On Naturalistic Saltation Genealogies of Content

An Exploration of Continuity & Discontinuity in Nonreductive Diachronic Explanations of Content

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COMPULSORY DECLARATION

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or works, of other people has been attributed, and has been cited and referenced.

Signature:

Signed by candidate

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Chapter One:

1. Introduction

1.1 A Prelude to the Aim

How is *our* use of utterances or thoughts about things in the world? Furthermore, how can *we* explain this ability in a way that draws *only* from the methods and commitments of successful sciences, i.e. the physical, natural and social sciences? There is a rich philosophical tradition that aims to answer the former question by way of answering the latter – *Scientific Naturalism*. Granting that the first question can be answered by way of the second, there is still an open question: How did the ability, for *our* utterances and thoughts to be about things in the world, emerge over time? This is to ask for an explanation of how this ability emerged from a world populated by nonhuman creatures without *our* utterances and thoughts, and importantly, without *our* ability to use things to be about other things. My dissertation contributes to the literature that aims to answer this last question *only* through the explanatory resources of the successful sciences. More specifically, it contributes negatively by aiming to demonstrate that a recent strategy fails to explain the emergence of *our* ability to make utterances and to have thoughts about things in the world. To clarify, we can ask the following questions: (a) What is the ability for things to be about other things? (b) How can this ability be explained as emerging through exclusive use of the resources found in the successful sciences? I will explain each in turn, leading up to the general aim of my dissertation.

Statements, questions, desires, thoughts, road signs, menus etc., are all *directed* towards things – e.g. chairs, people, food, satisfaction of hunger, directions for a house, etc.. More generally, they exhibit a capacity to be about things – one state-of-affairs is about another state-of-affairs. For example, my statement that 'Snow is white' is about *white snow*. This capacity is usually called *intentionality* or *aboutness,* and things that have this capacity are called intentional items. Conventionally, it has been held that a necessary condition for things to be about other things is the presence of content. But what is content? In the broadest possible sense, there is content whenever there are satisfaction conditions, i.e. conditions of correctness. Content is accurate, true, or successful whenever its specified conditions are instantiated. For example, my current belief that 'Snow is white' has the following simplified truth-conditions: The belief that 'Snow is white' is true if and only if snow is white. From these correctness conditions we start to see how content is a necessary condition for intentionality. My statement that 'Snow is white' is about *white snow* because it possesses propositional content that specifies when the sentence is used correctly or incorrectly – in this case, truly or falsely. It is the conditions of correctness that partly explain how one thing can be about another. This is where normativity enters the fray. These conditions of correctness are typically taken to express rules or norms of use, application, reference, predication, etc.. The norms dictate when *our* use of intentional items is right or wrong, viz., norms specify

how intentional items ought to be used. It is precisely these norms *in force* that specify how a sentence ought to be used and so what it is about.

So, we might ask 'how did this capacity for one thing to be about another thing emerge?' If we wish to give a naturalistic explanation of this, then this requires exclusively using the resources of the successful sciences. Anything that is non-scientific, be it entities or methods for attaining knowledge, should be eschewed in our explanation. To give such a naturalistic explanation of intentional content is to explain how it is a natural fact, i.e. part of the natural world described through the methods and commitments of the successful sciences. Supplying an explanation of how intentional content can be reconciled with an entirely scientific understanding of the world is to aim to solve, what is called, the *placement problem*.

There are a variety of strategies for solving the *placement problem*, i.e. how to locate intentional content, or items involving intentional content, "in a world exhaustively characterized in terms of the … collective posits of the … sciences."[1] Importantly, the *placement problem* is a form of *location problem*. *Location problems* can be generally characterised by the aim to locate some problematic piece of discourse in a world exhaustively described by the successful sciences. To illustrate this point, consider the reason why these *location problems* crop up in Quine's recipe for ontic commitment: (1) Regiment scientific discourse in first-order logic; (2) Observe what objects this discourse quantifies over; (3) For all objects quantified over, these are the objects the discourse is ontologically committed to.[2] As a product of this method – though there are alternatives – there may also be some problematic areas of discourse that are either unnecessary, seemingly incompatible with, or simply not to be found in scientific discourse. Traditional examples of these are talk of intentionality, content, norms, meanings, possibilia, numbers, moral talk, etc.. Frank Jackson provides a succinct explanation of the strategies employed to overcome these *location problems*:

> "an increasingly popular view is that well-founded claims framed in one or more of the languages of the physical sciences give a complete, as near as is now possible, account of what our world is like, and that what is said in the languages of psychology and morality, for example, is either talk about the very same entities and properties [...] in different words (reductionism, on one understanding of that contested term), or else is false talk (eliminativism), or else is not talk at all in the sense of claims about how things are (noncognitivism)."[3]

While Jackson is addressing *location problems* under the purview of physicalism, his claims can easily be paraphrased into vocabulary acceptable for naturalism; just replace "physical sciences" with "successful sciences" – those that may include the natural and social sciences. With this in mind, we can see some options available for trying to solve the *placement problem* – reductionism, eliminativism and noncognitivism. While eliminativism is an

[1] David Macarthur, "Liberal Naturalism and Second-Personal Space: A Neo-Pragmatist Response to "The Natural Origins of Content," *Philosophia* 43 no. 3 (2015): 566.
[2] W. V. O. Quine, "On what there is," *The review of metaphysics* 2, no. 1 (1948): 31-33.
[3] Frank Jackson, "Naturalism and the Fate of the M-Worlds," *Proceedings of the Aristotelian Society* Supp. 71 (1997): 269.

interesting option, I will not consider it here since it does not strictly speaking aim to solve the *placement problem*; rather, it aims to show that there is no such thing as content, so I think it would be more apt to describe eliminativism as trying to solve the *displacement problem*: How to displace intentional content "in a world exhaustively characterized in terms of the … collective posits of the … sciences."[4] Alternatively, if the discourse under consideration is indispensable and used factually within the successful sciences, then noncognitivism appears to be a nonstarter; it generally aims to show that the problematic area of discourse is dispensable or nonfactual, hence it will not be considered either.

