in *Deux régimes de fous,* ed. David Lapoujade (Paris: Minuit, 2003), 291-302.

concepts. Although their mode of action and their products differ, all three disciplines

create, and if we were to describe creation in general terms, we would say that creation

consists in realizing an idea. But therein lies the difficulty which prevents us from

describing the creative act in general, since ideas are never general:

> No one has an idea in general. An idea—like the one who has the idea—is already dedicated to a particular field. Sometimes it is an idea in painting, or an idea in a novel, or an idea in philosophy or an idea in science. And obviously the same person won't have all of those ideas. Ideas have to be treated like potentials already *engaged* in one mode of expression or another and inseparable from the mode of expression.[457]

At this point in Deleuze's presentation we do not yet have a leg up on

Dooyeweerd or Koestler. An idea is not the cinematic scene which expresses it, and yet

the former does not enjoy an independent existence. For Dooyeweerd, too, different

modal aspects all express the same cosmic order and duration, while the temporal

condition of the theoretical attitude forces us to think of things as expressed under one

modal aspect or another. And Koestler's different matrices or contexts all lend different

frames for discussing Napoleon at Waterloo, a subject we cannot discuss apart from any

context.

While our authors may share a common interest in the difference separating

modes of expression, *plans,* aspects, or matrices, the chief point of distinction for

Deleuze is his broader account for how these heterogeneous modes nevertheless interact

and transform. Deleuze goes on to describe how, despite the differences separating

literature and cinema, it can come about that "an affinity is revealed through which

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[457] *Ibid.,* 312/291.

someone has an idea *in cinema* that corresponds to the idea *in* [a] *novel*."[458] There is no

hidden affinity between Dooyeweerd's modal aspects *per se*. Their primary reality in

God's vision is undivided and undifferentiated; they only divvy up in finite creaturely

perception, and any "affinity" between them comes to us only by overcoming the latter in

recognition of the former. Moreover, the types of such inter-modal "affinities," for

Dooyeweerd, are described in advance: modal aspects have order and duration in

common. Dooyeweerd's framework cannot account for a hidden affinity between

literature and cinema, whereby a literary idea *qua* literary is able to appear in and

intervene into cinema. The ideas of literature and cinema both, in their own right, address

"problems," and recalling Alexander's account of patterns or diagrams, these problems or

ideas will already involve heterogeneity. When Kurosawa's *Seven Samurai* engages an

idea cinematographically which is otherwise engaged in literature, by Dostoyevsky, we

are dealing with a heterogeneity (a problem) which is negotiated in heterogeneous ways

(different modes of expression).[459] If we are generous to Dooyeweerd we can say that his

God-creature-cosmic-theoretic complex offers a concrete diagram for how to join

different modal aspects, but he misses the deep "affinity" or continuity at stake in

Eisenman's more *abstract* diagrams.

At this stage one might object: the hidden affinity such as that linking Kurosawa

and Dostoyevsky is precisely what is at stake in Koestler's book, which is devoted

entirely to defining creation as the discovery of affinities between what we assume are

incompatible frames of reference. This is true, but Koestler's position is no less static

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[458] *Ibid.,* 316/295.

[459] For the discussion of Dostoyevsky and Kurosawa, see 316-8/295-6.

than is Dooyeweerd's. With the possible exception of biological morphogenesis (the most tantalizing and least developed part of *The Act of Creation*), the affinity linking incompatible matrices is set in advance, only to be uncovered and exploited by a work of creative genius. Koestler does not address how a continuum of real possibilities, or an affinity between bisociated matrices, can emerge, disappear, or transform over time. To recall the terms we discussion regarding diagrams, Koestler is not "abstract" enough, since creativity can only mean that the product of the creative act is unexpected in relation to its relevant matrices. Not only does he describe a link between Kurosawa and Dostoyevsky, but he also describes the affinity linking every work of art with an unknown future, with a "people who do not exist or do not yet exist."[460]

There is no indication whether Koestler can handle or how he would handle a matrix's bisociation with a matrix yet-to-come. His framework has the merit of emphasizing play and games, however; the logic of play will warrant further discussion because it highlights both the strength of Koester's account as well as the key aspect whereby he falls short of Deleuze's use of *agencement* in accounting for heterogeneity. What is missing is an account of *drift*, i.e. a crucial component of *agencement*'s definition: deterritorialization. We will return to a discussion of games and play after an important detour.

DETERRITORIALIZATION: A DETOUR

Many interpretations of Deleuze rightly emphasize his focus on creativity and novelty. Indeed, one of the basic dimensions or axes of an *agencement* addresses the fact

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[460] Cf. *Ibid* 322-4.

that, even as it "territorializes" and appropriates elements, reproducing and maintaining itself, it nevertheless has an inherent tendency to "deterritorialize," to drift off (elsewhere, otherwise, or toward its own destruction). As we saw in Chapter One, the first axis of *agencement*'s definition held concerned its heterogeneous character: it is both and equally an *agencement* of bodies and an *agencement* of statements, for example, despite the incommensurability separating bodies and statements. In the case of the second axis, however, the important aspect is that of *drift*, understood as a propensity to change, and more precisely, to change in ways we might deem "unintentional" or at least apparently outside the *agencement*'s logic in its actual condition.

We will have the chance to revisit this topic in two ways: later in this chapter we will consider accidental or unintended events as they emerge in the design of software (videogames in particular); in the following chapter, we will have the chance to bring our understanding of deterritorialization-as-drift to bear on a familiar instance of drift at work in biological evolution. In general terms, over and above more particular discussions of game design and biological design, practical and theoretical interventions over unintended consequences abound in design literature. Edward Tenner's *Why Things Bite Back* is an exemplary account which features a host of examples of design choices made in technology, planning, and ecology. Unintended consequences do not result from human oversight *per se*, but from the specific form of a design once it is anchored "in laws, regulations, customs, and habits."[461] Once again we have an analog to Deleuze and Guattari's preference for *agencement* over behavior: a preoccupation with discrete

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[461] Edward Tenner, *Why Things Bite Back* (New York: Vintage, 1996), 8.

instances of individual behavior can distract from the broader *agencement* of conditions which make the behavior possible to begin with. Implicit in Tenner's account is the call to broaden one's consideration of design, to recognize that context is no less important than the design "itself" to a design's definition or effect in the world.

The air-conditioning in crowded cities raises the ambient temperature on the streets, causing people to spend fewer hours outdoors and to depend further on air-conditioning.[462] The introduction of laundry machines for the home meant that "women who had once sent soiled clothing to a commercial laundry began to do more and more washing at home," a trend that solidified as it sent such commercial laundry services out of business.[463] Fans of the eastern bluebird may build birdboxes to support their favorite songbird in areas where it is threatened; these boxes happen to attract house sparrows, a throwback to the acclimatization efforts in the 19th century. Tenner writes:

> It is one thing [to build these boxes]. It is quite another to trap and drown the house sparrows that occupy these boxes, wring their necks, or put them in a sack tied to an automobile exhaust pipe—all techniques recommended in a pamphlet distributed by the North American Bluebird Society. Is it the house sparrows' fault that they too fit the holes designed for the bluebirds? More to the point, are they to blame if development has dangerously reduced the number of the bluebirds' preferred nesting places, decaying trees?[464]

The first axis tells us that an *agencement* is always multiple, while the second teaches us that it involves forces which help it stick around and forces which drag it away, so analyzing an *agencement* or design should entail accounting both for its inertia

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[462] *Ibidem.*

[463] *Ibidem.*

[464] *Ibid.*, 96.

and its drift. In order to be precise about Deleuze and Guattari's terms and highlight what sets them apart from the authors considered above, we need to figure out their motivation behind the terms "reterritorialization" and "deterritorialization." As with *plan, diagramme,* and *agencement* itself, I will briefly discuss some of Deleuze and Guattari's territorial references from *A Thousand Plateaus* and on that basis suggest the problems or ideas they were meant to address.

As the term suggests, territorialization concerns territory, which Deleuze and Guattari are careful to distinguish from mere surroundings, milieu, or the area occupied by an animal or population of animals, for example. An animal's territory is not a section of land, a series of associated elements, or even either of these when associated with particular activities (mating, rearing young, hunting). Rather, it concerns all of these, is built up of all sorts of milieus and elements insofar as these are "territorialized."[465] Something is territorialized as soon as it "cease[s] to be functional to become expressive."[466] In other words, what qualifies something as territorial is not its place in a delimited area but rather the fact that it indicates or expresses not just the animal in question but the whole array of other territorialized elements as well. "No sooner do I like a color that I make it my standard"—as soon as I pick out a favorite color I can begin to recognize myself in it; the color becomes territorial as soon as I can "express myself" with it.[467] With a little adjustment to Koestler's language, we can say that territory is the "matrix" of expression.

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[465] See Deleuze and Guattari, *ATP,* 314/386.

[466] *Ibid.,* 315/387.

[467] *Ibid.,* 316/389.

The processes of deterritorialization and reterritorialization are constant themes in *A Thousand Plateaus*—and beyond—but we can draw three important insights from two of their prominent examples. First, the relationship between hammer orchids and wasps demonstrates that territorialization is multidimensional and involves different elements in different ways simultaneously. Second, we see that the processes of deterritorialization and reterritorialization accompany and complement one another. Third, the example of slang and linguistic evolution suggests the methodological advantage at stake in their references to territorialization. These insights will illuminate the frequent references to the Earth, a reference we have already encountered when discussing the "planetary" in Chapter Two.

Among Deleuze and Guattari's most famous examples is one they borrow from the biologist, Rémy Chauvin: the "aparallel evolution" of the wasp and hammer orchid.[468]

> The orchid deterritorializes by forming an image, a tracing of a wasp; but the wasp reterritorializes on that image. The wasp is nevertheless deterritorialized, becoming a piece in the orchid's reproductive apparatus. But it reterritorializes the orchid by transporting its pollen.[469]

Our discussion of Jakob von Uexküll is instructive on this point. According to his concept of *Umwelt,* we can think of the orchid and wasp as inhabitants of their own worlds, and each world differs with regard to what is perceptible or actionable. Their surroundings are territorialized differently; the same surroundings include both a wasp

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[468] Cf. Rémy Chauvin, "Récents progress éthologiques sur le comportement sexuel des animaux," in *Entretiens sur la sexualité,* eds. Max Aron, Robert Courrier, and Étienne Wolff (Paris: Plon, 1969), 200-33.

[469] Deleuze and Guattari, *ATP,* 10/17.

agencement and an orchid *agencement*.[470] No matter how close orchids and wasps come into physical proximity, their *Umwelten* and their territories are "closed off" from each other, but there is nevertheless a kind of communication between these "closed boxes" or "non-communicating vases."[471] Rather than territories already given in advance, such communication concerns the process(es) whereby territories form, perpetuate, or disappear: territorialization. The wasp and orchid example demonstrates that territorialization simultaneously involves *agencements* at different scales and in different ways. On one level, the orchid drifts off and ceases to attract conventional pollinators and becomes relevant to the wasp in a new way (i.e. the orchid deterritorializes and is consequently reterritorialized by the wasp); the wasp is drafted as an auxiliary to the orchid's reproductive system, but as a result the orchid becomes dependent on the wasp's territory or behavior (i.e. the wasp is deterritorialized and consequently reterritorializes the orchid). On another level, the individual wasp and orchid *agencements* are territorialized and combine to produce "a shared deterritorialization" in a further *agencement*.[472] From the perspective of this new *agencement*, Guattari tells us, the two function "like a mutant wasp-orchid species evolving on its own account and redistributing the genetic and semiotic components selected from both original species according to its own standards."[473] With their powers combined, the wasp and orchid

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[470] I use territory and *agencement* as interchangeable here since territory "is the first *agencement,* the first thing to constitute an *agencement*; the *agencement* is fundamentally territorial." *Ibid.,* 323/397.

[471] Gilles Deleuze, "Proust Round Table," in *Two Regimes of Madness,* ed. David Lapoujade, trans. Ames Hodges and Mike Taormina (New York: Semiotext(e), 2006), 39-40.

[472] Deleuze and Guattari, *ATP,* 293/360.

[473] Félix Guattari, "The Time of Refrains," in *Machinic Unconscious: Essays in Schizoanalysis*, trans. Taylor Adkins (Los Angeles: Semiotext(e), 2011), 122.

influence and are influenced by other *agencements* in the same way they each influence the other. Territorialization entails simultaneous complementary processes of drift and appropriation.

One of the only times Deleuze or Guattari discuss territorialization outside the context of their own framework is in Deleuze's preface to Henri Gobard's *Linguistic Alienation,* "The Future of Linguistics."[474] He praises Gobard for refusing to limit his analysis to a consideration of discrete linguistic subjects, for recognizing that "the functions of language are inseparable from movements of deterritorialization and reterritorialization," as for example when "English deterritorializes African Americans, who in turn reterritorialize on Black English."[475] What advantage is there in such an approach? A study of the political relationship between English and French, or between standard American English and African-American Vernacular English, can fail to account for the origin of such a relationship. Gobard proposes a four-term distinction for different linguistic functions: language can vernacular (spoken at home), vehicular (spoken at work), referential (heard on the news), and mythical (recited at church). Instead of merely describing the relationship between a "language of power" and a "language of the people" or simply comparing their linguistic structures, Gobard's "tetraglossic" method addresses a genetic account of their relationship: "How does a language come to power, whether on a national or a global scale? By what means is

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[474] Gilles Deleuze, "The Future of Linguistics," in *Two Regimes of Madness,* ed. David Lapoujade, trans. Ames Hodges and Mike Taormina (New York: Semiotext(e), 2006), 67-71. Gilles Deleuze, "Avenir de linguistique," in *Deux régimes de fous,* ed. David Lapoujade (Paris: Minuit, 2003), 61-5.

[475] *Ibid*., 70.

linguistic power warded off?"[476] Deleuze's comment leads us to think of territorialization as vocabulary fit for thinking about *functions* rather than subjects, and about *genesis* rather than static description.

Another notable description of deterritorialization concerns Deleuze and Guattari's references to the "planetary," which we discussed in Chapter Two. In *A Thousand Plateaus,* they write that the "nomad can be called the Deterritorialized par excellence," since there is "no reterritorialization *afterward,* as with the migrant, or upon *something else,* as with the sedentary"—it is "the earth itself that deterritorializes itself."[477] The significance of the earth (*la terre*) for the concept of *terr*itorialization should not escape the reader's attention.

The example of the wasp-and-orchid, as well as our brief remarks on Gobard's framework, should help us understand how de- and reterritorialization apply to the migrant and the sedentary: following the above, we are looking for simultaneous, complementary movements of drift and appropriation, and these movements ought to offer a genetic account for a new hybrid of elements. Deleuze and Guattari compare the three figures of sedentary, migrant, and nomad based on how they use and understand paths or trails. The sedentary road "parcel[s] out a closed space to people, assigning each person a share and regulating the communication between shares."[478] For such people,

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[476] *Ibid*., 68.

[477] Deleuze and Guattari, *ATP* 381/473. There is certainly much more to be said about the figure of the nomad in Deleuze and Guattari's work, not least of all because *nomade* is an anagram for both *monade* and *daemon*. Their nomadology should be read in light of what the authors adopt or adapt from Leibniz's monadology and from the "daemonology" of Neo-Platonism, especially given Deleuze's references to Plotinus. A proper study of this context would go beyond the scope of the current project.

[478] *Ibid*., 380.

the land is so thoroughly territorialized, is such an efficient means of expression, that if "something else" should come along, it is already parceled out in space, assigned and regulated as dictated by the sedentary's grid of intelligibility. The migrant travels from place to place, deterritorialized at one point only to reterritorialize at the point of their destination, "even if the second point is uncertain, unforeseen, or not well localized."[479] For the nomad, however, points are only "relays along a trajectory," and the aim of the trajectory is only to continue it. They do not stay anywhere long enough to close off space and have no destination to reterritorialize; if being territorialized means that something has become expressive, the nomad is the "deterritorialized par excellence" because they cannot express themselves through the land they inhabit (the sedentary) or the land they travel to (the migrant) but rather through traveling itself.

But where does the earth fit into our description? The simultaneous and complementary movements of reterritorialization and deterritorialization should recall the simultaneous and complementary descriptions of the ecumenon and planomenon. Reterritorialization is the process whereby things are rendered as *ecumenon*: i.e. the Earth as the inhabited or inhabitable, intelligible world. This process is not complete, however, since the Earth (etc.) is stratified by many different *plans,* and my description or use of it under one *plan* will not apply under another *plan*, or will not apply in the same way. Although the "world" now covers its entire surface, the Earth remains a planet. The process of deterritorialization characterizes the *planomenon*, i.e. the Earth as a wandering planet, drifting through space with no regard for its inhabitants or habitability.

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[479] *Ibidem.*

There are thus a few insights to take away from our detour into deterritorialization. The first is familiar. The same *agencement* is one of bodies and one of statements; the two *plans* apply to the same *agencement* rather than describing two distinct *agencements*. Likewise, the processes of reterritorialization and deterritorialization do not necessarily involve different forces or different entities: the same charted and occupied Earth, as the subject of reterritorialization, is the planetary body of deterritorialization, wandering away. Second, the above examples allow us to recast their terms. Territorialization or reterritorialization might be understood as an *agencement*'s inertia; new developments emerge under the weight of its prior trajectory: its tendencies and categories delimit its frame of intelligibility and provide for the *agencement*'s maintenance and reproduction. Deterritorialization might be understood as something akin to drift; the weight behind the *agencement*'s territorialization—the processes and relations which make it up—might draw it into new associations, new functions, new places and meanings. Following its "logic" might bring it along a chain of events that leads to its undoing, or to the undermining of its own logic.