Because of this, the traditional way of answering this *location problem* has been pursued by trying to naturalise content. In general, this involves providing some reductive relation between content and accepted natural facts in the hopes of demonstrating that content can be understood in completely naturalistic non-contentful terms, e.g. biological facts. This strategy has faced several difficulties in relation to normativity such as the disjunction problem and gerrymandering objection *inter alia*. As a prophylactic measure to deal with these difficulties, another strategy has recently come into vogue which forgoes attempts to provide purely reductive explanations of content; rather, it aims to nonreductively explain how it is possible for content to emerge in the natural world overtime. In other words, it aims to explain the natural origins of content, rather than naturalise content. I name accounts fitting this strategy *Naturalistic Saltation Genealogies of Content* – 'saltation' because these diachronic stories involve a 'leap' or 'jump' in explanation.

Despite the benefits this strategy affords in avoiding the perennial objections naturalisation projects face in relation to the normativity of content, my aim is to show that it is susceptible to its own set of difficulties due to a tension between naturalism, normativity and intentional content. More specifically, my aim is to show that the central tenets of this strategy are inconsistent, and as a result, entail that they are discontinuous explanations of content. Alternatively put, these genealogical explanations cannot succeed in answering the *placement problem*. A consequence of this aim will be that, if one is committed to the continuity of a naturalistic saltation genealogy of content, then this can be shown to implicitly entail the reduction of the normative to the nonnormative or the use of some non-naturalistic resources in explanation. The aim and consequence of my argumentation can by captured by the following slogan:

> **(S)** Naturalistic saltation genealogies of content are either discontinuous explanations or implicitly entail the reduction of the normative to the nonnormative or the rejection of naturalism.

This is the same as saying that:

> **(S*)** Naturalistic saltation genealogies of content are either discontinuous explanations or self-defeating.

[4] David Macarthur, "Liberal Naturalism and Second-Personal Space: A Neo-Pragmatist Response to "The Natural Origins of Content," 566.

Whereby 'self-defeating' I mean that proponents of these genealogies unwittingly revert to other strategies for solving the *placement problem* – strategies that naturalistic saltation genealogies of content were precisely aimed at avoiding.[5] This slogan will be demonstrated to be a product of the structural objection named the *Continuity-Discontinuity Regress Argument* (CDRA). I.e., for every continuous naturalistic saltation genealogy, there is a *Discontinuity Argument* against it; and for every *Discontinuity Argument* there is a sub-continuous naturalistic saltation genealogy that should be constructed in response. This sets off a regress which I will demonstrate results in an infinite regress of *location problems*.

Now these slogans are elliptical and ambiguous, so context will have to be supplied. This can be done by answering the following question: What are naturalistic saltation genealogies of content? Broadly speaking, they can be seen as scientific models. Scientific models are theoretical constructs that are aimed at representing some target system. In this case, these are diachronic models that aim to solve the *placement problem* by representing the development of creatures without any capacity to have content to creatures with content in the natural world. However, I am not interested in whether these diachronic models *do* in fact supply solutions to the *placement problem;* rather, I am purely interested in whether these models *can* supply, in principle, continuous explanations of the emergence of content. This means that I will primarily be focussed on the consistency of the essential components required by these models. There are six key notions that need to be explicated in order to specify what these essential components are:

(1) Genealogies of Content;
(2) Continuity & Discontinuity;
(3) Naturalism;
(4) The Role of Normativity;
(5) Saltationism;
(6) The Role of Reductionism.

I will explain each of these over the duration of the following three chapters. The second and third chapters consider different examples of explanations or models that have the structure of naturalistic saltation genealogies of content. The fourth chapter will consolidate the similarities between these two examples in order to extricate the abstract structure and conditions for naturalistic saltation genealogies of content. Having done this, the target of my argumentation should become clear and distinguishable from alternative strategies for solving the *placement problem*. This is the overarching objective of the following three chapters, i.e. to outline the central tenets that all these models share.

However, before I commence with the elucidation, I would like to supply some reflections on a curious but illuminating similarity between my argumentative structure and that followed in Zagzebski's "The Inescapability of Gettier Problems"[6]. In fact, I

[5] These are the reductive strategies for solving the *placement problem.*
[6] Linda Zagzebski, "The inescapability of Gettier problems," *The Philosophical Quarterly* 44, no. 174 (1994): 65-73.

retrospectively realised that I had inadvertently drawn inspiration from its general argumentative structure. Because of this, I think it fit to start my sustained argumentation with a little reflection on her approach. This will be instrumental in understanding the structure on which I have modelled my paper and the flavour of argumentation I will be providing.

1.2 The Inspirations and Structure of my Dissertation

Zagzebski begins her paper by noting that, due to the inescapability of Gettier cases for the justified true belief analysis of knowledge (JTB) two morals have been drawn: (1) either an additional necessary condition needs to be added to this analysis, or (2) justification needs to be reconceptualised in such a way that is sufficient for knowledge.[7] Her aim is then to "argue that given the common and reasonable assumption that the relation between justification and truth is close but not inviolable, it is not possible for either move to avoid Gettier counter-examples."[8] The conclusion being that Gettier cases are unavoidable for any analysis of knowledge with the necessary conditions of true belief and something else that does not guarantee truth, but is strongly linked to it (e.g. justification). So her slogan could be seen as:

> **(S^Z)** "Gettier problems are inescapable for virtually every analysis of knowledge which at least maintains that knowledge is true belief plus something else."[9]

The structure of her paper involves first considering three examples of an analysis of knowledge and raising Gettier cases for each; from these, Zagzebski draws out a general recipe for constructing Gettier cases for any analysis of knowledge with the necessary conditions of true belief and something else that does not guarantee truth (e.g. justification). Her recipe for constructing Gettier cases can be summarised as follows:

(1) Start with a justified belief at time t_1;
(2) Make this belief false due to an element of bad epistemic luck at time t_1;
(3) Make this belief true due to an element of good epistemic luck at time t_2.

This leaves one with an instance of justified true belief which is not knowledge.[10] Importantly, anything can stand in the place of 'justification' so long as this element is minimally independent from true belief – independent in the sense that it does not guarantee truth. Additionally, adding further conditions does not aid in the analysis of knowledge, since the addition of this condition with 'justification' must still permit some independence from true belief; hence the recipe would also apply to it.[11] Having shown that this recipe for generating Gettier cases is unavoidable for the analyses, in line with

[7] Ibid., 65.
[8] Ibid., 65.
[9] Ibid., 65.
[10] For Zagzebski's recipe and motivation for it see: Ibid., 69.
[11] See the following for a detailed discussion of why the JTB + 'x' analysis of knowledge is either susceptible to the recipe for the construction of Gettier cases or violates the condition that truth is independent from other conditions: Ibid., 69-71.

either of the two morals, Zagzebski's argumentative goal has been achieved, i.e., she has demonstrated her slogan (S^Z).

She then proceeds to consider three alternatives for how one could supply an analysis of knowledge while avoiding her recipe for generating Gettier cases.[12] In each case she indicates why this would either result in jettisoning the traditional analysis of knowledge, since we need to reject the "assumption that the relation between justification and truth is close but not inviolable"[13]; or we simply admit that luck is involved in the analysis of knowledge. All these alternatives signal a departure from the ambitious aspirations that the concept of knowledge can be analysed in terms of the necessary conditions of true belief and something else that does not guarantee truth in absence of Gettier cases. The key points to her approach are as follows:

1. A clearly defined target, i.e., the traditional JTB (+ 'x') analysis of knowledge;
2. A "common and reasonable assumption that the relation between justification and truth is close but not inviolable"[14];
3. Examples of analyses of knowledge and how Gettier cases can be found for them;
4. A recipe – extracted by considering the common structure exhibited in these examples – for generating Gettier cases for all analyses of knowledge satisfying (1) & (2);
5. A reflection on the consequences of this recipe on the state of the traditional analysis of knowledge.

This paper shares the key points of Zagzebski's approach, though in my case I will be investigating naturalistic saltation genealogies of content which, unlike the JTB (+ 'x') analysis of knowledge, are ill defined. This, as mentioned above, will be the overarching aim of the following three chapters to elucidate. So I will begin by considering two examples that I think are naturalistic saltation genealogies of content in chapters two & three. Both involve the common, reasonable assumption that content is irreducible to nonnormative biological, chemical and physical facts and that a continuous nonreductive account of content's emergence *can* be supplied. I follow this with two examples of *Discontinuity Arguments* that aim to undermine the claim that they can solve the *placement problem*. Then, in chapter four, a recipe will be extracted by considering the structural similarities exhibited in these examples; this recipe generates an infinite regress of *location problems* for any naturalistic saltation genealogy of content – this is the *Continuity-Discontinuity Regress Argument*. Just as Zabzebski's recipe supports a general claim – Gettier cases can be constructed for any JTB (+ 'x') analysis of knowledge – so too does my recipe support a general claim; any naturalistic saltation genealogy of content leads to a regress of *location problems*.

For the remainder of chapter four, I consider the consequence of the recipe on the state of these naturalistic saltation genealogies of content – either they are discontinuous, or they

[12] Ibid., 72-73.
[13] Ibid., 65.
[14] Ibid., 65.

are self-defeating. Finally in chapter five, I consider several alternatives for rescuing saltation genealogies of content. To each of these I will indicate why this would signal a departure from the ambitious aspirations that the *placement problem* can be solved in a naturalistic nonreductive manner.

Besides the general argumentative structure being the same, there is also a similarity in the flavour of argumentation. Zagzebski does not need to consider the details of any particular JTB (+ 'x') analysis of knowledge, since her recipe applies regardless. It only requires that the concept of knowledge can be analysed in terms of the necessary conditions of true belief and something else that does not guarantee truth. In other words, she supplies a structural objection which explains the generality and power of her recipe for any such analysis of knowledge. Just as Zagzebski extracts a general structural recipe for generating Gettier cases for any account of knowledge satisfying (1) & (2), so too does my approach extract a general recipe for generating *Discontinuity Arguments* and complementary sub-naturalistic saltation genealogies. The argumentative ambitions are the same – to extract a structural objection. All that my recipe – the *Continuity-Discontinuity Regress Argument* – requires are central tenets of naturalistic saltation genealogies of content. The structural objection I supply applies to these strategies for solving the *placement problem* regardless of any further details that these strategies are committed to.

With the general argumentative structure and flavour between Zagzebski's paper and mine discussed, we can turn to the summary of my argumentation for the slogan (S*). This can be partitioned into several sub-aims. (a) The second and third chapter aims to elucidate the nature of naturalistic saltation genealogies of content by considering two instances of it – Bar-On's Genealogy and the NOC programme. The purpose for considering these is twofold. First, they are touted as explanations that could solve the *placement problem*, an appearance I would like to undermine with *Discontinuity Arguments*. Notwithstanding these objections, I will still suggest a manner in which they can easily overcome my objections. Second, by considering these concrete genealogies, *Discontinuity Arguments* against them, and counter-responses, this provides the base case and primary motivation for the regress argument.

Chapter four has three further sub-aims: (b) It collates the structural similarities between the two examples in order to provide an abstract description of saltation genealogies of content. (c) It highlights structural similarities between *Discontinuity Arguments* raised for each genealogy and the responses which aim to dissolve them. (d) Using the extracted structural similarities, I will construct my *Continuity-Discontinuity Regress Argument*. This argument aims to demonstrate exactly what is at fault with this genealogical strategy and why the slogan (S*) is true. The final chapter considers a range of alternative objections to the *Continuity-Discontinuity Regress Argument*. To these, I will raise my responses, but also indicate which objections highlight significant issues.

Finally, before we begin with the dialectic I would like to highlight the general methodological bent of my writing in the dissertation. I have taken great inspiration from Sellars' general methodology. In my interpretation of his work (which has been partially

shaped by de Vries[15]), Sellars' most fundamental method is that of constructing models. Not the construction of scientific models *per se*, but nonetheless the construction of theoretical systems that can be tested against our intuitions, theoretical commitments, scientific evidence, etc. in order to make the features of some target system explicit.[16] As a result of this method, Sellars usually does not directly aim to defend or criticise a philosophical position; rather he constructs and evaluates these philosophical positions as models which have certain aims.[17] His papers are typically concerned with comparing and contrasting the various strengths and weaknesses of the models he constructs, in order to assess which models provide the best explication of the systems they target.[18, 19]

In a similar vein, I will be aiming to make explicit the structure and commitments of the examples I provide in chapter two and three. This is to present them as models which can be evaluated with greater ease. It is only in chapter four where I will aim to show that the central tenets of these models have a significant weakness, i.e. they are susceptible to the slogan (S*). Chapter five aims to evaluate various manners in which the models of naturalistic saltation genealogies of content can avoid this weakness. Nonetheless, I will suggest that they should be jettisoned for other models. This is not to say that these other models are correct – they may very well prove to be inadequate for explaining the emergence of content. But this is not the aim of my dissertation. I only aim to show that particular models for the emergence of content are worse off in the sense that are clearly susceptible to slogan (S*). With the methodological bent of my writing outlined, we can move to the first example – Bar-On's genealogy of content.