WHAT GAMES ADD TO THE DISCUSSION

As we said before, games and the concept of play address the shortcoming of an account like Koestler's and the strength, by contrast, of Deleuze's. It is not enough that I can design something which defies expectations by virtue of being bisociated with an unanticipated frame of reference. Such is the case with Koestler, for whom humor, creativity, consists in overturning conventional assumptions over what frames are and are not compatible. We need to further specify, however, that a design is bisociated with frames which do not yet exist, and that its multiple association can defy even the

designer's own designs (and not just those of the audience or user). My design can shift

to acquire new meaning or lose all meaning when contexts change and new frames

emerge, or when new *plans* are drawn; it can become obsolete, can be repurposed, or can

behave in new ways (for better or for worse). Koestler comes close by focusing on the

creative act, but Deleuze goes further by helping us fold into the concept of design the

possibility of its *drift*, its deterritorialization.

Fortunately, we have at our disposal an entire field of design which is amenable to

both Koestler's insights and Deleuze's advantage. While I believe that its characteristics

apply to all design, the design of *videogames* in particular is well-equipped for the task.

Because it is a matter of both game and software design, the videogame exhibits three

salient forms of drift which echo Deleuze and Guattari's understanding of

deterritorialization and cast some suspicion on conventional notions of design and its

relation to intention or purpose. First, there are emergent forms of gameplay; players

engage the game in unforeseen ways and to unexpected ends. Second, the player will

encounter glitches or bugs in the game's software; glitches can take many forms but are

typically understood as hiccups or malfunctions in how the game's elements appear or

behave. Third, there are the game's exploits; players may take advantage of aspects or

components of the game's design—often glitches or bugs—to play the game in their own

way, to bypass obstacles, accelerate their progress, or to test the limits of game's

structure (or the patience of the game's developer). We will review each of these three

elements in particular, but we will first review the concepts of "game" and "play" in more

general terms, in order to see why game design is valuable to specifying Deleuze's

project and the latter's advantage.

GAMES, AND PLAY, IN GENERAL

Koestler is by no means alone in elevating play—or something like it—to the status of a fundamental psychic or social principle.[480] Because games are so pervasive and yet often so ill-defined, there have been many in-depth and influential attempts to pin down a clear concept. The reader may recall that Ludwig Wittgenstein made hay with games as paradigmatically unclear, as a fitting example for his notion of "family resemblance."[481] While one might readily recognize whether something is or is not a game, every attempt at a defining what games are will encounter exceptions; no definition will be able to account for every example of game. But Wittgenstein's interest did not lie in games themselves, and other authors are more optimistic at the prospect of defining them. As one author writes, while Wittgenstein certainly *looked* at games, "because he had decided beforehand that games are indefinable, his look was fleeting, and he saw very little."[482] The field of game studies therefore draws most of its philosophical inspiration from "outside" philosophy, from a historian and a sociologist: Johan Huizinga and Roger Caillois. Huizinga's *Homo Ludens*, in addition to Caillois's response, *Man, Play and Games*, form two landmark texts indispensable to understanding

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[480] Because this chapter deals primarily with game design, I am using design and play as more or less synonymous. It should be noted, however, that the concept of "play" extends further than game-playing, as is the case with all of the authors under review here. While each author privileges games in their discussion of play, bear in mind that their goal is to use the example of game-playing to illustrate the character of play as such, which in different ways is taken to be an encompassing human principle—something like creativity in general, as we saw with Koestler.

[481] See Ludwig Wittgenstein, *Philosophical Investigations*, trans. G.E.M. Anscombe (Oxford: Basil Blackwell, 1958).

[482] Bernard Suits, *The Grasshopper: Games, Life and Utopia* (Toronto: University of Toronto Press, 1978), *x*.

the field today.[483] Before turning our attention to videogames in particular, let's sketch

out a basic understanding of games and game design based on influential aspects of their

work.

Huizinga does not mince words over the privilege play enjoys[484] in his project as

he opens *Homo Ludens*: play is fundamental to human society. Because it is common to

humans and non-humans alike, it necessarily predates human society, and appeals to

something in human nature "deeper" than or irreducible to rational explanation—for

example, we might do something "just for the fun of it."[485] This commitment puts him in

league with classical philosophical endeavors to reconcile forms of determinism with

human freedom, or matter with spirit. If we assume that culture represents something

irreducible to determinism, then play affords the advantage of resisting the exhaustive

attempts of biology and behavioral psychology while nevertheless preserving our anchor

in the natural world—as playful animals demonstrate. Huizinga writes:

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[483] Johan Huizinga, *Homo Ludens: A Study of the Play Element in Culture* (Boston: Routledge & Kegan Paul, 1949). Roger Caillois, *Man, Play and Games*, trans. Meyer Barash (Chicago: University of Illinois Press, 2001). Originally published in 1958.

[484] I'll quickly note that this privilege is all the clearer given that Huizinga would take issue with my wording: his goal is not to identify the role of play *in* culture, but to interpret culture as an instance of play. From the book's initial inception as a lecture series, Huizinga insisted that the title ought to read "..the Play Element *of* Culture," and to his chagrin his hosts and publishers consistently rendered it as "the Play Element *in* Culture." His goal was not "to define the place of play among all the other manifestations of culture, but rather to ascertain how far culture itself bears the character of play" (ix). Despite how insistent Huizinga was in the forward to his own book, his translator did not comply. In a translator's note: "Logically, of course, Huizinga is correct; but as English prepositions are not governed by logic I have retained the more euphonious ablative in this subtitle" (*Ibid*).

[485] "Since the reality of play extends beyond the sphere of human life it cannot have its foundations in any rational nexus, because this would limit it to mankind. The incidence of play is not associated with any particular stage of civilization or view of the universe. Any thinking person can see at a glance that play is a thing on its own, even if his language possesses no general concept to express it [Huizinga notes how many languages like French lack any equivalent for the English "fun"]. Play cannot be denied. You can deny, if you like, nearly all abstractions: justice, beauty, truth, goodness, mind, God. You can deny seriousness, but not play" (3).

in acknowledging play you acknowledge mind, for whatever else play is, it is not matter. Even in the animal world it bursts the bounds of the physically existent. From the point of view of a world wholly determined by the operation of blind forces, play would be altogether superfluous. Play only becomes possible, thinkable and understandable when an influx of *mind* breaks down the absolute determinism of the cosmos. The very existence of play continually confirms the supra-logical nature of the human situation. Animals play, so they must be more than merely mechanical things. We play and know that we play, so we must be more than merely rational beings, for play is irrational.[486]

The fact that the existence of play confirms the irrational aspects of our nature cashes out in the characteristics Huizinga attributes to it. Play is necessarily voluntary and thus distinct "from the course of natural process," which is obligatory and, at times, automatic and unconscious.[487] For this reason we distinguish play from ordinary life, and when we play, we step "into a temporary sphere of activity with a disposition all of its own."[488] This distinct, temporary sphere of activity maintains its own sense of order and imposes its own rules, and its field of activity is under a constant tension, and "uncertainty, chanciness; a striving to decide the issue and so end it."[489]

Tentatively, then, we can thus far say that play is free and occurs in a delimited time and space that imposes a particular order that brings its resolution under tension. Roger Caillois largely accepted these terms but offered his own adjustments on the basis

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[486] *Ibid.,* 3-4.

[487] *Ibid.*, 8.

[488] *Ibidem.* One should recall the term for which Huizinga is often credited: the "magic circle" of play. I do not include it above because his is only a passing reference, and contrary to popular readings, it did not feature as a formal part of his system. Contemporary game studies have organized his ideas about play's discontinuity with real life around the "magic circle" mostly because of the landmark interpretation of Katie Salen and Eric Zimmerman. See Katie Salen and Eric Zimmerman, *Rules of Play: Game Design Fundamentals* (Minneapolis: University of Minnesota Press, 2003).

[489] Huizinga, 10.

of what he saw as limitations to Huizinga's project. While Huizinga pursued an "inquiry into the creative quality of the play principle" which is characteristic of human culture, he privileged competitive forms of game-play, and Caillois saw this limitation as an opportunity to develop Huizinga's thought further.[490] Huizinga tended to focus on the relationship between the voluntary and rule-bound aspects of play—the fact that the play freely submits to the rules of the game—but Caillois thought he neglected the uncertainty of play, what Huizinga called tension, and uncertainty is more prominently featured in games of chance than in competitive games. It is the difference between working for money and winning at the roulette table: both may require skill and strategy, but what comes of your time at the roulette table necessarily lacks any guarantee. Play is uncertain—

> Doubt must remain until the end, and hinges upon the denouement. In a card game, when the outcome is no longer in doubt, play stops and the players lay down their hands. […] An outcome known in advance, with no possibility of error or surprise, clearly leading to an inescapable result, is incompatible with the nature of play.[491]

This may appear to paint game design in a peculiar light, particularly if one adheres to the conventional understanding of design as an intentional form that manifests or is manifestly directed by a desired purpose or function. One has to design something which includes the possibility of error or surprise, something without inescapable results. We will eventually see that this is not exclusive to the design of games, nor even to the design of artifacts; uncertainty will be a necessarily quality of all design. For the time being, however, we can see that Caillois incorporates and builds on Huizinga's definition

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[490] Caillois, 3.

[491] *Ibid.*, 7.

of play to give us six basic characteristics.

1. Play is *free*: it is no longer a game if playing is obligatory.
2. Play is *separate*, "circumscribed within limits of space and time, defined and fixed in advance," as in a playground.
3. Play is *uncertain*: its course cannot be determined in advance.
4. Play is *unproductive*: it alone cannot produce anything or generate new wealth.
5. Play is governed by *rules*.
6. Play is *make-believe*: it is "accompanied by a special awareness of a second reality or a free unreality" distinct from "real life."[492]

Judging from our detour into deterritorialization, and the requirement that deterritorialization, or drift, sets Deleuze's philosophy apart from ostensibly similar frameworks, some of the above characteristics are more pertinent than others. Namely, the phenomenon of drift demands that we reconcile the fact that, on the one hand, games delimit and operate in a distinct realm (#2), which is necessarily rule-governed (#5), with the idea, on the other hand, that game-play is uncertain (#3). The tension between #3 and #5 is exaggerated in the case of videogames; because the architecture of such games is built in software, it becomes more obvious that a game simultaneously consists in and obeys many different kinds of rules. Furthermore, playing a videogame is "uncertain" in many different ways, beyond knowing whether one will win or lose. The example of

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[492] The above list is from Caillois, 9-10. Since we are to discuss examples of videogames, one could also cite the authoritative Katie Salen and Eric Zimmerman, *Rules of Play: Game Design Fundamentals* (Minneapolis: University of Minnesota Press, 2003). A few things to note, however. First, like Salen and Zimmerman, I am not currently interested in a precise definition of *videogames* which would set it apart from other kinds of games. *Rules of Play* was written to clarify a basic conceptual vocabulary for a burgeoning field of study stretched thin across many disciplines (cf. *Ibid.,* 2). They propose the three headings of rules, play, and society not because these make up the definition of the videogame but because these are the three main groups of concepts through which one might study videogames academically: as a rule-governed structure, an element of play, or a social phenomenon. In this chapter I am dealing with three examples of drift that emerge in videogame design—examples that emerge due to the videogame's being a *game* and due to its being an instance of *software*. Huizinga and Caillois (among others) are central to studies like Salen and Zimmerman's and are sufficient for my purposes. A lot of ink has spilled on whether videogames are unique for their, e.g., interactivity, but any commentary either way on the matter isn't at stake, currently.

unintended game-play allows us to detach aspects of Bernard Cache's work on architecture in particular and apply them to videogames and to design in general. The case of software glitches, or bugs—and especially the advantages they sometimes afford players in the form of exploits—illustrates the situation common to design and *agencement*, wherein the coincidence of heterogeneous *plans* lends itself to drift.

GAMES: FRAMES, BUGS, AND EXPLOITS
FRAMING THE RULES OF VIDEOGAME DESIGN

Videogames, whose architecture is built in software, offer a prime example of what Bernard Cache describes as "frames of probability," which drives a wedge between a player or developer's intention and the result of their decisions and actions. Cache is an important figure in the context of Deleuze's later career, although he is seldom consulted outside the study of architecture. Deleuze's influence on his work is unmistakable, and Cache would in turn have his own impact on Deleuze's philosophy: the latter refers to Cache by name and claims to have adopted his understanding of "inflection" when writing *The Fold*.[493]

Cache's *Earth Moves* was written as a catalog of the images that "make up our everyday lives," namely, the elements of architecture that structure our experience: vectors, inflections, and frames.[494] All three of these images or elements can be found in the form of the videogame, but it is the last variety which most concerns my projects

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[493] For the reference to Cache: see Deleuze, *FLB,* 14-7/20-4. Cache is also directly cited in *What is Philosophy?* See: Deleuze and Guattari, *WP,* 232n27/178n27.

[494] Bernard Cache, *Earth Moves: The Furnishing of Territories,* ed. Michael Speaks, trans. Anne Boyman (Cambridge: MIT Press, 1995), 2.

since what privileged game play and set Deleuze apart from superficially similar authors was the potential for something highly regulated and delineated to drift off—into nothing or into something new. First, Cache says that architecture includes directional or gravitational *vectors*; it directs our activity, our attention, or ourselves in one or more directions.[495] Second, architecture involves the art of producing and arranging what he calls *inflections*: differential thresholds and limits that haunt the landscape and influence what is and what is not possible at a place and time. Lastly, there is the frame, or the *frame of probability*, i.e. an interval which "separates cause from the realization of its effect."[496] Architecture is the art of "introducing intervals in a territory in order to construct frames of probability."[497] The architect cordons off a space in the city and designate it as a living space, a home, and design it explicitly for that purpose. But there is no telling what will ultimately fill that interval; its frame might serve as a crypt, a bird nest, a consignment store, or a safe house. In all, there are three ways to understand Cache's architectural frames, or three functions we can attribute to them. There are *walls* which delimit an interval, there are *windows* which select the interval's inhabitants, and there is the *floor,* the interval itself, which grounds or affords certain activities and makes some more likely than others.[498]

As we learned from Caillois and Huizinga, gameplay occupies such a cordoned-

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[495] *Ibid*., 12.

[496] *Ibid.,* 23. Cache borrows this idea from Eugène Dupréel, who "criticized the classical causal scheme, remarking that no value has been attributed to the interval that separates the cause from the realization of its effect. For a cause to produce an effect, this interval must be filled" (23).

[497] *Ibidem*.

[498] *Ibid.,* 23-6.

off, framed space which is ordered according to certain rules and within which it imposes its own order on those who participate in it. Cache's architectural vocabulary is helpful to us because it allows us to distinguish between the several different orders of videogame design, the different series or levels of rules that regulate its formation and its formation and that shape player decisions. A videogame is software framed in a hardware environment, as well as in a social, political, historical environment. It simulates physical interaction, renders graphics, organizes interface menus, and proceeds according to a gameplay logic, which impose limits and win conditions on the player in addition to encouraging/discouraging particular forms of gameplay.

Salen and Zimmerman discern at least two main sorts of rules in videogame design— *rules of the game* and *rules of strategy*:

> While playing Tic-Tac-Toe, you might devise a 'rule of thumb' to assist your play. For example, if your opponent is about to win, you need to place a mark that will block your opponent. This kind of strategic 'rule' is an important aspect of the game, but these rules of strategy are not part of the formal rules of the game.[499]

This distinction will be important for making sense of the unintended effects which can emerge from the form of a videogame's design. The rules of the game are something akin to the "laws of nature"; they are the constraints and limits which make up the game's formal identity and regulate its basic operations. Because the rules of the game can be split further, Salen and Zimmerman ultimately propose three categories of game rules: operational rules, or what we typically mean by the game's "rules," constitutive rules, or the underlying logical and mathematical rules that make a game

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[499] Katie Salen and Eric Zimmerman, *Rules of Play: Game Design Fundamentals* (Minneapolis: University of Minnesota Press, 2003), 121.

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operative, and implicit rules, or the malleable and sometimes context-specific rules of behavior that dictate proper gameplay and whose violation may make play—or fun, at least—impossible.[500] Our first example of unintended game design effects appears at the level of these implicit rules.

EMERGENT GAMEPLAY

We say that a form of gameplay is emergent when the rules, goals, or activity which defines the game develop through the course of playing in ways that cannot be accounted for by the game developer's original intent. These developments can occur in the course of an individual's play experience or they can appear as the collaborate product of many players. The development team behind the innovative virtual ecosystem of *Ultima Online* underestimated the their players' bloodlust, and the ecosystem swiftly collapsed upon its introduction.[501] The designers behind massive multi-player online games (MMOs) did not anticipate how the in-game economic system would bleed over into the "real" economy, as some players began mindlessly toiling or "farming" for virtual currency, selling their gameplay to players willing to pay a premium on convenience.[502] While emergent forms of gameplay are often unexpected, there are cases

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[500] *Ibid.*, 130.

[501]"What we discovered the moment the game went live was that players ran over the world like a swarm of ants that consumed every living thing as fast as it was possible to spawn it. […] This proverbial swarm of ants was unstoppable." Cf. Lee Hutchinson, "War Stories: Lord British created an ecology for *Ultima Online* but no one saw it," in *Ars Technica,* (https://arstechnica.com/gaming/2018/12/an-afternoon-with-lord-british-creating-ultima-onlines-unknown-virtual-ecology/).Last accessed on 01/29/19

[502] Cf. Rowenna Davis, "Welcome to the new gold mines," in *The Guardian* (https://www.theguardian.com/technology/2009/mar/05/virtual-world-china). Last accessed on 01/29/2019. "Li Hua makes a living playing computer games. Working from a cramped office in the heart of Changsha, China, he slays dragons and loots virtual gold in 10-hour shifts. Next to him, rows of other young workers do the same. 'It is just like working in a factory, the only difference is that this is the virtual world,' says Li.

of videogame design where the developers expect or even encourage it. Some game makers design with flexibility in mind in order to give their players latitude in their approach to the game and their in-game experience. Their efforts focus less on preparing a specific narrative for the player to unravel or a set of concrete objectives for the player to meet and more on furnishing the tools to allow players to build their own narrative and pursue their own goals.