[15] See Willem A. deVries, *Wilfrid Sellars* (Chesham: Acumen Publishing Limited, 2005); Willem A deVries, Wilfrid Sellars, and Timm Triplett, *Knowledge Mind, and the Given: Reading Wilfrid Sellars's "Empiricism and the Philosophy of Mind," Including the Complete Text of Sellars's Essay* (Indianapolis: Hackett Publishing, 2000).
[16] A similar interpretation of Sellars' work can be found in Willem A. deVries, *Wilfrid Sellars*, 13-14.
[17] Ibid., 15.
[18] Ibid., 15.
[19] A good example of this would be Sellars' arguments for methodological behaviourism about intentionality in Wilfrid Sellars, "Empiricism and the Philosophy of Mind," *Minnesota studies in the philosophy of science* 1, no. 19 (1956): 253-329. Here he starts off by constructing and evaluating two accounts of the intentionality of thought, i.e. Classical Empiricism and Logical Behaviourism. To each he raises concerns, but also draws out what he sees as plausible in both accounts. Following this, he synthesises what he takes as plausible into a new model – Methodological Behaviourism. For more details see: Wilfrid Sellars, "Empiricism and the Philosophy of Mind," 253-329; Willem A deVries, Wilfrid Sellars, and Timm Triplett, *Knowledge Mind, and the Given: Reading Wilfrid Sellars's "Empiricism and the Philosophy of Mind,"* 117-157.

Chapter Two:

2. Expressive Communication & the Zenoesque Paradox of Content

2.1 Prelude to the Dialectic

This chapter has two functions. Firstly, it will serve as a focussed review, involving charitable clarifications and extensions of Bar-On's thoughts on genealogies of content and continuous diachronic explanations.[20] This will be instrumental for my thesis, since it supplies the clearest philosophical articulation, that I have found, of the central ideas on genealogies of content, continuity and discontinuity. Secondly, her account will serve as an exemplar for clarifying what naturalistic saltation genealogies of content are. Furthermore, it will be illustrative for introducing the first step of the *Continuity-Discontinuity Regress Argument*.

To the end of explicating these two functions, I will begin with a preliminary outline of continuity skepticism, as Bar-On characterises it, and discuss how she uses this notion to characterise the playing field of accounts that aim to explain the emergence of content. After this, I will describe and clarify the central tenets that her continuity strategy is committed to and how it aids in undermining continuity skepticism. This will be followed by consideration of a particular version of continuity skepticism that Bar-On wishes to undermine – Davidson's continuity skepticism. Against this I will show why Bar-On's strategy fails to undermine Davidson's continuity skepticism. Furthermore, I will raise the Zenoesque Paradox of Content in order to show that Bar-On's ambitions for providing a possible continuous diachronic explanation does not seem to work by her own commitments – the diachronic explanation is *prima facie* discontinuous. Finally, I will introduce new notions that will help show how Bar-On can overcome the Zenoesque Paradox of Content.

2.2 Bar-On's Aims

In Bar-On's, *Expressive Communication and Continuity Skepticism*,[21] she claims that she has two aims:

[20] I will mostly be drawing from: Dorit Bar-On, "Expressive communication and continuity skepticism," *The Journal of philosophy* 110, no. 6 (2013): 293-330. Bar-On's focus is mainly on the emergence of meaningful linguistic communication from expressive communication. Since this involves intentionality, or more generally content, I may sometimes refer to her aim as attempting to explain the emergence of content, intentionality, or items involving either of these notions. I.e. she aims to solve the *placement problem*. The following papers are also relevant for giving a comprehensive account of her thoughts on genealogies of content and continuous diachronic explanations: Dorit Bar-on, "Origins of meaning: Must we 'go Gricean'?" *Mind & Language* 28, no. 3 (2013): 342-375; Dorit Bar-On, and Mitchell Green, "Lionspeak: communication, expression, and meaning," In *Self, language, and world: Problems from Kant, Sellars, and Rosenberg*, edited by James R. O'Shea, Eric M. Rubenstein, 89-106 (Atascadero: Ridgeview Publishing Company, 2010); Dorit Bar-On, and Matthew Priselac, "Triangulation and the Beasts," In *From an Epistemological Point of View* (Fráncfort: Ontos Verlag, 2011).

[21] Dorit Bar-On, "Expressive communication and continuity skepticism," 293-330.

> "to articulate a controversial yet seductive version of the view [she] labeled "continuity skepticism," and to suggest a strategy for undermining it."[22]

But I think she does more and less than this. More, because she takes it upon herself to characterise an entire area of conflict over the emergence of meaningful linguistic communication or intentional content more generally – a characterisation I find problematic and in need of redescription. Less, because I do not think her strategy for undermining continuity skepticism succeeds without begging the question against the continuity skeptic; this is the primary motivation for the need for redescription. Because of this, I will suggest that the term 'continuity skeptic' be jettisoned, bar specific instances, and supply an alternative characterisation of the dispute over the emergence of content. So to begin with, we need to distinguish between two broad interpretations of discontinuity which can be delineated using Müller's Rubicon metaphor.