RimWorld, released in 2018, is a game about space colony construction and management simulation.[503] The player begins with a handful of generated colonists—with varying abilities, pre-existing conditions, preferences, and quirks—who have crash landed on a procedurally generated planet. Another science fiction adventure game would have been planned out with a particular player experience in mind; available resources and environmental threats would have been balanced out to maintain a level of difficulty for the player without making it impossible to succeed. *RimWorld,* however, makes hay on the lack of such balance. The player's random colonists may not work well together, and their new home's terrain may be harsh and inhospitable. The game developer's official website describes the course of typical gameplay:

> Manage colonists' moods, needs, individual wounds, and illnesses. Engage in small-team tactical gunplay. Fashion structures, weapons, and apparel from metal, wood, stone, cloth, or futuristic materials. Fight pirate raiders, hostile tribes, rampaging animals, giant tunneling insects and ancient killing machines. Tame and train cute pets, productive farm animals, and deadly attack beasts. Watch colonists develop relationships with family members, lovers, and spouses. Discover a new generated

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'The working conditions are hard. We don't get weekends off and I only have one day free a month. But compared to other jobs it is good. I have no other skills and I enjoy playing sometimes" (*Ibidem*).

[503] *RimWorld,* Ludeon Studios, 2018.

world each time you play. Build colonies in the desert, jungle, tundra, and more.[504]

While the level of sophistication of its simulation and the variability of its play outcomes are no match for its spiritual predecessors,[505] *RimWorld* (Figure 13) is a significant example because its development team has been extremely amenable to player-made and player-distributed modifications. What is more, as the game's title screen indicates, *RimWorld* sells itself as a "story generator." As a story generator built on the premise that unexpected results will follow from unprepared colonists encountered unforeseen circumstances, one could claim that such emergent gameplay confirms that the game's design realizes the intentions of the original developer. I would admit this only on condition that we highlight the fact that the developer intended for the game not to proceed as intended and to have expected that events, strategies, and interpretations or narratives would emerge which they could not have expected.

It is a relatively recent development for videogame designers to anticipate and encourage unintended forms of gameplay, and of course, most cases of emergent gameplay do not follow *RimWorld*'s example. One prominent example which includes countless games across different genres is what is called speedrunning, the attempt to play through a game as quickly as possible. As one popular host for speedrun

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[504] From the front page of https://rimworldgame.com. Last accessed on 1/27/2019.

[505] A longer discussion would warrant mention of *Dwarf Fortress,* an indie game with remarkable influence on new developments in videogame design. Fortresses built and managed in *Dwarf Fortress* are infamously short-lived, owing to crushing external threats and down-ward spirals in bad Dwarven behavior for which the loyal player community reserves a revealing shorthand term: "fun." According to one fan-run wiki, the only way to have fun in the game is to lose, since the only fortresses that don't eventually fail "tend to be very conservative and very boring—and what fun is that?" "DF2014:Losing (Redirected from 'Fun')," http://dwarffortresswiki.org/index.php/DF2014:Losing. Last accessed on 1/27/2019.

competitions tells it, "People speedrun to challenge themselves, to see a game pushed to the limits, and to get extra replay value out of a game."[506] Further modes of gameplay emerge as players regularly form their own version of speedrunning, imposing limits and extra requirements on their runs—e.g. the player must collect all coins in addition to completing the game. The relatively straightforward quest for maximum efficiency left no stone unturned, and now speedrunners look for ways to capitalize on "flaws" in the game's design. By taking advantage of loopholes in the level design or various glitches in the game's software, the player can succeed in "sequence breaking," i.e. bypassing otherwise mandatory portions of the game. To fully understand the significance of such *glitches* and the player's ability to *exploit* them, we must first discuss glitches themselves. In their own right, glitches, or bugs, offer us an example of how a rule-bound, intentional design can lend itself to irregularities and unintended consequences.

Figure 14 – Screenshot of *RimWorld*

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[506] "Frequently Asked Questions," *SpeedRunsLive* (http://www.speedrunslive.com/faq/). Last accessed on 1/29/19.

BUGS: GLITCHES IN PERCEPTION, PHYSICS, AND PROTOCOL

In general terms, a glitch is any hiccup in a system's expected or usual operation, but the players and developers of videogames focus on the mechanical or programming errors that emerge and can be observed in the course of actual gameplay. Software and videogame glitches come in many flavors, but for now we will consider two types which both point back to the same logic: the game gets its "wires crossed"; two sequences of code or two aspects of the game come into conflict, producing undesirable or unexpected results. There are glitches based on the physics of the game's engine and glitches which involve other forms scripted behavior. In the worst of circumstances glitches can spell the end of gameplay; they are said to be "game-breaking." The operating system crashes, the title screen freezes, the player's model clips through the side of a mountain and gets stuck out-of-map (i.e. outside the bounds of rendered or tactical space).

The majority of glitches, though, are not as severe. Sounds are timed incorrectly. Collision detection fails for solid objects, and the player's character model "clips" through a wall or stands "in the middle" of his horse. A model's movements hiccup and are repeated in a stuttering loop. What players interact with and call a "videogame" is the rendered product of a software framework called the game's "engine," which handles and coordinates the programming for the game's core features in broader strokes. The engine saves the developer time, since they do not have to build from the ground up. Because the engine already accounts for how images are rendered, how surfaces and surfaces interactions are calculated, how sounds are triggered and synched, and so much more, it offers the developer an environment in which they can focus on the details of their game's "content."

As with other kinds of engines, however, a game engine does not always run smoothly. The game's physics or collision detection system might fumble an unforeseen object interaction: an example of a sort of internal contradiction between the engine's different processes. While playing a Bethesda game,[507] to your horror, you discover that the welcoming non-player characters (NPCs) at the gate are having a bad day—their faces have melted down well below their necks, while their eyes and teeth (because independently rendered) remain fixed, floating exposed in space. See Figures 14, 15 for examples.

Figure 15 – Two glitches from *Skyrim*

The scheme I propose for understanding glitches involves a second category which currently lacks traction in the gaming and game design community. I would describe the above examples as constitutive glitches, indicating errors in how game elements are assembled and loaded as visible, tangible components of the game and its environment. The second class of glitch is important because I believe it captures some of the characteristics common to glitches and related phenomena; I call these behavioral glitches or glitches in protocol. Thinking of them in terms of behavior is helpful for

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[507] Bethesda Games Studio is notorious for releasing buggy games. Nearly everyone recognizes that the ubiquitous glitches stem from a faulty or outdated game engine, but a few have recently argued that the engine is a symptom rather than the source of Bethesda's problems. See Shamus Young, "Bethesda Doesn't Need a New Engine," in *Escapist Magazine* 2 (2018). https://www.escapistmagazine.com/v2/2018/11/20/bethesda-doesnt-need-a-new-engine/

emphasizing that the glitch is a matter of pattern, routine, or component systems which

are autonomous or semi-autonomous. Furthermore, it will be helpful for recalling our

time with Deleuze, since he

claimed that *agencement* had a

leg up on the concept of

"behavior" since it allowed for

more thoroughgoing analysis and

let us challenge trite distinctions

like that between nature and

culture, for example.

Figure 16 – A Surprising Infant from *The Sims*

Sometimes the protocols for how different entities should behave contradict each

other, or at least produce results we do not like or do not expect, or different protocols for

the same element's behavior disagree. Although more famous for launching big budget,

underdeveloped games rife with constitutive glitches, game studios Bethesda and Ubisoft

present good examples of behavioral glitches in two of their popular games: *Elder Scrolls

V: Skyrim* and *Assassin's Creed: Origins*, respectively. Both games feature open world

maps; while the maps themselves are not, their massive size requires that many of their

features and the behavior of their features be procedurally generated: bears, villagers,

weather patterns, etc. Some of these features serve a direct narrative purpose, while

others only exist to immerse the player in a more "realistic" environment to encourage

their engagement with the narrative.

In *Skyrim*, each city is patrolled by imperial guards for whom the player earns a

regional reputation, one based on the player's current and recent activity. Your reputation

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will influence how city guards treat you: whether they look the other way if you've committed a crime and are caught red handed, whether they can be bribed, or whether they are instead hostile and presume guilt until-proven-innocent. Regardless of reputation, however, attacking a guard will be met with violent apprehension. Such is their protocol: suppress or arrest anyone who attacks them—in the name of the king!

Meanwhile, when travelling between cities, the play may be tempted to swim across rivers and streams in order to save time. One should beware that the *slaughterfish* indigenous to *Skyrim*'s waterways have their own protocol: to pursue and attack anyone who wades nearby. What happens when a city's imperial guard winds up in the water? The result is an endless behavioral loop: the slaughterfish attacks the guard who attempts to arrest the fish who attacks the guard who, etc. "In the name of the king, drop your weapon! You're coming with me!" (Figure 16).

Figure 17 – Stand-off between city guard and slaughterfish, *Skyrim*.

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The NPCs of *Assassin's Creed: Origins* are not programmed for autonomous aquatic behavior. They mill about the city, engage in scripted and/or variable conversations, and together contribute to the emulation of a bustling market, but none of them know how to swim. The player can put this to the test after the old man, Beka, dies while waiting for the player to retrieve his Book of the Dead. After the end of the mission, the player can bring Beka's body to the dock and gingerly push it off the edge and into the water. No sooner than the corpse breaks the water's surface does it reanimate and haul himself back onto the dock, whereupon it will collapse, lifeless once again (Figure 17). According to the demands of the game's narrative, Beka is dead. According to the inviolable rules dictating all narrative-related NPC behavior, people cannot swim and must climb out of the water as soon as possible to prevent "losing" NPCs at the bottom of the sea. When these two protocols and sets of demands collide, the dead arise to hoist themselves onto dry land.

Figure 18 – Dead man climbs back onto the dock in order to die again, *Assassin's Creed: Origins.*

EXPLOITS: MAKING DO

While glitches can occur spontaneously, there are reasons the player may wish to induce them or seek them out. When a glitch in the game's software or an oversight in the game developer's plan presents itself, the player may *exploit* it to their advantage. An exploit is defined as a strategy which makes use of non-primary features of a game's design in order to undermine prescribed forms of gameplay. We will consider a few different exploits—the last of which, from the game *Journey,* will lead us to review the main assumptions underpinning typical interpretations of allegedly incidental and unintended features of game design like emergent gameplay, glitches, and exploits.

Our first example is perhaps the most severe, involving the use of an in-game glitch to override the basic parameters and security settings of the gaming console's operating system. Players were able to exploit an error in *The Legend of Zelda: Twilight Princess* in order to run their own homebrew games and other unauthorized software on the Nintendo Wii console. The main character of the game, Link, has a horse named Epona—a name five characters long. Clever players tweaked their save files and swapped "Epona" out for a name much longer than the game expected or could handle, and so the Wii's operating system crashed whenever it tried to load the horse's name. The strict defensive measures Nintendo had built into the system went down, and in its post-crash vulnerable state, the system could be made to load and run any program the user wished.[508]

Our second example comes to us from the surprise hit indie game from 2016,

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[508] "Twilight Hack" (http://wiibrew.org/wiki/Twilight_Hack). Last Accessed on 2/5/19.

Stardew Valley. *Stardew Valley* is a game about farming and community building; it tells the story of a young person who feels alienated in a dead-end job at a major corporation and suddenly discovers that they have inherited their grandfather's farm in Stardew Valley, near Pelican Town. It is up to the player to restore the form to its former glory and to their prerogative whether and how they interact with others in the community. The player has considerable latitude: they can farm crops, care for livestock, craft artisanal goods from raw ingredients, mine for minerals and rare artifacts, and pursue friendship or romance with the townsfolk. Before version 1.2.26 was released in April 2017, the wallpaper catalogue sold at Pierre's small grocery offered a hidden advantage. The programmed ID tags for the different patterns of wallpaper happened to correspond to the programmed ID tags for various other items in the game, and players discovered that many of the NPCs and triggered events in the game did not distinguish between sheets of wallpaper and "the real thing." Haley is a big fan of coconuts; giving her one will take you a considerable distance toward becoming her friend (or more), but a brown checkered sheet of wallpaper will do just as well. Pierre's catalog was a one-time purchase and would produce an infinite number of sheets, so a player's road from rags to riches was paved in wallpaper (Figure 18).

We have already encountered one example of exploit from the world of speedrunning, where players are encouraged to look for shortcuts in their quest to reach the end of a level or game as quickly as possible. Such shortcuts can come in the form of sequence breaking glitches, whereby players bypass intended parts of the game. The practice of sequence-breaking is so widespread in the speedrunning community that it has wound up in the official text of some games. The 100 Sammer Guys, vassal samurai

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sworn in the service of King Sammer, are only some of the foes awaiting Mario in 2007's *Super Paper Mario* for the Nintendo Wii. One Sammer Guy is named "Over the Flagpole," a reference to a sequence-breaking exploit in earlier Mario games: the "flagpole" is a goal post at the end of every level; by jumping over the flagpole, Mario could skip levels or entire worlds. When Mario defeats Over the Flagpole in *Super Paper Mario,* the Sammer Guy cries, "Surely you are cheating! You are exploiting a glitch! You are a sequence breaker!"[509]

Figure 19 - The now-defunct wallpaper glitch in *Stardew Valley.* These pillars will reward the player with a powerful "Galaxy Sword" in exchange for a rare prismatic shard. Fortunately they cannot distinguish prismatic shards from sheets of pale green wallpaper.

Exploits and sequence breaking need not necessarily involve the use of glitches, as I found for myself during my first playthrough of *Journey,* perhaps the most iconic game to have come out of thatgamecompany [TGC]. Some background information is necessary. Like TGC's other games, *Journey* privileges immersion and affective ambience over explicit narrative.[510] Game developer, Jenova Chen, wrote their masters

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[509] Super Paper Mario, Nintendo (2007).

[510] "Starting with an emotion and attempting to design a game around that emotion, as opposed to starting with the mechanics, which is often how designers approach games—so it's a first person shooter, or it's a

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thesis on how players adjust to progressive levels of game difficulty, drawing on

Csikszentmihalyi's concept of flow, the experience of disappearing into an activity. All

of TGC's games attempt to sustain the player's flow, which might be compromised with

dialogue, explicit instructions, and meta-game menu screens. In *Journey,* released for the

PlayStation 3 in 2012, gameplay proceeds without any tutorial or exposition; the

environment and the gameplay itself suggests a narrative and an end-goal. The player

traverses the ruins of a lost civilization, across a mysterious desert to a mountain on the

horizon—undeciphered hieroglyphic scenes offer clues as to the nature of this civilization

and its eventual downfall, as well as the nature and purpose of the player's journey, but it

is by and large left to the player's interpretation. As the title suggests, the journey *itself* is

the point of the game. Along the way the player will encounter other travelers, and, if one

is playing for the first time, the game does not reveal that these are in fact other human

players. Players can interact with each other and help one another but cannot

communicate in any way.

In fact, players' only form of interaction is by emitting a flash of light and a

chirping noise, which, when in range, "powers up" the scarf worn around another

player's neck. These scarves afford travelers a brief launch into flight; under normal

conditions, when travelling alone, scarves quickly lose charge and one is forced to submit

to gravity. On my first playthrough, I cooperated with another player—who I believed

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real-time strategy. Instead we started with this idea of making a game that makes you feel like you're a kid daydreaming, and looking at the clouds—and trying to make a game from that approach." Kellee Santiago, "thatgamecompany's Kellee Santiago: the co-founder of the flOw developer on the firm's origins and the importance of new ideas," interview by Phil Elliot, *gamesindustry.biz* July 2, 2010. (http://www.gamesindustry.biz/articles/thatgamecompanys-kellee-santiago-interview). Last Accessed on 2/5/19.

was an NPC—to fly over most of the game's map. We alternated our chirps in a chain that permitted us perpetual flight, and I unwittingly skipped over a majority of the game's content. My friends struggled to contain their surprise and frustration, insistent on not "spoiling" the surprise that I was actually interacting with another human player, while dismayed that I was "missing" most of the game. I couldn't make any sense of their reaction—after all, I was only doing "what the game was telling me to do," following the cues given by the NPC and my environment.

Afterward, we debated whether my accidental short-cut was an exploit. Had I accidentally become a sequence-breaker? Was I exploiting a flaw in the game's design to my advantage or was I in fact realizing something essential to the developer's intention, according to which gameplay and narrative interpretation were left open to emerge on an individual basis? There was a good argument that I had missed some of the intended parts or aspects of the game, which would imply that the design is defined and motivated by the designer's intentions; but one could just as well argue that the designer's intention concerned the eventual use of the design rather than the design itself. Then again, one could also argue that the designer's intention was merely a fiction projected by the player onto the form of the design; I took it for granted that my approach to gameplay was legitimate: it was possible, and so it must have been intentional.

I argue that *Journey* reveals a predicament common to all games and all design. Suppose that one can successfully open a can by smashing it with a can-opener. First, one might claim that the design was intended to open cans in a particular way, and that we have failed to realize the designer's intention. On the other hand, we can argue that since the can-opener was intended to open cans, we have indeed realized the designer's

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intention even though we did not do so *as* intended. Third, if we are using a can-opener for the first time, we may not be aware of the designer's "true" intention, or may not in fact be aware of the designer at all—instead, we take it for granted that a designer was responsible for the can-opener's design and simply assume that our use of the design accords or fails to accord with the designer's intention. The first claim implies a strong relationship between form and function such that a particular form has a necessary relationship to a particular function, and that one is brought to the other via the agency of the designer. The designer determines the essential purpose of the can-opener to be opening cans, and because the designer is responsible, we can look to them for the standard of proper design use. The second claim is functionalist rather than purely essentialist: the design is directed toward a particular function and its success is not entirely attributable to the designer's original intent. The design succeeds when it fulfills its function, even if it does so in a way the designer failed to anticipate. The third claim privileges use. It is use that determines the function of design, since the designer's intent is a post hoc fiction based on the way the design is actually used.[511]

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[511] In 2018, there was some public discussion over the "correct" use of manual can openers, in part due to Cinemagraphy, "The proper way to use the Can Opener! You have been using the can opener all wrong!" (https://www.youtube.com/watch?v=mFmllVIZrQs). The most common method is to hold the can opener parallel to the sides of the can (with the blade cutting into the top), while the other method involves holding it parallel to the top of the can (with the blade cutting along its sides). Both methods work, and both offer different measures for ensuring the user's safety. The second method does sharpen the entire circumference of the top of the can, but it has the advantage of removing the lid all at once. The first method may expose the user to fewer jagged edges, but it has the disadvantage of requiring the user to "dig into" the can to remove the lid.