Friedrich Max Müller, one of Darwin's critics, claimed that meaningful linguistic communication is the "Rubicon" that "no brute will dare to cross."[23] With this he was drawing our attention to the distinctiveness of human languages when compared to animal communicative systems. According to Müller, the difference is so stark – a claim I will not substantiate in much detail here – that it evades any plausible evolutionary explanation. Now there are two broad interpretations of Müller's 'Rubicon' – a synchronic and diachronic interpretation. The former claims that there are fundamental features held by natural language *now*, that are not shared by animal communicative systems *now*, and that this is not merely a matter of degree, viz. there is a synchronic discontinuity.[24] This is simply to take a time-slice, compare and contrast the two systems of communication at that time-slice, and then observe that there are fundamental differences between them. Bar-On highlights some common features that are used to support this sort of discontinuity:

> "Full-fledged human thought and communication are often portrayed as essentially intentional, flexible, objective, reflective, rule-governed, symbolic, world-directed, reason-based, and subject to social and rational norms. The behaviors animals engage in, by contrast, are said to be merely responsive, stimulus-bound, motivated by passions and needs (even when not purely reflexive), pattern-governed, nonsymbolic, merely world-involving, causally driven, and subject to extinction or modification via external control and manipulation."[25]

If at least one of the differences is true, then this can be used to justify a synchronic discontinuity.[26] The latter interpretation claims that there is discontinuity in the

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[22] Ibid., 328.
[23] F. Max Müller, Lectures on the Science of Language , 3rd ed. (London: Longman, Green, Longman, and Roberts, 1862), 360.
[24] Dorit Bar-on, "Origins of meaning: Must we 'go Gricean'?" 342.
[25] Dorit Bar-On, "Expressive communication and continuity skepticism," 297.
[26] 'Synchronic (dis)continuity' should not be conflated with *similarity* or *difference*. The phrase is meant to capture something over and above mere similarity and difference, since it may be observed that there are similarities and differences between the features of nonhuman and human animals, but no claimed synchronic (dis)continuity. Synchronic discontinuity is meant to capture that there are "deep and important differences between present-day

evolutionary, or more generally, genealogical story between animal communicative systems, 'mentality', directedness, etc. and meaningful linguistic communication, thought, intentionality etc. over time. For the evolutionary story, Bar-On claims that there is a "sharp *diachronic* discontinuity in evolutionary history between the stage at which only non-linguistic creatures existed and one at which linguistic communication emerged."[27] This position of a diachronic discontinuity, following Bar-On, is what is named continuity skepticism. She succinctly clarifies this position in the following:

> "Projecting back from extant to extinct species of nonhuman animals, no feasible candidates prefiguring our own mentality and linguistic behavior are to be found. Human mental and behavioral capacities as we now know them cannot be illuminated by seeing them as elaborations on the capacities of some nonhuman ancestors."[28]

Though Bar-On uses words redolent of evolutionary theory, her broader idea is that, according to the continuity skeptic, there will be *no* intermediate steps in the *order of explanation* that can illuminate how the capacities of nonhuman animals gave rise to contentful items. Continuity skeptics maintain "that there can be no cogent or illuminating account of the emergence of meaningful linguistic communication", that is, the question of how meaningful linguistic communication arose out of animal communicative systems.[29] From this interpretation we can glean that the central tenet of a continuity skeptic, according to Bar-On, is that a satisfying continuous diachronic explanation of the emergence of meaningful linguistic communication, thought and intentionality is rendered philosophically impossible.

This brings us to the second aim of Bar-On's paper – to setup a plausible intermediary account that will act as "synchronic middle ground" between (simple) animal communicative systems and meaningful linguistic communication in order to provide a possible diachronic story.[30] This is her account of Expressive Communication (EC).[31] In the following, it will be demonstrated how she thinks EC can accept the strictures of continuity skepticism yet still provide an intermediate position between (simple) animal communicative systems and meaningful human communication that vindicates the possibility of a diachronic continuity.

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humans and all the nonhuman animals around us, and that these are not just a matter of degree." Dorit Bar-On, "Expressive communication and continuity skepticism," 294. For example, Fitch points out that there is presently a physiological and functional discontinuity between the locomotion of reptiles and the flight of birds. This is because there are no extant intermediate taxa between reptiles and birds, at this present time, that exhibit these intermediate physiological and functional traits. W. Tecumseh Fitch, *The evolution of language* (Cambridge: Cambridge University Press, 2010), 175-176.

[27] Dorit Bar-on, "Origins of meaning: Must we 'go Gricean'?" 342.

[28] Dorit Bar-On, "Expressive communication and continuity skepticism," 295.

[29] Ibid., 299.

[30] Ibid., 296.

[31] My use of "(simple) animal communicative systems", is merely meant to provide a contrast with EC which is also a form of animal communication. EC forms part of a more sophisticated type of animal communicative system that is meant to bridge the gap between simpler animal communicative systems and meaningful linguistic communication. See section 2.5 & 2.6 for more details.

2.3 Bar-On's Continuity Skeptics

To explicate this view, Bar-On identifies three general components usually held by continuity skeptics – synchronic discontinuity, synchronic disconnect and diachronic discontinuity.[32] I will describe each in turn, but will mostly focus on examples from Brandom since there are varied ways of satisfying these three components.

Synchronic Discontinuity: This is the view that there are fundamental differences between human communication and animal communication at some time-slice, and these differences are not merely a matter of degree. For example, Brandom claims that "[w]hat is distinctive about us as normative creatures is the *way* in which we are subject to norms […]. As natural beings, we act according to rules. As rational beings, we act according to our *conceptions* of rules."[33] In other words, our linguistic communicative practice involves rule following where this includes both, acting in accordance with rules and obeying rules. On the other hand, nonhuman animal communication only involves acting in accordance with rules – it is a complex form of pattern governed behaviour.

It should be noted that being a proponent of a synchronic discontinuity is not sufficient for continuity skepticism under Bar-On's characterisation.[34] Not sufficient, since synchronic discontinuity is consistent with diachronic continuity. Many instances where species display homologous traits due to shared ancestry are examples of this. E.g. the one pair of wings on a dragonfly is homologous and shares ancestry with the beetle elytron – the hard wing shell. But their biological functions are synchronically discontinuous, because there are no extant intermediate taxa *now*.[35] A lot more could be said about this form of discontinuity, but further detail is unnecessary for my purposes in discussing continuity skepticism.[36]

Synchronic Disconnect: In short, this is the denial of "mental commonalities" between fully-fledged linguistic humans and other animals.[37] Of course there are shared mental commonalities, in a sense, but what a proponent of synchronic disconnect will claim is that on closer inspection, these commonalities are essentially different. A case in point are beliefs. It is undeniable that animals have beliefs, in a sense, but it would be denied by these continuity skeptics that they are like our beliefs. The same can be said of the possession of concepts. To make this clear, take Brandom's claim:

> "There clearly is a sense in which nonlinguistic animals can be said to have beliefs. But the sense of belief that Sellars, Dummett, and Davidson are

[32] Ibid., 300.
[33] Robert Brandom, *Making it explicit: Reasoning, representing, and discursive commitment* (New York: Harvard university press, 1994), 30.
[34] Dorit Bar-On, "Expressive communication and continuity skepticism," 295.
[35] Another example, discussed by Fitch, would be the gradual evolutionary transition between Triassic flightless reptiles and birds now. This evolutionary explanation is diachronically continuous. However, there is a synchronic discontinuity between the locomotion of reptiles and the flight of birds at this present time. This is because there are no extant intermediate taxa between reptiles and birds at this present time. W. Tecumseh Fitch, *The evolution of language*, 175-176.
[36] For more detail see: Dorit Bar-On, "Expressive communication and continuity skepticism," 294 & 300-301.
[37] Ibid., 301.

> interested in […] is one in which beliefs can be attributed only to language users."[38]

Let us consider Davidson's view of beliefs. In short, a necessary condition to have a belief is to have a concept of a belief; to have a concept of a belief you must have a concept of your belief being incorrect, hence a concept of inter-subjectivity; lastly, the only manner by which we can have a concept of inter-subjectivity is through triangulation which requires mastery of natural language.[39] Animals do not have natural language, hence they cannot partake in triangulation. Due to this they cannot have a concept of intersubjective truth. Therefore, a necessary condition for having a belief is not met, so non-linguistic animals do not have beliefs in the sense that those who have mastery of some natural language. Importantly for Bar-On, to hold synchronic disconnect one must be able to motivate that it is not *some* human thought that is essentially different – it is *all* human thought.[40] The simplest way of motivating this would be through some constitutive account of thought. E.g., human thought has a normative dimension which is irreducible and absent from nonhuman animal mentality.

Diachronic Discontinuity: This is the view which states that there can be no satisfying philosophical or empirically adequate explanation of the emergence of human meaningful linguistic communication, thought or intentionality from simpler communicative behaviours, mental capacities and directed responses found in nonhuman animals.[41] There are many variants of this view, but here I will focus on two – Davidson's and Brandom's. I will begin by quoting Davidson at length:

> **(D)** "There cannot be a sequence of emerging features of the mental, not if those features are to be described in the usual mentalistic vocabulary. […] The difficulty in describing the emergence of mental phenomena is a conceptual problem: it is the difficulty of describing the early stages in the maturing of reason, the stages that precede the situation in which concepts like intention, belief, and desire have

[38] Robert Brandom, *Making it explicit*, 155.

[39] Generally speaking, triangulation involves two creatures, S1 & S2, which each interact with an object O and with each other at time t; the interactions between S1 & S2 form the base of the triangle, while each of their interactions with O form the lines leading to the apex of the triangle where object O is found. More specifically, for there to be triangulation S1 & S2 will each have some reaction to the object O. Additionally, S1 & S2 will each correlate their own reactions to O with the other's reaction to O. By correlating particular reactions with objects, this sets a precedent for how to expect future behaviour will be. Now when these reactions are not correlated, e.g. one creature's perception of O differs from the other, then this gives rise to the possibility of error, since it undermines the expectation of one creature's perception of what the other's reaction is correlated with. In other words, triangulation gives rise to the possibility of a reaction being wrong from the perspective of another. Donald Davidson, *The Emergence of Thought (1997)*, Vol. 3, in *Subjective, intersubjective, objective*, 123-134 (New York: Oxford University Press, 2001), 129. This allows for the distinction to emerge between the perception that the world is thus and so, and how it actual is. I.e. it allows for the concept of objectivity to emerge. This argument will be detailed in: *2.6 EC as a Diachronic Intermediary*. See the following for more details on the argument: Dorit Bar-On, "Expressive communication and continuity skepticism," 305-310; Donald Davidson, *The Emergence of Thought (1997)*, 128-130; Donald Davidson, *Rational Animals (1982)*, Vol. 3, in *Subjective, intersubjective, objective*, 95-105 (New York: Oxford University Press, 2001), 104-105; Dorit Bar-On, and Matthew Priselac, "Triangulation and the Beasts."

[40] A good example of this would be Norman Malcolm's dog example and Davidson's cautionary advice on how to attribute thought to the dog. See: Norman Malcolm, "Thoughtless brutes," *Proceedings and addresses of the American Philosophical Association* 46 (1972): 13; and Davidson's cautionary advice on this example: Donald Davidson, *Rational Animals (1982)*, 96-100.

[41] Dorit Bar-On, "Expressive communication and continuity skepticism," 299.

> clear application. In both the evolution of thought in the history of mankind, and the evolution of thought in an individual, there is a stage at which there is no thought followed by a subsequent stage at which there is thought. To describe the emergence of thought would be to describe the process which leads from the first to the second of these stages. What we lack is a satisfactory vocabulary for describing the intermediate steps."[42]

The main point is that "we lack […] a satisfactory vocabulary" to supply an explanation of the continuity. According to Davidson, this is justified by the fact that nothing short of language is sufficient for triangulation.[43] But if this is the case, then non-linguistic creatures do not have a concept of intersubjective truth, therefore they do not have beliefs. Due to this, fully-fledged human thought is only possible with the presence of language. But this means that there was at one point no thought and then, when there was fully-fledged linguistic communication, there was thought in the *order of explanation* – a diachronic discontinuity. This is not to deny that there are interesting stages in the evolution of language and its acquisition; there are certainly precursors in the history of full-fledged linguistic communication in the *causal order*. However, continuity skeptics would deny that these stages are precursors in the *order of explanation* of meaningful linguistic communication and thought – to be motivated in *2.6 EC as a Diachronic Intermediary.* At this point it suffices to mention that Bar-On interprets Davidson as arguing precisely that "[a] philosophical account of the emergence of objective thought and language is not to be had."[44]