Figure 20 – Screenshot from *Journey*

Regardless of how we decide between these those three claims or whether there are other possible interpretations, *Journey* demonstrates that more attention is due to the relationship between intention and design. Attending to this matter will carry us through to the next chapter. To begin, we should take stock of the basic assumptions underpinning our understanding of videogame accidents—emergent gameplay, glitches, and exploits.

BUGGED ASSUMPTIONS

The specific form and context of a glitch's appearance, the necessary conditions for its existence and for our interpretation of it, as well as the actions and attitudes of both players and game-makers, all betray assumptions often made about design in general, assumptions which were also in the cross-hairs of *agencement* (as we discussed in Chapter 1). There are three such assumptions at work in common responses to unexpected developments in videogame structure and gameplay, and they all grow from the same root belief that design—and this is often said to *define* design—is necessarily

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intentional and that what distinguishes a design form from non-design is that non-design is accidental, unpredicted or unpredictable, or otherwise unintentional. Our survey of these three assumptions will challenge that root belief. From a few remarks on the etymologies and histories behind "glitch" and "bug," we will consider the assumption that glitches are external to the design itself, the assumption that bugs are in themselves bothersome, and the assumption that such hiccups are local, or discrete, phenomena.

The word, *glitch*, is likely Yiddish in origin, though it has a wide range of cognates in other Indo-European languages: for example, *glide* in English and *glisser* in French. Somewhere in the normal operation of the system we encounter a point of slippage: the system fumbles, or an element slips out of its otherwise firm grasp.[512] Another general term for the same set of phenomena is "bug." There are two different origin stories for this piece of engineering terminology, and both stories reveal something meaningful about software in general and games in particular. The assumption is that bugs come from outside, from outside of the machine proper or outside of the engineer's intentions. The first story is widely reported but is not, in fact, the origin of the term. In Grace Hopper's log from her work on the Harvard Mark II computer, the Aiken Relay Calculator, one can find a special article of evidence alongside her diagnosis for an observed malfunction: taped on the page, by September 9, 1947, is a moth (Figure 20).

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[512] One might recall, here, the several possible English translations for *ligne de fuite*, so prominent in Deleuze and Guattari's work. It might be the horizon line, the level of a painting's vanishing point that frames the composition's perspective. *Fuite* can also refer to a leak, an escape—this is why *ligne de fuite* often refers, in French, to an insulator's creepage distance. If a connection's voltage is high enough and particles in the air cause the air to conduct, there can be leakage (*fuite*), and so the electrical engineer wants the insulator to maximize the distance the leak has to cover (*ligne de fuite*). Although *fuire* and *glisser* are not etymologically connected, one should note the semantic relationship between leaking, escaping, and slipping. A glitch is when something "gets away" from normal operation.

Her diagnosis: "First actual case of bug being found." As the story goes, this is why we refer to glitches and software defects as "bugs."

In truth, the word is much older than computers (*a fortiori* older than software) and described mechanical malfunctions as early as the 1870's. Perhaps 19th century mechanical engineers also found moth in their gears and springs, but it more likely has something to do with bug's relation to words like "bugbear." From *bugge,* a Middle English word for scarecrows or hobgoblins, the word bugbear has come to mean an ongoing problem, obstacle, a source of constant irritation. A "bug" was thus a hiccup or malfunction in a mechanical design that "bugged" the designer or the user.
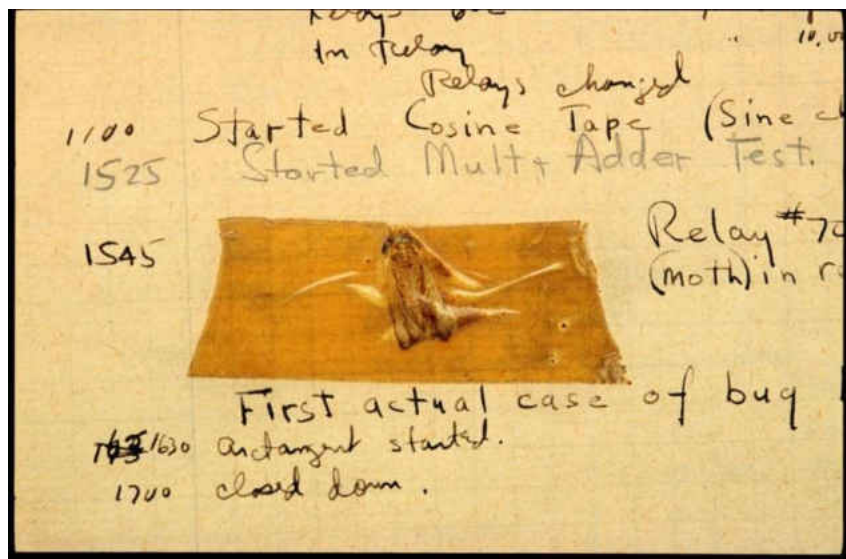
Figure 21 – *Log Book with Computer Bug,* The National Museum of American History, #1994-0191-1.

Even if the Hopper account is not the true origin of the term, it reveals something about the word's actual origin and its current use. Understood as moths in the machine, bugs and glitches interrupt the smooth functioning of the planned design but do not count as part of the design proper. They are accidents or obstacles; they are wrinkles but not the fabric of the game. Even if they are perfectly intelligible according to the game's engine,

its rules and its protocols, unintended consequences are not—developers and players agree—part of the game.

When understood as "bugbears" rather than moths, the second assumption we make of glitches is that they are inherently problematic or bothersome. The player's claim that something is "wrong" with the game's software says just as much about the player as it does about the game itself. The glitch bugs the player or the game developer, but this says nothing of the glitch's inherent qualities. On this note, recall that *agencement* was prescribed as an antidote to the preoccupation Deleuze's contemporaries had with individual behavior. His frequent references to "Abstract Machines" can mislead the reader into presuming that he and Guattari want to lead us away from a concrete consideration of individual behavior to a more abstract, general consideration of the context of such behavior. As we saw in the previous chapter, though, the abstract should in no way be understood as "general," since Deleuze opposes the concrete not to the abstract but to the discrete.[513] It is only a particular sense of abstract that Deleuze objects to; it is a question of *what* one abstracts. Say we are studying an individual's behavior in their milieu, or a component's role as part of a machine. What Deleuze and Guattari would want to avoid is abstracting the individual's behavior from their milieu, or abstractly considering the machinic component apart from the machine. The worthwhile sort of abstraction concerns *how* behavior meets milieu, or *how* the component is

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[513] For an excellent review of Deleuze's take on the abstract and the discrete, with regard to Hegel in particular, see Brent Adkins, "Who Thinks Abstractly?" in *The Journal of Speculative Philosophy* 30.3 (2016), 352-60. Adkins launches his discussion on the basis of Deleuze's lecture on *A Thousand Plateaus*: "Il y a le concret et l'opposé du concret, le vrai oppose du concret ce n'est pas l'abstrait, c'est le discret" (Gilles Deleuze, lecture presented March 14, 1978, University of Paris VIII-Vincennes, *Le Cours de Gilles Deleuze,* accessed February 11, 2015, http://www.webdeleuze.com/textes/58).

"machined."[514] Our assumption that software or videogame glitches are inherently bothersome thus relies on a third assumption: we assume that glitches are discrete entities and forget the milieu that condition them. Our focus on individual behavior is misplaced; we treat glitches as local phenomena, when the codes and protocols behind them are much broader and far-reaching. Even though we say that a game is "patched" in order to redress bugs and other software issues—implying that the program receives spot-treatment for localized wear and tear—such "patches" often necessarily entail broad changes to the game as a whole.

Consider an example described above (Figure 21): in some installments in the *Assassin's Creed* series, the player may encounter a glitch in how face textures are loaded and rendered; some underlying textures, like those of the teeth, gums, and eyeballs, load just fine, while the surface of the skin loads improperly or fails to load at all. Emphasis on individual behavior, the local manifestation of a videogame glitch, is misplaced because it overlooks the *agencement* of codes and protocols which make the glitch possible. Furthermore, however, our time with *agencement* and glitches indicates that things run deeper than that. The NPC's behavior and the appearance of her face are simply following the rules; her face is rendered according to the "laws of nature," as it were. The condition of the possibility for the glitch's appearance includes the codes and protocols which produce it, but other conditions have to be met for it to be *considered a glitch*, or for it to *bug us.* It doesn't conform to our expectations, intentions, and goals, all of which have their own etiology and their own milieus and all of which are brought to

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[514] Hence their use of abstract machines rather than abstract components. A similar gear can be used in several machines, and so an abstract consideration of the gear as a discrete entity doesn't tell us that much as the abstract machine which makes certain use of the gear.

bear on our interaction with the game. A more properly Deleuzian approach would be to consider not only why glitches appear but also why they appear as glitches.

Figure 22 – Screenshot a melting face from *Assassin's Creed: Unity.* Courtesy of Retro_Apocalypse, Steam (https://steamcommunity.com/id/retroapocalypse/screenshots/?appid=289650).

Videogames in particular help underscore what is special about Deleuze's account, as compared to Koestler, Dooyeweerd, or Davidson. But Deleuze in turn can intervene into the assumptions which frame our understanding of unintended videogame or software events, be they glitches, exploits, or emergent forms of gameplay. Following our familiar tetravalent definition of *agencement*, we claimed that an *agencement* involves forces which help it stick around as well as forces which drag it away, and so analyzing an *agencement* or design should account for both inertia and drift. Returning to some of the highlights of our detour into deterritorialization: we saw that the processes of territorialization were multidimensional and involved different *agencements* in different ways and at different scales; we saw that in every case deterritorialization was coupled with reterritorialization; and we saw that the language of territorialization was more suited to describe functions than subjects and to provide a genetic rather than a static account. We know that something is territorialized as soon as it "cease[s] to be functional

to become expressive."[515] No sooner than we interpret a game and submit it to our expectations do we territorialize it: this is part of the game, this is an NPC, this is a human face, this is how a human face should look and behave, and so on. Already we are dealing with an entire suite of different elements, *plans,* and *agencements*. Then, when the game "drifts off" to perform in unexpected or unintended ways—when a woman's face "melts"—the deterritorialized element is soon reterritorialized. It is exploited to the player's advantage, it induces a new form of gameplay to emerge, it becomes a meme and spurs weeks of humor and discussion online, or it becomes expressive—the glitch becomes Ubisoft in a nutshell.

The consequences of this situation with videogames and glitches can be expressed in more abstract terms for design overall. The preceding chapters on *plans* and diagrams tell us that design is stratified by different aspects or considerations. Design—all design and not just so-called post-industrial, algorithmic, procedural design—is "iterative," that is, it can be expressed in different ways at different levels. The architectural theory and practice group, Atelier, calls these ways or levels "constituents," as we will discuss in the next chapter.[516] Design assumes different forms on different *plans* in different ways, and each of these can be said legitimately to count as the design "itself." They are all concrete diagrams of the same abstract Diagram, to recall both Deleuze's and Peirce's language from Chapter 3.

If design has so many faces, then we say that design characteristically names the

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[515] Deleuze and Guattari, *ATP,* 315/387.

[516] Atelier [Thomas Binder, Giorgio de Michelis, Pelle Ehn, Giulio Jacucci, and Ina Wagner], *Design Things* (Cambridge: MIT Press, 2011), 57.

interface between such faces, and between them and us, which makes it possible for purposes to be perceived or realized. This understanding of interface will answer our question from the beginning of this chapter, as to how the first and second "axes" of an *agencement* are related.

CONCLUSION: DESIGN'S DRIFT

To develop our understanding of design as interface, in light of our discussion of emergent gameplay, glitches, and exploits, we will need to briefly visit a typical definition of interface, possible philosophical analogs in authors like Dooyeweerd and Deleuze, and then a similar term from biochemistry, active site, which is significant for crucial passages in *A Thousand Plateaus*. The world of computing and human-computer interaction (HCI) typically understands interface in three ways: as the point of contact or means of communication between the user and the computer system (e.g. screen, keyboard, mouse), between software systems or between software and hardware systems (e.g. the elements which allow software systems to identify, categorize, and manipulate other systems), and between hardware systems (e.g. wires and plugs). The first is perhaps the most familiar use of the term, in the context of user interface. As users, we do not interact with the entire computer system, and our manipulation of its elements is never direct; we "use" the system only be means of rendered menus on a screen, coordinated with what the mouse or touch screen element or keyboard registers of our input. If we consider what all three sorts of interfaces have in common, an interface is that which mediates between discontinuous systems or sub-systems. Consider, for example, an individual organism on the one hand, understood as a system in its own right, in the context of the larger system of its physical environment on the other hand. These

systems have different parts, functions, and considerations, and so a cybernetic ecologist might ask how these systems are able to interact: what is their interface? On that basis we can broaden the concept of interface to cover all interactions between discontinuous systems. All design forms involve interfaces. That is to say, we only interact with design according to one "face" at a time while, whether we intend it or not, the design *qua* interface simultaneously reckons with other faces with which we do not at the time interact (or intend to interact).

For a single example of how this works, we might recall our time with Dooyeweerd. Dooyeweerd believed that since we are only finite creatures, we can only think of things under one aspect at a time and that we are led to consider these aspects as discrete and mutually irreducible. I might manipulate something because, in the theoretical mode of my creaturely thought, I consider it under the sphere-specific laws of one aspect or another. Because this aspect is united with other aspects in the final order of cosmic law, however, my actions incur effects in other aspects following other sphere-specific laws. For example, I rearrange the furniture in my apartment out of a consideration for space—what will fit, whether there is enough room for my desired lifestyle, etc.—but my choices at the same time mean something linguistically, aesthetically, economically, and so on, i.e. they incur changes under aspects which are distinct from and irreducible to the furniture's spatial aspect. I might intend for what I say to be understood in a particular sense, but whether I anticipate it or not I may be understood in unintended or perhaps totally new ways, since my statements lend themselves to other senses.

We interact with and use design according to its various "active sites," to borrow

a phrase from the study of biochemistry. A small portion of an enzyme's surface is shaped in a specific way such that it can select and interact with the substrate necessary for the enzyme's chemical task. The grooves of the binding site prevent the substrate from slipping away during the chemical reaction and orients the substrate to ensure that it catalyzes properly. Substrate materials irrelevant to the enzyme's particular process fail to hook onto the surface of its active site.[517] The most obvious comparison with design is that its form or shape is only compatible with certain materials in certain ways: a chopstick can do a decent job of scratching an itch, but its surface isn't amenable to functioning as a doorstop. Design is the interface of different sites which allows one surface to interact with the surfaces of surrounding forms. For a fuller understanding of design as an interface, however, I propose expanding the analogy to include how its surface "hooks" onto elements on different *plans*, and furthermore how it hooks different *plans* together.

The tetravalent definition of *agencement* involved two axes: two pairs of *plans* or two *plans* of *plans*.[518] The first axis has two segments, content and expression, and the *agencement* can be understood both as an *agencement* of interactive bodies and as an *agencement* of intervening statements. As we have noted several times, these *plans* are

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[517] Something perhaps worth noting: a footnote for the third plateau of *Thousand Plateaus* (*ATP*, 512n4/56n3) directs our attention to Jacques Monod's discussion of protein folding, citing *Chance and Necessity*, trans. Austryn Wainhouse (New York: Vintage, 1972), 90-95. Our use of biochemical active sites, then, is not without precedent in Deleuze and Guattari's work. In the broader view of that discussion (*Ibid.*, 81-98), Monod also refers to the active sites of enzymes. Enzymes and folding proteins both involve precise, spontaneous, and blind processes of morphogenesis. Monod compares the process to that of crystallization, since, like crystals, "the structure of the assembled molecules itself constitutes the source of 'information' for the construction of the whole" (86). They "recognize" their materials without cognition and repeat their precise transformations without any intentional inner life or "memory" in the conventional sense. The form of the enzyme/protein itself serves as cognition, as means, and as memory.

[518] Again, I am paraphrasing the definition provided in *ATP* 88/112.

heterogeneous and yet "apply" to the same material or the same *agencement*, and their

relationship is more than simply one of correspondence: the different *plans* are

commutative. The second axis spells out the nature of this commutative, heterogeneous

relationship as well as its consequences. Let us recall our time spent with Christopher

Alexander and Peter Eisenstein and their use of diagrams in architecture. Design offers a

concrete pattern, or diagram, for bringing together patterns of events on one hand and

spatial patterns on the other; it solves the "problem" of their heterogeneity. In the process,

however, this concrete solution gains momentum and leaves its mark—territorializes—on

its patterns of events and spatial patterns: as it becomes familiar, we come to expect it as

the "natural" solution to their difference; we begin to associate certain events with certain

spatial elements; the concrete design is reproduced, and its influence spreads. Hence the

agencement has "territorial sides" that maintain and stabilize it.[519] However, as Eisenstein

showed us, the form of the concrete design harbors an abstract continuum of real

possibilities; it can bring together unexpected patterns of events and spatial patterns, can

lend itself to do things we did not expect, or can lend itself to do nothing at all. Thus, the

same *agencement* has "cutting edges of deterritorialization" that cause it to change, drift,

or dissolve.[520]

      We have been looking for a way to combine and relate Deleuze and Guattari's

insights according to both axes of *agencement*'s definition. Design, particularly that of

videogames and their unintended events, has taught us how the second axis follows from

the first. It is precisely because its *plans* are heterogeneous that the same *agencement* can

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[519] *Ibidem.*

[520] *Ibidem.*

lend itself to both maintenance and dissolution simultaneously.