Brandom shares the same general view as Davidson that without meaningful linguistic communication, there can be no intentionality, i.e. they are both proponents of "a linguistic view of intentionality".[45, 46] But Brandom admits that "it is clear that there were nonlinguistic animals before there were linguistic ones, and the latter did not arise by magic."[47] However, he qualifies that:

> "the intentionality of nonlinguistic creatures is presented as dependent on, and in a specific sense derivative from, that of their linguistically qualified interpreters, who as a community exhibit a nonderivative, original intentionality."[48]

There may seem to be some tension between these two comments made by Brandom, however, the former is statement about the *order of being*, i.e. the *causal order,* while the latter is about the *order of explanation,* i.e. the *conceptual order*.[49] Brandom does not

[42] Donald Davidson, *The Emergence of Thought (1997)*, 127.
[43] Ibid., 130.
[44] Dorit Bar-On, "Expressive communication and continuity skepticism," 309-310.
[45] Robert Brandom, *Making it explicit,* 152.
[46] More specifically, the linguistic view of intentionality holds that objective propositional content is conferred on statements, attitudes and other performances through the role they play in a socio-cultural linguistic practice. Ibid., 148.
[47] Ibid., 155.
[48] Ibid., 152.
[49] Dorit Bar-On, "Expressive communication and continuity skepticism," 303.

conflate these two orders. He thinks the correct order for explaining our intentionality is, not through the *causal order*, but rather, through creatures' participation in a normative linguistic practice.[50] Furthermore, he claims that "[n]othing more is required to get into the game of giving and asking for reasons" than "reliable dispositions to respond differentially to linguistic and nonlinguistic stimuli."[51] But he adds that a community's linguistic practices cannot "be paraphrased in a vocabulary that is limited to descriptions of such dispositions. Norms are not just regularities, though to be properly understood as subject to them, and even as instituting them by one's conduct (along with that of one's fellows), no more need be required than a capacity to conform to regularities."[52] In other words, the explanation of meaningful linguistic communication is a normative enterprise, and due to the conceptual irreducibility of normative to non-normative claims, such as those in biology, there can be no satisfying explanation of the emergence of intentionality in the *conceptual order* in Bar-On's interpretation of Brandom.[53, 54]

Since I am solely interested in diachronic explanations of content, I will only consider continuity skeptics holding *Diachronic Discontinuity*. At this point there may be some unease caused by this fast and loose talk of 'explanation' and 'continuity'. These are terms I will specify in the next section.

2.4 Clarifying the Fast & Loose

Pace Bar-On, there are several terms she uses throughout her writing that require clarification. Two of these have been mentioned in the previous section – 'explanation' and 'continuity' – but there is also, 'synchronic middle position' and the adjective 'diachronic' when used to modify 'explanation'. Here, I will offer a charitable discussion and interpretation of what these could mean to her. Let me start with the most important – 'explanation'. To understand what she means by this, let us look at what the general explanandum and explanans would be in the context of her paper. We can get an indirect idea of what these would be for her from the statement about diachronic discontinuity:

> "The idea is that there can be no philosophically cogent or empirically respectable account of *how* human minds could emerge in a natural world populated with just nonhuman creatures of the sort we see around us. … [W]e must accept an unbridgeable gap in the natural history leading to the emergence of *human minds.*"[55]

From this we can ascertain that the explanandum for the continuity skeptic and opponent is the emergence of intentionality, or more generally, content. The explanans, whatever the

[50] Robert Brandom, *Making it explicit*, 7.
[51] Ibid., 156.
[52] Ibid., 156.
[53] Dorit Bar-On, "Expressive communication and continuity skepticism," 304.
[54] To ward of concerns that I have misinterpreted Brandom I would like to point out that, in 'Making it Explicit', he does not explicitly state that norms are irreducible to the nonnormative. (This direct claim of 'conceptual irreducibility' derives from Bar-On.) Brandom states that "[n]o attempt is made to eliminate, in favor of nonnormative or naturalistic vocabulary, the normative vocabulary employed in specifying the practices that are the use of a language." Robert Brandom, *Making it explicit*, xiii.
[55] Dorit Bar-On, "Expressive communication and continuity skepticism," 294-295.

details may be, can be identified by the continuity skeptic's answer to whether the key phrase: "philosophically cogent or empirically respectable" supplies the general explanans. The continuity skeptic says there is no such explanans while the opponent thinks there is. In summary, the way she uses 'explanation' is similar to saying *there is a philosophically or empirically adequate genealogical account*.

But we can home in on her conception of 'explanation' further. Bar-On points out that many theorists seem to fall into two camps:

> "On the one hand, the conviction that there must be *some* diachronic emergence story encourages proponents of continuity to over-interpret the mentality and communicative behaviors of *existing* animal species and to underplay some of the evidently unique features of human thought and language. On the other hand, skeptical opponents of continuity, who are impressed by significant differences between human and nonhuman animals, are pushed to portray animal behaviour as all of a piece, and paper over behavioral nuances that could shed explanatory light on the origin of some of the features deemed distinctive of humans."[56]

Let's call these two positions the Overestimators and Underestimators, respectively.[57] Her aim is to provide a position that falls into neither of these camps:

> "This sort of stalemate cries out for a sensible middle position."[58]

Her middle position is that of Expressive Communication (EC) which will be outlined after this section. Consider:

> "My aim … will be to portray expressive behavior as providing a "synchronic middle ground," posed between the human and nonhuman poles that defenders of continuity skepticism so often contrast."[59]

And her conclusion,

> "I have recommended trying to engage continuity skeptics by offering a non-reductionist candidate for a legitimate middle ground. It is a middle ground in two complementary senses: materially speaking, I have proposed that we can find in *nature* expressive behaviors that lie between the purely discriminative behaviors of living organisms, on the one hand, and the fully rational behavior that is the prerogative of human beings, on the other hand."[60]

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[56] Ibid., 296.
[57] A lot more that could be said about these positions, but for the purposes of this dissertation it is not necessary. Bar-On spends a large section of her paper – "The origins of meaning" – arguing that the two dominant approaches to positively answering the question about the emergence of thought, meaningful linguistic communication, intentionality, etc. are either Underestimators or Overestimators about the explanandum of content. See the following for more detail: Dorit Bar-on, "Origins of meaning: Must we 'go Gricean'?" 344-352.
[58] Dorit Bar-On, "Expressive communication and continuity skepticism," 296.
[59] Ibid., 296.
[60] Ibid., 329.