I make decisions in game design on the basis of perception and my expectations for what human faces look like, but the face I design is bound up, on another *plan*, with the physical logic of the game's engine, the design of which involved other decisions under different considerations. In *Stardew Valley,* our friend, Haley, is overjoyed to receive a checkered sheet of brown wallpaper because she has confused it for a coconut, one of her favorite treats. From one perspective (*plan*) it makes complete sense that a sheet of wallpaper be interchangeable with a coconut, since both items share the same ID tags. From another perspective—that of the narrative and of the characters' dialogue script—this makes no sense at all. A certain *agencement,* the game's design, brings these *plans* together in such a way that they coincide and co-adapt via the interface of the player's form of gameplay. They both belong to the same game, the same design, and the same game both confirms the player's previous understanding of the purpose of wallpaper and lends it to be re-purposed beyond the developer's intention or the player's previous understanding.

Decisions I have made under one consideration have consequences for decisions made in other considerations, or considerations which I had not or have not yet considered. Intentional acts have unintended consequences, and local "accidents" turn out to be systematic, structural, and can behave "as if" intentional. Or else, what I have designed can serve intentions I did not intend. What is clear in any case is that intention alone is not sufficient to define design, despite its being a central and dominating feature

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of any discussion of designers and philosophers alike.[521] The world is not separable from

the earth, and so it "drifts" away and is forced to suffer aberrant movements. Design is

thus both *dessein*, an intentional and intelligible form, and an abstract *dessin* of

singularities which "drifts" or wanders away. A good definition of design ought to

account for both aspects. We will look for such a definition in the next chapter.

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[521] As we will see in the next chapter, this includes both writings on design and writings on biology (etc.) which refer to design.

CHAPTER V

DEFINING DESIGN: MAKING WATCHES

AND TELLING TIME

> "We cannot suppose that a man would produce a paper-knife
> without knowing what purpose it would serve."
> - Jean-Paul Sartre [522]

In this chapter we will see that the difference between having a purpose and

serving a purpose is a meaningful one, and I argue that design is best characterized by the

latter. Our examples in the last chapter found some design theory wanting, insofar as

many assume purpose to be the defining characteristic of design. Now it remains to

decide what sort of relationship obtains between design and purpose and to consider what

benefit we stand to gain from our Deleuze-informed account. Finally, once we have

established that intended purposes alone are not sufficient for understanding design, our

project will conclude with new definitions for design and *agencement* wrought from the

many authors and themes we have covered.

BUCHANAN'S BUGBEAR

The reach of our engagement with design and *agencement* has steadily grown,

from archaeology and ceramics, to architecture and diagrams, to software and

videogames, and now to the realm of evolutionary biology. In all cases—and we could

continue, surely—we found design and *agencement* apt terms for describing salient

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[522] Jean-Paul Sartre, *Existentialism is a Humanism*, trans. Carol Macomber, introduced by Annie Cohen-Solal, with notes and preface by Arlette Elkaïm-Sartre, ed. John Kulka (New Haven: Yale University Press, 2007), 21.

aspects of the same phenomena. This comes as no surprise, if we recall that among the cited reasons for *agencement*'s word choice was Guattari's claim that it was "at once a notion poorer in comprehension than [Freud's] complex and richer in extension."[523] We have seen Guattari's reasons for wanting vocabulary flexible enough to accommodate the analysis of all sorts of things, but someone might worry that the term risks diluting its critical advantages by overextension and overapplication: someone like Ian Buchanan.

Ian Buchanan was among those concerned over the decision to translate *agencement* as "assemblage," and he cited two main reasons for his concern. First, he claims that assemblage fails to convey the relationship between agency and *agencement* that he takes to be central to the latter's definition. Second, he worried that overextending assemblage such that it applies to any and everything would compromise the term's critical value.[524] The idea is that, if everything is an assemblage, nothing is an assemblage; it ceases to be an informative concept. Owing to what we have seen regarding *agencement*, the components of its definition(s) and the conceptual issues it concerns, nothing forbids us from applying it universally, *pace* Buchanan. His concern is valid only on condition that the concept refer to a distinct class of entity or a kind of object. As the course of this project has demonstrated, however, this is not the case: an *agencement* is not a thing but a perspective (a *plan*) of things. More to the point, it is a perspective of the perspectives of things (a *plan* of *plans*).

When Buchanan says that *agencement* risks losing its "critical edge," he likely

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[523] Félix Guattari, "1980 – Petites et grandes machines à inventer la vie: Entretien avec Robert Maggori," in *Les Années d'hiver: 1980-1985* (Paris: Bernard Barrault, 1986), 156.

[524] See Buchanan, 391.

means that the term's value for analysis derives from leveraging its distinction from other terms. A general danger facing reductive explanations is that they lose their explanatory power by impoverishing the world, failing to take real differences into account. In this case we have nothing to worry about: a general theory of *agencement* does not risk winnowing the world down to a single account because, as we saw in the second chapter, it offers more than a single account. An *agencement* simultaneously characterizes heterogeneous *plans*—moreover, it implies simultaneous, heterogeneous accounts for how its heterogeneous *plans* coexist. What we call an *agencement* is both and equally an *agencement* of bodies and an *agencement* of statements, of content and expression; it can be described both and equally in terms of its organization and in terms of its consistency; it both forms a concrete diagram and expresses an abstract diagram.

To demonstrate why looking at *agencement* as an approach rather than an as an entity would obviate Buchanan's concern, recall our discussion of Hjelmslev's linguistic framework. He proposes a method based on what Siertsema called a "heteroplane function,"[525] and it applies universally to all linguistic systems, as well as to all non-linguistic semiotic systems. Not only does this not result in Hjelmslev's inability to attend to important differences between systems with any specificity, it is in fact precisely what allows him to attend to such differences. In other words, the differences separating semiotic systems does not pose a problem for Hjelmslev because the differences between systems and *plans* are precisely what his "heteroplane" framework was formulated to address. Likewise, Deleuze and Guattari arrive at *agencement* because it banks on the

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[525] Siertsema, 19.

heterogeneity of different *plans.* An *agencement* is a *plan* of *plans*—the sort of *plan* which makes something visible, which "allows us to see, sense, or think."[526] The "critical edge" of Hjelmslev's perspective thus relies precisely on its universal application.

Likewise, while one might worry that an extensive notion of design may impoverish its meaning, we have good reason to think of design, too, as a mode of considering form rather than as a distinct type of form. The archaeologist interested in ceramic design has several ways of understanding the word, design," and each of her options offers a legitimate and complete account of the same artifact. She might attribute design to a form according to evidence of use or wear. She might read design based on the circumstances of its stratigraphic and non-stratigraphic contexts, or consult its design, otherwise understood, to reveal something about these contexts. She might define and classify ceramic designs according to the actual record of their endurance, transmission, and distribution—ever attentive to the statistical curve of their find frequencies. On the other hand, she can attend to the "inner" nature of the design, looking to its place in a morphological continuum and consider its possible as well as its actual use.

If one insists on isolating design as a type of object, one is hard pressed to pin down a single candidate for what this object would be. This is well-attested in the work of architectural design group, Atelier. What are we calling *the* design? Is it an idea in the mind of the designer independent of any realized product ("This isn't my design!")? Is it the drawing—and if so, do we mean one sort of drawing in particular, or do we mean the entire collection of drawings? Perhaps "the design" refers to the model. In that case,

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[526] Lapoujade, 182.

ought we turn to one of the many sketch or concept models, or should we privilege the final presentation model? Maybe the architectural design *qua* object is simply the final building—but what about the landscape in which the building is situated? And so on.

The difficulties compound. Atelier homes in on the "design thing" as a concept with material, social, and semiotic dimensions. Their account underscores how heterogeneous points of view and usages to which a design thing is amenable collectively fragment or stratify it. The "thing" is no longer a single entity; in their report of the design process, the "same" design object is incarnated in different representations that they call its "constituents."[527]

> What is the villa designed by our architects and discussed by their customers? The villa is the object of the activity of the architects and of their interaction with their customers, but people interact with it through different artifacts and representations.[528]

Any view of the villa according to which it is an object—including the so-called "final product"—is but a partial view, a set of possibilities or affordances. Atelier claims to have shown that the design *qua* object does not "exist *per se*; [it exists] only through [its] several diverse constituents."[529]

Allowing design such comprehensive extension and interpreting it as an approach to things rather than as a type of thing brings us to a common thread in design's treatment in the philosophy of technology and the philosophy of biology. To its broad extension one might object: nevertheless, are not some phenomena unsuited for the terms of

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[527] Atelier, 57.

[528] *Ibidem.*

[529] *Ibid.*, 59.

design? What about biological forms, which by definition lack a designer and are different in kind from designed forms? To its distinction as an approach rather than as an entity one might object: is this not how function theory proceeds in the philosophy of technology and the philosophy of biology? There, "design" is a matter of how teleology figures into our descriptions of things; the controversy concerns the functions of things rather than the things themselves.

The rest of this chapter will meet these objections by reviewing the concepts and controversies surrounding design and function in the philosophies of technology and biology. To preview our trajectory—if design is an approach to things rather than a kind of thing, then we will have better luck applying it as broadly and with as much flexibility as Guattari had demanded from the notion of *agencement*. There are a few areas of study, however, where design has not been warmly received, such as that of biology and Darwinian evolution. The reason for this is ostensibly because, since design is primarily defined by function, biological and artificial forms do not relate to their functions in the same way, barring any useful comparison between them. We will look at theories of function in general and then consult a few Dutch figures who write on technical functions, in particular, and specify *use* as crucial for understanding function. These Dutch figures will in each case understand artificial function as primarily "intentionalist," which is precisely the point of contention with philosophers of biology: organisms aren't designed machines and their development is not driven by any intention. In both cases, however, authors will limit their consideration of design to *engineering*. If this limitation is not warranted, then we might uncover further reasons for talking about biology in terms of design, since it will no longer require necessarily invoking intended or

intential function.

Through the course of this review we will identify frequent assumptions about design which stymy efforts at a comprehensive theory of design and which deserve much of the blame for the design's discomfort in evolutionary biology. Our understanding of design will suggest a new way forward for which design and design analogies are well-suited for biological description, and for which biology and biological analogies are well-suited for thinking about non-biological design. Hopefully it will also suggest an opportunity to coordinate other biological concepts which do not otherwise fit together comfortably, a few of which themselves subject to some controversy.

FUNCTION THEORY

As part of the effort to ward off any unwanted teleological implication, some writing in the philosophy of biology and the philosophy of mind have turned to the concept of function to either to carefully distinguish artifacts from organisms or to isolate what they have in common. Discussions of function and functional analysis have endured as long as the philosophy of evolutionary biology itself. There is more than one way to summarize its history or classify the positions philosophers have taken, owing to the debate's longevity as well as the number and enthusiasm of its participants. A basic review of the literature reveals two main approaches to function from the perspective of the philosophy of evolutionary biology: a systemic or causal-role analysis of function and an etiological analysis.[530]

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[530] Some might further divide the discussion among those who understand function, e.g., in terms of its contribution to the survivability of its bearer, or in terms of its bearer's evolutionary inheritance. In my view these are variations of the etiological model's basic premise. I recognize that this may put serious limits on my coverage; certain important distinctions and arguments are either lost or skewed. See for

The difference between the two outlooks is evident in how their proponents might interpret the following statement: *the function of the epiphragm is to prevent snails from drying out during hibernation.* As the name implies, a systemic view of function would entail understanding the snail as a system of components both anatomic and behavioral. The snail-system is complex; there are many capacities which we might attribute to it as a whole, among which is the snail's capacity to maintain its moisture levels during dry spells. Explaining this capacity would absolutely require us to mention some of its components, while other components would be irrelevant to such an analysis. One such component is the epiphragm, a temporary structure of calcium or hardened mucus with which the land snail seals up its shell's opening. It is in the context of the epiphragm's role in the overall system's capacity that we ascribe it a function.

Such is Robert Cummins's argument in his classic proposal of the model in his 1975 "Functional Analysis."[531] The causal-role definition of function responds to two assumptions made of functional description: first, that its goal is to explain the presence of the thing described; second, that performing a function means to have certain effects on a system which help cause the system to perform or maintain certain actions. At best, these assumptions fail to identify what is distinctive about functional description, and at worst, they are to blame for the close alliance between functional explanation and teleology. He identifies several issues with both assumptions and the theories of function

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example Ruth Millikan's keen objection to Cummins's systemic theory of function: she takes Cummins to task for failing to distinguish between "proper" and "accidental" functions, and this is because, among other reasons, the systemic model offers little (if any) criteria for what qualifies as relevant to the "system" in question. See Ruth G. Millikan, "Biofunctions: Two paradigms," in *Functions,* eds. A. R. Cummins and M. Perlman (Oxford: Oxford University Press, 2002), 113-43.

[531] Robert Cummins, "Functional Analysis," in *The Journal of Philosophy* 72.200 (1975), 741-65.

which build on them, but for our purposes it suffices to say that they can lead function-attributing statements like "The function of the eye is to see" to appear to say, "Eyes exist in order to see, or in order to help eye-containing organisms see."

Cummins proposes a model of functional analysis which aims for an explanation of an activity's operation rather than an explanation for its presence. He claims that "to ascribe a function to something is to ascribe a capacity to it which is singled out by its role in an analysis of some capacity of a containing system."[532] In other words, following our example, the function of the eye is the capacity it has with a role to play in the causal account for the capacity of the larger eye-containing system for sight. Cummins offers the assembly line as a non-biological analogy:

> Production is broken down into a number of distinct tasks. Each point on the line is responsible for a certain task, and it is the function of the workers/machines at that point to complete that task. If the line has the capacity to produce the product, it has it in virtue of the fact that the workers/machines have the capacities to perform their designated tasks, and in virtue of the fact that when these tasks are performed in a certain organized way—according to a certain program—the finished product results.[533]

In short, the systemic theory of function does not concern itself with the question, "How do you explain the presence of the snail's epiphragm?" Cummins and philosophers like him are less concerned with such etiological questions than they are with explaining how a system exhibits the capacities that it does: "How do you explain the snail's capacity to stay moist in times of drought?"

Complaints about the teleological suggestion of functional description typically

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[532] *Ibid.,* 765.

[533] *Ibid*., 760.

have in mind an etiological theory of function, such as that proposed by Larry Wright.[534]

As the theory's name suggests, authors like Wright see no issue in attributing etiological

value to functional description; the issue is rather how functional etiology differs from

other forms of etiology.[535] He argues that the key distinction resides in the fact that

functional etiology simultaneously presents function as both reason and as consequence:

an organ is there because of its function and its function is a consequence of its being

there. Wright explains:

> When we give a functional explanation of *X* by appeal to *Z* ("*X* does *Z*"), *Z*
> is always a consequence or result of *X*'s being there. […] So when we say
> that *Z* is the function of *X*, we are not only saying that *X* is there because it
> does *Z,* we are also saying that *Z* is (or happens as) a result or consequence
> of *X*'s being there. Not only is chlorophyll in plants *because* it allows them
> to perform photosynthesis, photosynthesis is a *consequence* of the
> chlorophyll's being there.[536]

Wright offers the most straight-forwardly etiological view; while major figures

like Karen Neander and Ruth Millikan (to name but two) disagree with or seek to

improve on aspects of Wright's position, all etiological theories of function agree on the

end of functional explanation: why is *X* there? Wright was careful on this point, but

perhaps not careful enough. He notes that the phrase, "is there," as in "*X* is there because

it does *Z,*" "can only sometimes, but not usually, be rendered 'exists (at all).' So, contrary

to many accounts, what is being explained, and what *Z* is the result of, can very often *not*

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[534] See Larry Wright, "Functions," in *The Philosophical Review* 82.2 (April 1973), 139-68. It should be said, however, that although Wright's essay is frequently cited as an important landmark in the debate over biological function, Wright himself had other ambitions. His intention was to explain function in general rather than to distinguish biological from non-biological functions. His place in the conversation thus warrants an asterisk.

[535] *Ibid.,* 159-61.

[536] *Ibid*., 160.

be characterized as 'that *X* exists' *simpliciter*."[537]

When such a view narrows in on biological function, however, Wright's defense is unsatisfactory; philosophers of biology and mind wanted clearer means for distinguishing "*X* is there" from "*X* exists *simpliciter*." This lens is sufficient for understanding the different etiological theories of function. Neander understands "*X* is there" to mean that *X* is present as the product of natural selection, and its function is that of *X*'s effects which explains its selection.[538] Millikan largely agrees but attaches her definition of function to "the *history* of an item […] rather than to the item's present properties or dispositions."[539] Millikan reports the main difference to be that she is less interested in "conceptual analysis" than are Neander and Wright.[540] We might instead argue that, although all three authors share etiological commitments and believe that functional explanation necessarily invokes the fact that "*X* is there," Millikan stands apart for viewing function as the explanandum rather than explanans. For Wright and Neander, function *Z* is what explains the presence of feature *X*. For Millikan, we can explain the proper function *Z* of *X* by means of *X*'s history: *X* was produced or reproduced because it successfully performed *Z*; *X*'s evolutionary history requires us to interpret *Z* as *X*'s "proper function." To gain further ground in distinguishing biological functions from the functions of artifacts, we now turn to authors who focus on the latter.

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[537] *Ibid.,* 160n19.

[538] Karen Neander, "The teleological notion of function," in *Australasian Journal of Philosophy* 69.4 (1991), 454-68.

[539] Ruth Garrett Millikan, "In Defense of Proper Functions," in *Philosophy of Science* 56.2 (June 1989), 288.

[540] *Ibid.,* 290. Millikan also refers us to Chapter 9 of Ruth Garrett Millikan, *Language, Thought, and Other Biological Categories* (Cambridge: MIT Press, 1984).

THE DUTCH STUDY OF DESIGN

We will keep our eye on both theories of function since they will inform the discussions surrounding technical artifacts and evolutionary biology, and aspects of both will carry over into our own take on design. Over the past 20 years, a group of Dutch philosophers and theorists from Delft and Eindhoven have thrown their weight behind the effort to legitimize engineering and design as objects of philosophical study: the debate and collaborative efforts between Maarten Franssen, Pieter Vermaas, Wybo Houkes, Anthonie Meijers, Peter Kroes, and others offer fertile ground for thinking through the definition of design and the philosophical problems it raises. The hallmark of this vein of the literature on technical artifacts is its contrast with the enduring, influential theories of function which focus on the function of biological forms and only refer to artifacts insofar as these confirm or challenge the biological example under discussion. Philosophers have long complained that general and biological theories fail to consider the nature of artifacts in particular. Technical functions and non-biological design are taken for granted as a framing device for the philosophy of biology, or it is assumed that artifacts are more straightforward than biology and thus warrant less discussion.[541]

In the fourth chapter, we saw that several of an object's formal aspects often assumed to be incidental to the object's design were in fact indissociable. Because

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[541] A definitive form of this complaint comes to us from Beth Preston, who has argued against two of the field's biggest assumptions. First, she challenges the idea that "an adequate general theory of function can be arrived at without adverting to the functionality of artifacts" (Beth Preston, "Why is a Wing Like a Spoon? A Pluralist Theory of Function," in *The Journal of Philosophy* 95.5 (May 1998), 216). While at first glance it seems counter-intuitive to her first point, in the face of recent interest in synthetic biology she challenges the clean separation between the artificial and the natural. Technology has not recently blurred the distinction: the line was blurred from the very beginning, going back at least as far as to the advent of agriculture. See Beth Preston, "Synthetic biology as red herring," in *Studies in the History and Philosophy of Science Part C* 44.4b (December 2013), 649-59.

unintended, emergent forms of game play, glitches, bugs, and exploits are taken to be accidental rather than essential; they may be of practical interest to users and developers, but they run counter to or are beside the "point" of the design proper. Our review of these phenomena suggested that the very aspects which provided for "the design" were those responsible for its unintended consequences; while a definition of design cannot do without some reference to purpose, we cannot take for granted that it tells the whole story. In order to work toward a different relationship between design and purpose, we will consider how the use of design figures into its definition. Our engagement with the Dutch current of design philosophy will cover several positions which approximate aspects of our own findings thus far, but from which, I demonstrate, my view departs in crucial ways. In addition to clarifying my own position, reviewing their stances will help bring into focus the main problems and assumptions operative in the biological theory of function and the philosophy of biology's references to design.

THE LIMITS OF DUAL DESCRIPTION

A good example of the Dutch influence on discussions of design and technology—and an influential model for the study of technical artifacts—comes to us from a 2006 special issue of *Studies in the History and Philosophy of Science* on the "dual nature of technical artifacts."[542] In their introduction to the issue Kroes and Meijers claim that technical artifacts are uniquely subject to a double distinction: on the one hand they are distinct from social artifacts because "the realization of their function crucially

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[542] Studies in History and Philosophy of Science Part A 37.1 (March 2006).

depends on their physical structure," while on the other hand, they are distinct from other physical objects because they are "intentionally produced and used by human beings to realize certain goals."[543] Taking their cues from Davidson, they argue that we ought to embrace the double description of artifacts as physical and as intentional. Rather than deciding whether artifacts are best understood as physical structures or as intentional functions, they propose a concept which "*combines* two fundamentally different ways of viewing our world"—the world of causally-related physical objects and the world of agents who interact with and represent it according to reasons and intentions.[544]

Maarten Franssen takes issue with the dual-description model of design on the grounds that, if qualified, it can imply that "the character of an object as a particular sort of technical artifact is fixed."[545] Although he and I have different projects, Franssen's commentary on the dual-description model confirms the advantages offered by the view of design we have been working toward. In their early account of the model, Kroes and Meijers claim that designed objects "can only be described adequately in a way that somehow combines the physical and intentional conceptualizations of the world."[546]

On first review this ought to feel familiar since our discussion of *plans* made a similar point: what some designers refer to as the form and function of design now express two distinct ways of conceptualizing the world; we can describe design first in

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[543] Peter Kroes and Anthonie Meijers, "The dual nature of technical artefacts," in *Studies in History and Philosophy of Science Part A* 37.1 (March 2006), 1.

[544] *Ibid.*, 2.

[545] Maarten Franssen, "Design, Use, and the Physical and Intentional Aspects of Technical Artifacts," in *Philosophy and Design*: *From Engineering to Architecture*, eds. Pieter E. Vermaas, Peter Kroes, Andrew Light, and Stephen A. Moor (New York: Springer, 2009), 21.

[546] Kroes and Meijers, 2.

terms of its formal dimensions in the physical world (or *plan*), and/or we can describe it in terms of its purpose or function in the intentional world (or *plan*). However, Kroes and Meijers exhibit the same shortcomings we encountered with Davidson's anomalous monism. As Franssen points out, we need to go further if we want to account for design in its actual development and use:

> This may all seem straightforward, but what is not so straightforward is how these two aspects have to be brought into play, or what determines whether a description in which the physical and the intentional aspects have both been brought into play is "adequate," or what an adequate description says about the artifact it describes.[547]

Franssen follows up on two observations of design in order to specify why the relationship between physical and intentional descriptions is indeterminate and what the dual-description model fails to capture. First, the eventual design-user may attribute an intentional description to design which differs from that of its original designer. As a result, he finds it "unclear why the original designer should be given the right to determine" what a designed artifact "is for."[548]

> If anyone puts a particular object, be it an artifact or a natural object, to use, this person becomes in a sense the designer of a system figuring the object. He or she discerns certain properties in the object—most probably on the original designer's instruction, but that is not relevant for the point at issue, since it need not necessarily go like that—and then makes use of these properties to realize a particular outcome.[549]

Franssen's second point is thus that we ought to distinguish between what a design artifact is *made for* and what it is *used for*. We come to recognize that the

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[547] Franssen, "Design, Use," 22.

[548] *Ibid.,* 28.

[549] *Ibid.,* 28-9.

conditions of a design's construction are distinct from the conditions of its use. The chief

contribution of scholars like Franssen is that they insist on *use*, in addition to

construction, as an important factor for theoretical approaches to and definitions of

design, regardless of where they come down on so-called intentionalism. Rather than

characterizing design with intention in general, we have narrowed in on design's use in

particular, and an emphasis on use remedies both of the problems Franssen identified

with the dual model: if use reigns, then an artifact's intentional description is fixed only

as long as a certain use endures; we can also specify more clearly when a dual account is

adequate insofar as intentional and physical descriptions must be brought to bear with the

artifact's use.

USE PLANS

Wybo Houkes and Pieter Vermaas are other influential intentionalists who

emphasize the use of design to disrupt assumptions that leave intentionalism vulnerable

to criticism. Together and independently they have proposed a "use-plan analysis" of

artifacts: the understanding of the design process as the construction and transmission of

plans, defined as "orderings of considered actions, undertaken for achieving a goal."[550]

Design means the deliberate manipulations ordered in the sequence necessary for

obtaining an intended result. Thus, for example, the Dutch tea drinker approaches a tea

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[550] Wybo Houkes, Pieter Vermaas, and Marc de Vries, "Design and use as plans: an action-theoretical account," in *Design Studies* 23 (2002), 304. For the latest and most definitive account of their position, see Wybo Houkes and Pieter E. Vermaas, *Technical Functions: On the Use and Design of Artefacts* (Dordrecht: Springer, 2010), 18-21. See also Wybo Houkes, "Knowledge of artifact functions," in *Studies in History and Philosophy of Science* 37 (2006), 102-113. Houkes and Vermaas, "Actions versus functions: a plea for an alternative metaphysics of artefacts," in *Monist* 87 (2004), 52-71. Houkes and Vermaas, "Planning behavior: technical design as design of use plans," in *User Behavior and Technology Development,* eds. P.P.C.C. Verbeek and A.F.L. Slob (Dordrecht: Springer, 2006), 203-10.

bag with a particular use plan in mind:

> 1. *Boil fresh, cold water.*
> 2. *Pour the water in a tea pot.*
> 3. *Suspend a tea bag in the pot.*
> 4. *Wait.*
> 5. *Remove the bag from the pot.*
> 6. *Pour tea from the pot into a cup.*
> 7. *Drink.*[551]

This is still an intentionalist view of design, but rather than privileging the original intent of a real or fictional designer, the authors put all intended uses of a tea bag on equal footing, regardless of whether such uses are unexpected or contrary to the producer's wishes. Use-plan analysis has the advantage of demonstrating that our issue concerns a functionalism more than it does the role of intention. One need only recall one of Deleuze's stated reasons for settling on the concept of *agencement*: it is a substitute for the study of "behavior," and by redirecting our attention from discrete individuals to abstract and concrete conditions, this substitution is supposed to undermine a fixed nature-culture distinction.[552] Such is the aim of this chapter, to sketch out a view of design that overcomes the nature-culture distinction that makes design a fraught term for biological morphology. As with behavior, a narrow focus on design's function—be it intentionalist or anti-intentionalist, the producer's intention or the user's—is too discrete; defining design as use-plan construction is inadequate because, for example, the tea bag use-plan above offers no account for why the plan is or ought to be compatible with a given bag, kettle, water, and so on. One can submit the same object to different use-plans,

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[551] Houkes and Vermaas, *Technical Functions*, 19. One could draw a similar "use-plan" for the stone-sucking machine in *Anti-Oedipus.*

[552] See Deleuze, "Eight Years," 179/165.

and a very many different objects can satisfy the same use-plan.

In short, we need the means to relate different use-plans, as well as design's other *plans.* Design's controversy in the philosophy of biology stems in part from a lack of imagination: one takes design to be strictly a consideration of function, and thus design metaphors can only lead us to compare organisms and artifacts on the basis of their respective functions. The preoccupation with function is not the only common assumption about design; as we turn our attention to the philosophy of evolutionary biology, let us take stock of other assumptions which limit the discussion but which will also inform our definition of design.

WATCHMAKING WOES

The famous opening to William Paley's 1803 *Natural Theology* has been a centerpiece of discussion for centuries of debate over evolution, creationism, biological explanation, teleology, and biological morphology. The passage reads:

> In crossing a heath, suppose I pitched my foot against a *stone*, and were asked how the stone came to be there, I might possibly answer, that, for any thing I knew to the contrary, it had lain there for ever: nor would it perhaps be very easy to shew the absurdity of this answer. But suppose I had found a *watch* upon the ground, and it should be enquired how the watch happened to be in that place, I should hardly think of the answer which I had before given, that, for any thing I knew, the watch might have always been there. […] When we come to inspect the watch, we perceive (what we could not discover in the stone) that its several parts are framed and put together for a purpose. […] the inference, we think, is inevitable; that the watch must have had a maker; that there must have existed, at some time and at some place or other, an artificer or artificers who formed it for the purpose which we find it actually to answer; who comprehended its construction, and designed its use.[553]

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[553] William Paley, Natural Theology: Or, Evidences of the Existence and Attributes of the Deity, Collected from the Appearances of Nature (New York: Cambridge University Press, 2009), 1-4.

Watches and watchmakers have been bothersome even to those who dispute Paley's argument and are committed to Darwinian evolution. Although such thinkers would all agree that a divine watchmaker does not exist, there is some concern that the use of design metaphors—talking about organisms *as if* they were watches—may nevertheless smuggle in unwanted teleological implications. The question is over the role of design in biological description, how one ought to amend the original watchmaking analogy or else put it to rest.

Some authors like John Reiss find the language of design "entirely unnecessary" for the purposes of evolutionary biology; Reiss laments that our ideas of natural selection and the role it plays in evolution "are often derived not from the *mechanism* of natural selection but only from the *metaphor*."[554] It stands to reason that relying on teleological metaphors results in a teleological understanding of evolution, so we had better throw out the metaphor to save ourselves the trouble. Such is Reiss's argument in *Not by Design*—he claims to overcome Paley's watchmaker by recasting what an organism and watch have in common. Their connection lies not in their exhibiting design but in the fact that they both have *conditions d'existence,* a term that Reiss borrows from Georges Cuvier. Reiss writes: "If we observe that an organism exists, then it must be *possible* for it to exist, but this does not mean that it was *designed* to exist or that it *had* to exist."[555]

Michael Ruse readily admits that "the metaphor of design, with the organism as

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[554] John Reiss, *Not by Design: Retiring Darwin's Watchmaker* (Berkeley: University of California Press, 2011), 4. Emphasis in the original.

[555] *Ibid*., 18.

artifact, is at the heart of Darwinian evolutionary biology."[556] For Ruse, however, this metaphor poses less difficulty than appearances or critics would suggest. This is precisely *because it is a metaphor*; in his argument, the "whole point about analogies and metaphors is that they work only *because* of differences, as well as similarities, between the original object and that being compared metaphorically."[557] One of Ruse's examples is that of trilobite eyes: their complex, multi-lensed structure prevented spherical aberration, and their design was duplicated in "diagrams worked out by the seventeenth-century physicists Descartes and Huygens," a coincidence which is "no chance but evidence that something is afoot."[558] If this coincidence or evidence challenges our understanding of organisms, or instead our understanding of functional ends, so much the worse for our understanding. Rather than shying away from talk of purposes and ends, Ruse contends that this kind of reasoning is what sets biological understanding apart from other explanations of the world, and is thus something to be refined, accepted, and embraced.[559] The expressed concern of evolutionary biological explanation is to tell us what purpose a given piece of biology serves, or why a given morphology serves the purposes that it does.

Still, Richard Dawkins famously makes his case against the watchmaker

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[556] Michael Ruse, *Darwin and Design: Does Evolution Have a Purpose?* (Cambridge: Harvard University Press, 2003), 266.

[557] *Ibid.,* 275. Emphasis in the original.

[558] *Ibid.,* 266.

[559] *Ibid.,* 268. On this point, see also Tim Lewens, *Organisms and Artifacts* (Cambridge: MIT Press, 2004). "Biology is unique among the natural sciences in its use of a family of concepts that might seem better suited to the description and explanation of artifacts rather than the description and explanation of organisms" (1).

metaphor by way of Ruse's same example, that of the evolution of the eye.[560] Whereas

Reiss favors ditching the watchmaker entirely, Dawkins's criticism of the metaphor takes

the form of an important corrective to Paley's original imagery:

> A true watchmaker has foresight: he designs his cogs and springs, and
> plans their interconnections, with a future purpose in his mind's eye.
> Natural selection, the blind unconscious, automatic process which Darwin
> discovered, and which we now know is the explanation for the existence
> and apparently purposeful form of all life, has no purpose in mind. It has
> no mind and no mind's eye. It does not plan for the future. It has no
> vision, no foresight, no sight at all. If it can be said to play the role of the
> watchmaker in nature, it is the *blind* watchmaker.[561]

Whereas for Ruse the metaphor of design only implied some relationship between

morphological structure and purpose or function, Dawkins specifies that watchmaking is

characteristically driven by foresight, by the realized intentions of purposive agent; thus,

like Reiss, he doubts any meaningful relationship between organisms and artifacts—

unless it is tongue-in-cheek. This appears to reflect the philosophy of evolutionary

biology's general disposition regarding design, as evidenced by the work of Daniel

Nicholson.

DESIGN BEYOND ENGINEERING

Wary of unwittingly endorsing teleology, many writers express concern with the

use of machine or artifact metaphors, what Nicholson calls the machine conception of the

organism (MCO).[562] The figure of the machine, of design, is alleged to be the latest

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[560] Richard Dawkins, *The Blind Watchmaker* (New York: W.W. Norton, 1986). See pages 15-7 for
Dawkins's discussion of the eye in particular.

[561] *Ibid*., 5.

[562] While not a major voice in the literature, Nicholson's work is useful for our purposes because it is
emblematic of both old and new debates over design-in-biology. For the most part, he identifies his

avatar of mechanism; Nicholson laments that although mechanism "collapsed in physics following the quantum revolution of the early decades of the twentieth century, it somehow managed to survive in biology."[563] Nicholson's preoccupation with mechanism and machines offers the purest form of the widest and most basic assumption made of design, that design "belongs to the domain of machines."[564] My issue with Nicholson's work—again, serving only as an example—has less to do with the concept and history of mechanism in the philosophy of biology than it concerns his appeal to design. Despite his critique of "design" in biology, he devotes little to no attention to design as such. Nicholson cites a philosophical dictionary and takes its definition of design at face value: "the deliberate production of an object by an external agent so that it accomplishes a desired purpose."[565] Nicholson offers no further basis for his definition or for his choice of dictionary; nor does he cite a single designer or theorist of design outside the philosophy of biology, and thus he finds the major difference between organisms and

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misgivings with recent talk of "reverse engineering" biology with historical misgivings over the place of "mechanism" in the philosophy of biology. Daniel Nicholson, "The Return of the Organism as a Fundamental Explanatory Concept in Biology," in *Philosophy Compass* 9.5 (May 2014), 347-59. Daniel J. Nicholson and Richard Gawn, "Neither logical empiricism nor vitalism, but organicism: what the philosophy of biology was," in *History and Philosophy of the Life Sciences* 37.4 (December 2015), 345-81. For his full account of the MCO, see Daniel J. Nicholson, "Organisms ≠ Machines," in *Studies in History and Philosophy of Biological and Biomedical Sciences* 44.4 (2013), 669-78; and "The machine conception of the organism in development and evolution: A critical analysis," in *Studies in History and Philosophy of Biological and Biomedical Sciences* 48 (2014), 162-74.

[563] Daniel J. Nicholson, "Reconceptualizing the Organism: From Complex Machine to Flowing Stream," in *Everything Flows: Towards a Processual Philosophy of Biology,* eds. Daniel J. Nicholson and John Dupré (Oxford: Oxford University Press, 2018), 140. See also Daniel J. Nicholson, "The concept of mechanism in biology," in *Studies in History and Philosophy of Science Part C* 43.1 (March 2012), 152-63. There Nicholson draws up three types of mechanism from past and present philosophy of biology, and he endeavors to distinguish between mechanism-as-causal-explanation from mechanism-as-machine-like, such that he can salvage the former from the latter for the purposes of biological explanation (153-6).

[564] Nicholson (2014), 169.

[565] *Ibidem.* He cites Mario Bunge, *Philosophical Dictionary* (Amherst, NY: Prometheus Books, 2003).

machines to be that the latter are designed, because extrinsically motivated, whereas organisms are intrinsically determined.[566] The sticking point of design metaphors is that "in machines functionality entails design, [while] in organisms it does not."[567] Nicholson claims that the idea of "'design without a designer' is not only deceptive—it is also logically contradictory: 'design' means made by a designer."[568] While he may have implored us to consider what design "actually means," Nicholson offers no justification for accepting his definition of design, other than that it appears in a dictionary written for philosophers. Blind watchmakers or designs without designers are only logically contradictory if we accept the terms of Nicholson's argument, which we are by no means compelled to do. His definition fails to obtain for most theoretical and practical accounts of design as a project, process, or as an object of use; it fails to account for the unintended and non-intentional aspects of design; in sum, it is such an exceedingly narrow understanding of design that it writes off any meaningful application to biology in advance.[569]

In the end, many discussions of "design" in the philosophy of biology make the same assumptions about design as prominent design theorists, like Houkes and Vermaas,

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[566] Nicholson (2013), 671-3.

[567] Nicholson (2014), 169.

[568] *Ibidem*.

[569] Note, for example, how Nicholson compares machines/design (he sees these terms as synonymous) and biological organisms with regard to function: machines have functions, while organisms do not. In a footnote, he specifies that his understanding of "function" vis-à-vis long-running debates on the concept. The reader will notice that he, like many philosophers of biology, cites various special aspects, conditions, and sub-disciplines according to which this or that theory of function is rendered inadmissible for biological explanation. *Design*, on the other hand, is discussed *en bloc.* The etiological account of function, for example, "is too narrow to accommodate function-talk in areas of biology not directly concerned with historical explanation" (2013, 671n5). It is implied, by contrast, that all areas of design share the same concerns and are all equally suited to the same theory of function.

who tend to privilege engineering. It is unfortunately common for designers and theorists alike to treat a particular sort of design as paradigmatic for all design. Fields or aspects of design which do not conform to the consequences of such paradigms are either ignored or explained away as inconsequential exceptions to design's standard definition. While Houkes and Vermaas have a lot going for their account of use-plans, for example, the limits they place on their discussion are the limits of its explanatory power. They tend to focus on design as a verb; they treat it as a deliberative process, while any use of "design" as a noun is taken to be nothing more than short hand for that process.[570] In a way, this stacks the deck against any non-intentionalist understanding of design in advance: design is a deliberate process motivated by intentional use, and therefore one argues that design is defined by intention. On the face of it, our philosophers of biology appear to make the opposite assumption: they assume design more as a noun than as a verb. When comparing or contrasting biological "design" with the design of artifacts, one rarely has in mind the process of designing; one is more likely thinking of the relationship between a form and its intended function. Biological forms do not have intended functions, whereas design is defined by intended function.

If the assumptions made by design theorists like Houkes and Vermaas, on the one hand, and philosophers of biology, on the other, disagree on whether design ought to be understood as a noun or as a verb, why do they arrive at similar conclusions about the role of intention in design's definition? The answer lies in their choice of representative design—primarily, engineering and product design. A major gap in both sets of accounts

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[570] See some of Houkes and Vermaas's titles: "Designing as the construction of use-plans," etc.

is that there is no room for design in the fine arts. One is able to privilege function in the description of artifacts and to do so strictly in terms of use plans, only on condition that one rules out other kinds of design. What is the use plan of a painting? How does the design of a snail's epiphragm compare to that of stage design or cinematography?

Let us return to Franssen's work for another example. By emphasizing design's use, Franssen succeeds in allowing for design's intentional descriptions to be indeterminate, and he challenges the standard dualism between physical and intentional description by distinguishing between what design is made-for and used-for. However, as Franssen himself admits, this requires him to limit his account to tangible artifacts. Non-material artifacts—e.g. user experience design—and design in the fine arts are set aside for the sake of argument, likely because such examples are too immediately intolerable for dual-description design (as well as use-plan analysis). Franssen's view also disqualifies the unintended waste or byproducts of designed material artifacts (be they the result of construction or of use), in what might qualify as circular reasoning.[571] Again, my impression of the problem is that authors approach design with the intention of discussion intention. It is taken for granted that design primarily involves intention, and so they see it as their task to figure out how intention is involved, to what extent, and with regard to what aspects of the design or stages of the design process. And if we assume that design is primarily about intention, we have no reason to consider design's waste or byproducts, since these are by definition unintentional. Including the fine arts also becomes a non-starter since the language of artistic intention (*a fortiori* the "use" of art) is hard to

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[571] For his comments, see Franssen, 21-2.

reconcile with the intentional description of engineering design. One could read such authors as saying, "In order to understand how design is driven by intention, I have limited my study to the design of intentional objects, and on that basis, I conclude that design consists in its intentional description."

Philosophers make broad claims about whether design metaphors are fit to discuss biology—on the basis of very narrow considerations or varieties of design. Houkes and Vermaas purport to account for the design of artifacts but bracket any consideration of aesthetic or scientific artifacts for the sake of their argument.[572] The subtitle for their major work is "On the Use and Design of Artefacts," but they have in mind only the technical artefacts designed by engineers (and only in certain regards). The limits imposed on design by biologists are no better. In their review of the twenty year aftermath following Stephen Jay Gould's spandrel argument (see below), Pigliucci and Kaplan rehearse a theme common to both the defense and critique of design in biology:

> Although a purely engineering approach is not informative because it fails to account for historical pathways, once we take enough of the organism's basic developmental features into account, an analysis in terms of optimization theory can be revealing.[573]

I do not dispute the fact that turning to optimization theory can be illuminating for understanding certain aspects of biological form, but the problem is that nearly all comparisons drawn between design and biology start and end with the "purely

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[572] Houkes and Vermaas, *Technical Functions*, 1.

[573] Massimo Pigliucci and Jonathan Kaplan, "The Fall and Rise of Dr. Pangloss: Adaptationism and the Spandrels Paper 20 Years Later," in *Trends in Ecology & Evolution* 15.2 (2002), 67. It is unclear whether this comment is intended to defend the reference to design or to engineering design in particular. It's certainly not the case that design (in general) "fails to account for historical pathways." An expert appraiser on *Antique's Road Show* is concerned with the function and inner workings of a design's elements but by no means loses sight of its "historical pathways." Quite the contrary!

engineering approach." Tim Lewens, for example—just like Nicholson, Pigliucci, and Kaplan—makes this same assumption about artifacts and design: that design is, ideally or in actuality, the optimal solution to a design problem. This works well enough for engineering design, but it remains to be seen whether this assumption obtains for other forms of artifacts or design processes. Lewens writes, "In the artifact case we can think of the artifact which is produced, as that member of a set of candidate solutions that best balances the competing criteria of choice that are brought to bear by the artificer."[574] Lewens is different insofar as he is willing to include aesthetic artifacts and fine arts design in his account, but his aesthetic examples are head-scratchers. To demonstrate the difference between competing accounts of how natural selection works, he describes an artist who always chooses pigments closest to her: the color schemes in her final products would be "naturally selected" by the pigments' relative proximity.[575] Such examples, it becomes apparent, are not intended to say anything about the nature of fine arts design and do not consult the work of actual designers and artists. Painting is entirely incidental to Lewens's point.

At worst, non-engineering design is dismissed because its inclusion would pose a serious problem for these theoretical accounts of design and the relationship between design and biology. At best, the assumption appears to be that engineering design simply offers the most straightforward account of what characterizes design in general: design is the pursuit of the optimal solution to a given problem; design is defined and driven by its function, its intentional function; to design or analyze design is to consider the efficiency

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[574] Lewens, Organisms and Artifacts, 45.

[575] Ibid., 48.

with which it realizes its intended function. And so on. The question becomes whether these statements apply to the "design" of organisms—one compares the two on the basis of their respective functions and their functional optimization.

OTHER BIOLOGICAL DESIGNS

It bears mentioning, however, that not all philosophers of biology share these assumptions about design.[576] Their approaches to design may give us the opportunity to revisit Paley's watchmaker and rethink the value watchmaking can offer to the philosophy of biology. We should mention the work of François Jacob, Stephen Jay Gould, D'Arcy Wentworth Thompson, and Gregory Bateson. Like the other philosophers of biology we have seen, François Jacob and Stephen Jay Gould want to steer clear of teleological language in their approach to evolutionary biology. Unlike the others we have seen, though, Jacob and Gould do so not by avoiding design metaphors but by means of design metaphors, through the concept of "tinkering" [*bricolage*] and the architectural example of the spandrel, respectively.

In an influential essay entitled "Evolution and Tinkering, Jacob rehearses many of the problems with thinking of biology in terms of engineering—whether that means

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[576] Although she is not yet as influential in the field, Sara Green's work is another good example worth mentioning. Sara Green, Arnon Levy, and William Bechtel, "Design sans adaptation" in *European Journal for Philosophy of Science* 5.1 (2015). She and her colleagues do not consider design in terms of a deliberate process or in terms of intentional agents. Instead, she suggests we "thin out" design, leaving the process, agent, and intentions to one side such that we are left with "the design [a system] has, as it were, rather than what it was designed to do [i.e.] the abstract organizational pattern in virtue of which it behaves as it does" (24). See also Ulrich Krohs, "Functions as based on a concept of general design," *Synthese* 166 (2009) 69-89. Krohs's account is influential; like Green, he argues that design is distinct from the design *process*, and only the former is useful for biological explanation. For Green, though, design offers a meaningful analogy for biological forms since it involves thinking of structures and functions in terms of their dependency relations. Sara Green, "Revisiting generality in biology: systems biology and the quest for design principles," *Biology & Philosophy* 30 (2015), pp. 629-52

thinking of natural selection as an engineer who develops biological forms for maximum efficiency or thinking of evolutionary biology as an analog for reverse engineering. The engineer is a poor candidate for representing natural selection first because she builds according to a pre-determined plan; second, the engineer works with material that has been prepared with her plan specifically in mind; third, if she is a good engineer, her products will be as perfectly designed as current technology allows.[577] Instead of an engineer, Jacob likens the process of evolution to a tinkerer [*un bricoleur*]. A tinkerer makes do with whatever is on hand: "In contrast with the engineer's tools, those of the tinkerer cannot be defined by a project. What these objects have in common is 'it might well be of some use.' For what? That depends on the opportunities."[578]

Others in the 20th century, like Stephen Jay Gould, objected to mainstream accounts of adaptation and called for a new synthesis in the theory of evolutionary biology. Design is an inconvenient metaphor for biology when adaptation is understood as a feat of engineering driven by efficiency; like Jacob, Gould swaps efficiency out for opportunity. Evolution becomes a primarily opportunistic process. Gould accused evolutionary psychologists and sociologists in particular of what call "Panglossianism." The latter is a reference to a character from Voltaire's *Candide*, Pangloss, for whom we live in the best of all possible worlds.[579] This being the best of all possible worlds, it would stand to reason that everything which exists is the deliberate and carefully

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[577] François Jacob, "Evolution and Tinkering," *Science* 196 (June 1977), 1163.

[578] *Ibid.,* 1164.

[579] Obviously, Pangloss was intended to swipe at Leibniz.

prepared result of all cosmological history. According to Pangloss: "Things cannot be other than they are… Everything is made for the best purpose. Our noses were made to carry spectacles, so we have spectacles. Legs were clearly intended for breeches, and we wear them."[580] The Panglossian attitude was an example of what Gould and others called adaptationism. The adaptationist's engineering-inspired approach to natural selection ran the risk of implying that morphological developments were predated by the functions or purposes to which they have been committed: e.g., seals needed to swim, and their limbs *adapted to* that function.

Rather than as an engineer motivated by efficiency, evolution acts more as a tinkerer who makes use of any resources on hand based on what they afford in light of a new opportunity. This leads us to the concept of *ex*-aptation. Exaptation is a term that sparked controversy when Gould first introduced it but which has failed to gain traction in the literature since. Gould was indeed concerned over the teleological or quasi-teleological language in adaptational explanations, but he was worried less about invoking the specter of creationism than about a gap in explanatory power.

The "adaptationist programme," for Gould, "proceeds by breaking an organism into unitary 'traits' and proposing an adaptive story for each considered separately. Trade-offs among competing selective demands exert the only brake upon perfection; non-optimality is thereby rendered as a result of adaptation as well."[581] His suggestion is

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[580] Stephen Jay Gould and Richard Lewontin, "The Spandrels of San Marco and the Panglossian Paradigm: A Critique of the Adaptationist Programme," in *Proceedings of the Royal Society of London: Series B, Biological Sciences* 205.1161 (1979), 583.

[581] *Ibid.,* 581.

to make more room for contingency in the course of natural history, developments which are contingent upon existing constraints, rather than harmonious purposes which beckon further development.[582] Instead of analyzing organisms into single, adaptive traits, he suggests thinking of them as "integrated wholes, with *Baupläne* so constrained by phyletic heritage, pathways of development and general architecture that the constraints themselves become more interesting and more important in delimiting pathways of change than the selective force that may mediate change when it occurs."[583] He and his co-author, Richard Lewontin, offer a list of alternative ways to explain an organism's trait in evolutionary terms:[584]

1. No adaptation and no selection: the result of genetic drift.
2. No adaptation and no selection per se: the trait was selected indirectly by its association with another, directly selected trait.[585]
3. Selection without adaptation.[586]
4. Adaptation without selection.[587]

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[582] *Ibid.,* 582. Their oft-quoted architectural metaphor here is that of *spandrels,* decorated triangular spaces at intervals along the walls supporting a dome (the basilica of St. Mark's in Venice, in this case). "The design is so elaborate, harmonious and purposeful that we are tempted to view it as the starting point of analysis, as the cause in some sense of the surrounding architecture. But this would invert the proper path of analysis" (582). One builds a dome and finds that spaces emerge as a by-product; these by-products are put to use and covered in mosaic, but they were not made "for" mosaic, just as the dome was not built "for" spandrels. Contingent developments arrive at functions which, in retrospect, appear necessary. Such appears to be Gould's view.

[583] *Ibid.,* 581. Also, *Bauplan* is the German term for "body-plan," Cuvier's *plan d'organisation*.

[584] I am summarizing *Ibid.,* 590-3.

[585] Sometimes referred to as *genetic draft*. For example, cf. John H. Gillespie, "Genetic Drift in an Infinite Population: The Pseudohitchhiking Model," in *Genetics* 155.2 (2000), 909-19

[586] Lewontin gives the example of a rapid increase in egg-laying that does not result in an increase in offspring.

[587] For example, the kind of phenotypic variation one finds with organisms with wide geographic distribution.

5. Adaptation and selection but no selective basis for differences among adaptations.[588]
6. Adaptation and selection, but the adaptation is a "secondary utilization."

The last entry on the list of alternatives to "adaptationist" explanation, i.e. the selection of "secondary" utilizations, comes to be known as *exaptation*.[589] Gould defines adaptation as "any feature that promotes fitness and was built by selection for its current role," whereas an exaptations were "evolved for other usages (or no function at all), and later 'co-opted' for their current role."[590] Over the years he provided several examples of exaptation, but the one that has gotten the most traction in the literature is that of feathers.[591] The fact that feathers have been discovered on the remains of non-avian dinosaurs incapable of flight suggests that they were originally developed and selected for purposes other than flight, that feathers offered resources well-suited for a new

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[588] "When 'multiple adaptive peaks' are occupied, we usually have no basis for asserting that one solution is better than another," (Gould and Lewontin, "The Spandrels," 591).
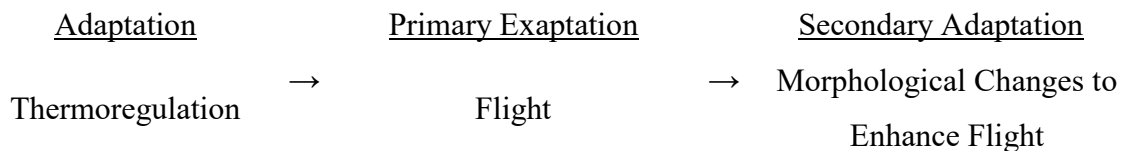
[589] Stephen Jay Gould and Elisabeth S. Vrba, "Exaptation—A Missing Term in the Science of Form," in *The Philosophy of Biology,* eds. David L. Hull and Michael Ruse (Oxford: Oxford University Press, 1998) 52-71.

[590] *Ibid*., 55.

[591] Another example is that of insect wings, first discussed by Kingsolver and Koehl (1985). In the words of one commentary on the issue: "Small proto-wings in insect-sized creatures provide no aerodynamic benefits, but are effective thermoregulators. Larger wings were selected to provide better thermoregulation, although beyond a certain size, increasing proto-wing size provides no further thermoregulatory benefit. However, the largest size that was selected for thermoregulation also happened to be aerodynamically effective"—from Fleming and Brandon, "Why Flying Dogs are Rare," in *Studies in the History and Philosophy of Biological and Biomedical Sciences* 49 (2015) 26. In Gould's wake several, like Fleming and Brandon, have called for a more robust theory of contingency. At a certain size, wings "just happened" to be great thermoregulators *and* aerodynamic; but the thermoregulative function of panting is unlikely to make dogs more aerodynamic. "Flying dogs are rare," and pure chance doesn't offer a strong enough explanation as to why. This sort of problem occasions a live debate in the philosophy of evolutionary biology that, in the service of time, is not covered in this review: the question of so-called zero-force laws in biology. According to scholars like Fleming, Brandon, McShae, Rosenberg, and others, the contingency of pursuing one thermoregulating strategy over another can only be explained if selection is not the only determinant in biological change—if drift is the *default* state of biological existence, hence a zero-force law.

"opportunity," as Jacob might have put it. Feathers did not evolve as adaptations for flight; flight became possible via the exaptation of dinosaur feathers.

The concept of exaptation comes to occupy the place originally held by "pre-adaptation" and addresses the old problems posed by that term; Gould acknowledges its necessity as the only Darwinian solution to Mivart's old taunt that 'incipient stages of useful structures' could not function as the perfected forms do (what good is 5 per cent of a wing?)."[592] Exaptation, as the repurposing of something which serves a purpose, helps Gould schematize the evolution of flight feathers in a way that sidesteps that problem. Feathers, a morphological development that aids in thermoregulation, are exapted for the purposes of flight. Perhaps feathers-as-thermoregulators are also the result of exaptation, derived from some prior form serving other purposes.[593] At any rate, we get the following cycle between adaptation and exaptation (Figure 23).

Adaptation		Primary Exaptation		Secondary Adaptation
Thermoregulation	$\rightarrow$	Flight	$\rightarrow$	Morphological Changes to Enhance Flight

Figure 23 – Adaptation/Exaptation cycle in the evolution of feathers

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[592] Gould and Vrba, 64. *N.B.* Bracketing whether "Mivart's old taunt" holds water for the case of wings and aerodynamics, not everyone is convinced of this criticism against natural selection or adaptation. Richard Dawkins, for example, writes: "Vision that is 5 per cent as good as yours or mind is very much worth having in comparison with no vision at all. So is 1 per cent vision better than total blindness" (41).

[593] Some, like Daniel Dennett, have objected on grounds similar to this presentation that exaptation adds nothing to the conversation, that it is not distinct from how adaptation is already understood. I refer the reader to David Michael Buss, Martie G. Haselton, Todd K. Shackelford, A L Bleske, and Jerome C. Wakefield, "Adaptations, exaptations, and spandrels," in *The American Psychologist* 53.5 (1998), 533-48. As the authors there rightly point out, exaptation does not have to be a unique process for it to be distinct from adaptation. *Contra* Dennett, the distinction is meaningful because it has explanatory power that adaptation lacks. Thus it is very well possible in the above feather example that the same step be legible as both adaptation and exaptation (depending on what other step one focuses on).

One could interpret Gould's intervention along the same lines as that of D'Arcy Wentworth Thompson. In both cases there is an emphasis on *form* as distinct, albeit inseparable, from function, and form is said to influence function no less than function influences form. In order to obviate unwanted teleological implications, it is necessary for Gould that form be able to precede function, such that new functions can derive from or exapt prior morphological developments. Thompson's *On Growth and Form* likewise marches under the banner of form, running counter to a reluctance to "compare the living with the dead": when the zoologist sees the spiral form of a seashell, "he is prone of old habit to believe that after all it is something more than a spiral […] and that in this 'something more' there lives what neither mathematics nor physics can explain."[594] Rather than directed toward a final *telos,* the physicist employs abductive reasoning, like the Darwinian biologist, looking for antecedents.[595]

What the "living and dead" share is *form,* the accretion and subsistence of particular shapes under particular conditions. In this account, form is presented as a "diagram of forces," the forces which "have been impressed upon [an object] when its conformation was produced, together with those which enable it to retain its conformation."[596] As such, form is inextricable from a consideration of scale, direction,

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[594] Thompson, *On Growth and Form*, 3.

[595] Thompson claims that, although Darwin's account of adaptation seems to demand the use of a teleological principle, teleological reasoning is "but one way, not the whole or the only way, by which we may seek to learn how things came to be" (6).

[596] Thompson, 16. See also his note on snowflakes, reminiscent of Johann Kepler's short reflection on the same subject. Thompson, like Kepler, says that "[e]very snow-crystal tells […] the story of its own development" (411n2). See Johannes Kepler, *The Six-Cornered Snowflake*, trans. John Frederick Nims (Philadelphia: Paul Dry, 2014). Far beyond the scope of this review, it is interesting to note this presentation's proximity to the framework of so-called "Neo-Confucianism." Neo-Confucianism is the translation of 理学 [*lixue*] or "the study of principle." *Li*, principle, derives from the lines and veins present

and magnitude—the form of an organism is necessarily a "function of growth," an "'event in space-time,' and not merely a 'configuration in space.'"[597] An organism visibly, morphologically renders the history of its species' development, the history of its own development, as well as the lines of force impressing upon it in its *milieu*.

As a result, we have three perspectives which see biological form as analogous to design but which are not thereby committed to any quasi-creationist teleology, since they do not limit their understanding of design to that of optimally efficient engineering. Jacob likened the evolutionary process to the work of a tinkerer who makes do with whatever resources she has on hand, taking advantages on their affordances for new opportunities. Gould's intervention into "Panglossian" attitudes toward adaptation focuses on the example of architectural spandrels, structural by-products which have been exapted for new aesthetic purposes. And if Thompson's physicist sometimes sounds like an engineer, his engineering example is only useful for the role that abductive reasoning plays in assessing both biological forms and engineered structures.

All of this brings us back to William Paley, to the watch we find in the heath and presume to be the product of an intelligent watchmaker. The fraught nature of the watchmaker analogy requires that we limit the ways in which watches and organisms can be analogous (or not). The design of a watch is made with an intended function in mind, and its form bears a necessary relationship to its function. Thus, there is no comparison to be drawn between watchmaking and Darwinian evolution, since the latter is not

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in jade that inform a cutter where and how to carve. As such, in the context of Neo-Confucian metaphysics, principle explains both the law of something's development *as well* as the rule to which it must conform.

[597] Thompson, 283. This passage, and the chapter it comes from, demonstrates the extent to which growth and form must be thought together for Thompson, as suggested by his title.

intentional and its forms are not preceded by their functions. So the story goes. But there

may be other comparisons to be drawn with watchmaking, and there are limits to how

well that story applies even to non-biological design. As one biologist puts it, "it is not

clear how even real intentions and real plans explain the emergence of good design. It is

certainly not enough to explain how an excellent watch comes into existence to say that

the designer intended to make an artifact that would tell time."[598] We recall a similar

comment from design historian, Adrian Forty, vis à vis functionalist understanding of

design. If all there is to say about the emergence of new design is that the form of design

is defined and driven by its function, why did the Montgomery Ward catalogue offer so

many different pocket knives? Could the "131 different designs of pocket knife be said to

be the result of the discovery of new ways of cutting?"[599] Thus, we might benefit not only

from adjusting our understanding of design with regard to biology but also with regard to

design itself.

AFFORDANCE INSTEAD OF ESSENCE

What other conclusion can be drawn from a watch, if not that its form is an

efficient means for fulfilling its function of telling time? Martin Carrier presents a curious

account that bears a striking resemblance to our portrait of Deleuze's philosophy, with

heterogeneous *plans* stratifying the same substance.[600] If we consider the watch's

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[598] Lewens, 160.

[599] Forty, 93.

[600] Martin Carrier, "Multiplicity and Heterogeneity: On the Relations between Functions and Their Realizations," in *Studies in History and Philosophy of Biological and Biomedical Sciences* 31 (2000), 179-191.

technical function—that of telling time—we notice that there are many means and methods for realizing the same function: sundials, hourglasses, water clocks, atomic clocks, mechanical clocks, etc. In each case, the affordance of measuring time appears inherent to the form of the timepiece.[601] This is precisely what Carrier picks up on: despite all sharing the same basic affordance, some of these forms are *heterogeneous*; they "do not share a significant feature on the physico-chemical level."[602] Different forms afford the same function. What's more, though, is that Carrier makes the same observation from the other direction. The same object "may fulfill diverse functions under the same conditions," diverse functions that are, again, heterogeneous or "do not share a significant feature on the functional level."[603] He concludes that "the laws corresponding to the physico-chemical and the functional level, respectively cannot be smoothly integrated into the conceptual framework of the other level."[604] Rather than suggesting that one should abandon either physical or functional accounts of phenomena, be they biological or otherwise, this two-way heterogeneity motivates the requirement to think both frameworks in conjunction.

We wanted to show that design was broad and flexible enough to accommodate as many phenomena and at as many different scales as *agencement* was capable of in the

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[601] Carrier puts this in terms of nomic properties, those ascribed by a law to collect objects into natural kinds. Carrier writes, "[A]ll battered cars attract every other body by the force of gravitation. But they don't exert this force in virtue of being battered cars but in virtue of being massive bodies" (181). Hence, being battered is a non-nomic property. I find the concept of *affordance* more compelling in that its focus is on the object *itself,* as well as on the vast range of virtual functions which are only actualized in relation to an agent in a context. Nomic properties, as their name suggests, depend on laws under which an object may be appropriately subsumed.

[602] *Ibid.,* 183.

[603] *Ibid.,* 183-4.

[604] *Ibid.,* 190.

hands of Guattari and Deleuze. The terms of design are hotly contested in biology, for example, but we find that a lot of this has to do with the assumptions that frame and limit discussions of design on the part of design theorists and biologists alike. If we no longer limit ourselves to engineering and no longer think of efficiency or intentional function as design's only defining characteristics, we make room for other ways to bring design to bear on organisms. At the heart of Carrier's observations—and implied by the work of Jacob, Gould, and Thompson—is a concept familiar to us by now: affordance.

Now, the other, prevailing approach to design is what we might call essentialist or functionalist: the idea that design is defined by its being "meant for" a certain purpose. Under that view, one would be hard pressed to explain the sorts of unintended, emergent, and sometimes contradictory effects of design we discussed in the previous chapter. One might consider these effects as really distinct from the design itself, or dismiss them as consequences of poor design: surely, all unintended consequences could be prevented with better planning and design practices! The problem, however, is that unintended design effects are afforded by the very same parameters that afford intended design effects. The same engine responsible for cooling a building's interior is to blame for warming its exterior. Naomi Campbell was able to throw a phone at her assistant because the dimensions suitable for making phones portable also render it projectile. It is tempting to think that better design practice could account for the unintended, but this overlooks the fact that such effects can emerge much later in the presence of new circumstances, new "opportunities." It is not reasonable to expect the designer of the floppy disk to foresee future software trends which borrow its image as a skeuomorphic icon for "saving" document files, partly because the floppy disk itself contributes to the

circumstances under which it will later be repurposed.

I propose that affordance offers a better alternative to such an essentialist perspective. In the first place, it has the advantage of accommodating both intentional and non-intentional views of design. My goal is not to suggest that design *never* involves intended purposes and functions; rather, I propose that something like affordance ought to be more central to design's definition since it covers more ground by accounting for unintended design consequences in ways that "essence" cannot. Consider Houkes and Vermaas, committed intentionalist design theorists. While I use a tea bag according to the series of activities which make up its use-plan, according to my intentions and to the intentions of tea bag manufacturers, its use is *afforded* by the tea bag itself: "the physical structure of […] ordinary tea bags (i.e. not those filled with nitroglycerine) simply make[s] it impossible to use them effectively for ramming a storefront."[605]

Enter Carrier's almost-Deleuzian observations. Function and physico-chemical structure belong to heterogeneous *plans*. The same function can be realized by multiple, sometimes heterogeneous structures—but not just any structure will do. Structure can realize multiple, sometimes heterogeneous functions—but it won't fulfill just any function. Design is an account of affordance: there is something about function x that lends itself to be realized by certain structures and not others; there is something about structure y that affords certain functions but not others. According to Gould, feathers developed as thermoregulators but "incidentally" (according to a perspective which privileges them as thermoregulators) afforded the rudiments of flight. The process of

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[605] Houkes and Vermaas, *Technical Functions,* 7.

exaptation is precisely that of realizing the affordances which forms already harbor. As Jacob put it, it means that new affordances come to light in view of new opportunities, even though one is working with the same resources one had before.

Design tells the story of affordances, of how particular uses meet up with particular forms, of why affordances do or do not come to light, of heterogeneous *plans* which commutate, bolster each other, and cause each other to drift away (to new uses, new purposes, to destruction, reinvention, or obsolescence). Gregory Bateson, again, offers a good example for how this point of view applies to the realm of evolutionary biology and its account of adaptation; we need only interpret him broadly such that what he says about biology applies equally to non-biological design.

In his theory of evolutionary morphogenesis, Bateson identifies three levels or types of change at issue in biological evolution: change in genotype, morphological or somatic change, and environmental change.[606] Traits are not selected, for Bateson, by meeting specific genotypic or phenotypic criteria; rather, genotypic changes are more likely to aid an organism in survival, or in coping with environmental changes, if resulting phenotypic developments are flexible or variable enough to meet new (future) demands. The criterion for survival is not simply *fitness* to a given environment, since a

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[606] Gregory Bateson, "The Role of Somatic Change in Evolution," in *Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution, and Epistemology* (London: Jason Aronson, 1987), 346. 45 years later, philosophers of biology agree that changes in the environment play as much of a role in adaptation and selection as do genotypic or phenotypic changes. The specific form this insight takes in current literature appears under the rubric of "environmental heterogeneity": the diversity, density, and distribution of different species or physical formations in a given space. See Riin Tamme et al, "Environmental heterogeneity, species diversity and co-existence at different spatial scales," in *Journal of Vegetation Science* 21.4 (August 2010), 796-801; Zhiyong Yang et al, "The effect of environmental heterogeneity on species richness depends on community position along the environmental gradient," in *Scientific Reports* 5 (2015); Anke Stein et al, "Environmental heterogeneity as a universal driver of species richness across taxa, biomes and spatial scales," in *Ecology Letters* 17.7 (July 2014), 866-80.

change in environment would "select" for those organisms highly adapted to previous conditions. Bateson thinks of "both genotypic and environmental changes in terms of the *price* which they exact on the flexibility of the somatic system."[607] Adaptation alone offers an insufficient account. In light of what he calls an "economy of flexibility," we can talk about mutations in terms of their survival value "because it increases the overall flexibility of the organism, enabling [it] to survive *other* demands."[608] The organisms which survive are those with enough "left over" to meet new, unforeseen demands, those which are adapt*able* and not simply well-adapt*ed.*[609]

CONCLUSION: DESIGN AND AGENCEMENT

We wanted to find new terms with which to describe Deleuze's philosophy, since there were some issues with translating *agencement*—an important concept in his and Guattari's later work—as "assemblage." Our search made significant progress toward fulfilling the promise which concluded the first chapter. We hoped that the concept of design would be flexible and extensive enough to match Guattari's ambition for *agencement*, and that through the lens of *agencement* we might be able to bring together

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[607] Bateson, 349.

[608] *Ibid.,* 353.

[609] Gould and Vrba make a strikingly similar case: "the enormous pool of non-aptations must be the wellspring and reservoir of most evolutionary flexibility. We need to recognize the central role of 'co-optability for fitness' as the primary evolutionary significance of ubiquitous non-aptation in organisms. In this sense, and at its level of the phenotype, this non-aptive pool is an analogue of mutation—a source of raw material for further selection" (65). Bateson's left-overs lead him to describe a similar situation to what we uncovered at the end of Chapter Four. Because an agencement or design comprises heterogeneous plans, an event under one consideration or plan will ultimately have consequences under different considerations or plans: the same force that causes an agencement to dig in its heels and establish itself can cause it to drift off and behave in unexpected ways. Bateson describes this as a "lag" between control systems—since his is a cybernetic account of evolution, after all. He discusses the importance of the higher control system, that of genotypic variation, lagging behind "the event sequences in the peripheral" system of somatic changes in response to external changes in the environment (355).

disparate fields and theories into a more comprehensive treatment of design than is typical in the literature. Although a fully developed theory of design would require more work, both of these initial hopes have been realized by the wide net we have cast over much of Deleuze's career, his influences and interlocutors, different periods in the history of philosophy, different fields of study, and over different areas and understandings of design. In working toward a better understanding of Deleuze's philosophy, I hope to have at least suggested a comprehensive theory of design, one equally equipped to describe biological morphogenesis, skeuomorphic ceramics, videogame sequence-breakers, and architectural diagrams.

At every turn, we found the idea of *agencement* marked by heterogeneity and the problem(s) of consistency, or continuity. Even at the level of its etymology, we similarly found "design" to be ambivalent, and this decisive ambivalence is reflected in our common reference to design and is valuable for understanding *agencement*'s ambivalence. We found that an *agencement* can be described both and equally as a *dessein* (*plan d'organisation*) and as a *dessin* (*plan de consistence*), two French terms related to English "design" and which share its root in Italian Renaissance painting: the *disegno* is both the image that I hope to manifest on the canvas and the image that actually appears on the canvas; it's what these two images have in common. The "dreamlike" mediation between a landscape and the painting of a landscape is what Peirce called a diagram, yet another ambivalent term closely bound up with the definition of *agencement*.

An *agencement* holds heterogeneous *plans* together in a certain way; it has a consistent consistency. Despite their discontinuity, these *plans* share a diagrammatic

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continuity—in the second chapter, we called this internal consistency. Concrete *agencements* may hold together in the same way as, or have a diagrammatic affinity for, other *agencements*, with an external milieu—we called this external consistency. Hot on the trail of *agencement's* definition, we realized that on the one hand it had to name something enduring—if not an identity, then at least a quiddity. In the case of Guattari's key-making, we find *something* repeated (or diagrammatically resonant, as he might put it) in the key, in the ink and brush which traces its outline, and in the clay that forms its mold: something with which mashed potatoes are incompatible. On the other hand, we couldn't let this something harden into an eternal essence; it needed to be open to new encounters—to be reproduced, to drift off into a new "becoming," or to collapse and dissolve.

As Guattari's own examples suggest—duplicating a key, reading the blueprints for a Concord aircraft—design has been an effective arena for meeting these requirements as we pursued our new *agencement*-amenable vocabulary. Things come to a point in the concept of affordance. Recall that *agencement* was, in part, intended as a substitute for Deleuze and Guattari's previous references to "machines." Affordance is well-fitted for the mode of analysis they claimed a machinic philosophy entailed:

> Given a certain effect, what machine is capable of producing it? And given a certain machine, what can it be used for? Can we possibly guess, for instance, what a knife rest is used for if all we are given is a geometrical description of it?[610]

In a few sentences, they address the benchmarks of our project: different *plans* are brought together despite their heterogeneity; analyzing the knife rest's design

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[610] Deleuze and Guattari, *AO,* 3/8.

discretely—in isolation or with regard to only one *plan* (that of geometry)—will not do, since what counts is its commutative relationship with other *plans*, the conditions under which its form affords certain activities and not others, or the conditions under which some affordances come to light while others do not.

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