From these we can glean that her aim is to provide an explanation that attempts to be acceptable to the continuity skeptic on the empirical front – from research in ethology, comparative psychology and evolutionary biology – and also on the philosophical front by accepting their strictures such as non-reductionism about distinctive features of human intentionality, thought and language. This seems to suggest that Bar-On sits between two interpretations of what 'explanation' means:

> ***Extreme & Narrow Naturalistic Explanation***: Facts about intentionality, meaningful communication, thought, etc. are reducible (through translation or mapping) to facts in the sciences.
>
> ***Liberal Naturalistic Explanation***: Facts about intentionality, meaningful communication, thought, etc. are non-reducible to facts in the sciences, but are consistent with the claims made in the sciences. Viz. these linguistic facts can be seen as non-reducible natural facts which are consistent with scientific theorizing, but not necessarily explicable in terms of entirely scientific theorizing.[61]

The former is committed to reductionism about contentful items, viz., it aims to explain contentful items in terms of biological, chemical or physical facts in the sciences. This is not acceptable to continuity skeptics, such as Davidson, and this is why Bar-On expressly designs EC so that it is non-reductionist about intentionality, meaningful communication and thought.[62] However, the latter form of explanation seems too weak a claim to capture Bar-On's aim. Bar-On explicitly states that her aim is to provide "commonsense *descriptions*" for

[61] '*Liberal Naturalistic Explanation'* is an explanation that abides by the norms of *Liberal Naturalism*. Broadly, this form of naturalism "refuses to identify nature with the scientific image of the world, no matter how broadly interpreted […] The key contrast for this new vision of naturalism is not the non-scientific but, rather, the *supernatural* which we can think of as commitments to entities (e.g. spiritual agencies) or forms of understanding that are neither part of the manifest or the scientific image of the world." David Macarthur, "Liberal naturalism and the scientific image of the world," *Inquiry* 62, no. 5 (2019): 573-574. So this form of naturalism permits non-scientific facts and methods of acquiring knowledge. If these facts are non-supernatural, then they are natural facts. For this reason, *Liberal Naturalism* could more aptly be described as *Non-Supernaturalism*. Importantly, it does not involve the starting assumption that everything found in nature can be described using the austere resources found in the 'successful sciences', as all the other forms of naturalism do. As mentioned in the quotation, this assumption involves the identification of nature with the scientific image. *Liberal Naturalism*, by contrast, incorporates the manifest image within our understanding of nature. The manifest image can be broadly understood, following Sellars, as the framework of people who exist in a world full of perceptible/macrophysical objects, where these people critically explain observable phenomena by correlating them with other observable phenomena. Wilfrid Sellars, "Philosophy and the Scientific Image of Man," In *The space of reasons: Selected essays of Wilfrid Sellars*, edited by Robert B. Brandom Kevin Scharp, 369-408. (Cambridge: Harvard University Press, 2007), 374-375. *Liberal Naturalism* takes nature to be what is found in the critical manifest image, i.e. the "manifest image that is the result of subjecting the manifest image to critical scrutiny, which includes how well it hangs together with the scientific image of the world." David Macarthur, "Liberal naturalism and the scientific image of the world," 574. However, unlike Sellars' ambition of fusing the two images under a synoptic view (where the objects of the scientific image are taken as primary), *Liberal Naturalism* takes the objects of the critical manifest image as primary, but holds them accountable to scrutiny from the scientific image. Wilfrid Sellars, "Philosophy and the Scientific Image of Man," 402. Furthermore, *Liberal Naturalism* is able to use additional non-scientific resources for explanation found in the second-personal stance. For more details on the second-personal stance see: David Macarthur, "Liberal naturalism and the scientific image of the world," 577-580.

[62] Davidson would repudiate any synchronic reductive account claiming that biological, chemical & physical facts give a sufficient explanation of content. I will take this irreducibility as given since it is accepted by Bar-On as an assumption that EC ought to respect. Davidson's repudiation of reductionism of contentful items to extensional items can be found in his advocacy of Anomalous Monism in "Mental Events": Donald Davidson, *Essays on Actions and Events: Philosophical Essays*, Vol. 1 (Oxford: Clarendon Press, 2001), 208-225.

EC so that this can supply an appropriate platform for "the conceptual task of fusing the scientific image and the naïve commonsense image regarding the continuities between us and the beasts."[63] Without going into the details of what these two images involve, what Bar-On thinks is important for supplying a continuous diachronic explanation is that EC provides an account that unifies these two images – a Sellarsian ambition.[64] ***Liberal Naturalistic Explanation***, by contrast, does not think that these two images can (or should) be unified – it identifies 'the natural' with what is found in the critical manifest image. For example, some of the facts in the manifest image should be seen as existing in autonomous domain, that is not subject to complete explanation from facts and methods in the scientific image. So, ***Liberal Naturalistic Explanation*** – as I have defined it – could be held by a Cartesian Dualist of sorts. There is no need for the vocabulary in one image to be entirely explicable in terms of the vocabulary of the other, whether through reduction or not. Therefore, I think the following is an appropriate interpretation of what she means by 'explanation':

> ***Broad Naturalistic Explanation***: Facts about intentionality, meaningful communication, thought, etc. are non-reducible to facts in the sciences, but entirely explicable using the methods within the sciences. Viz. these linguistic facts can be seen as non-reducible theoretical postulates of scientific theorizing.

This lies midway between the former two types of explanation: on the scientific front it is committed to explaining content in terms of the resources of the successful sciences; on the philosophical front it is committed to a scientifically respectable explanation that is non-reductionist with reference to the explanandum of contentful items. This is enough for her explanatory ambitions to fit with what I have defined as ***Broad Naturalistic Explanation***.[65] This form of naturalism is committed to the following two claims:

> **Ontological Naturalism:** one ought to be committed to the existence of only the posits in successful science(s).[66]
>
> **Methodological Naturalism:** One ought to acknowledge that the only successful methods of acquiring knowledge are through those supplied by successful science(s).[67]

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[63] Dorit Bar-On, "Expressive communication and continuity skepticism," 229.
[64] Wilfrid Sellars, "Philosophy and the Scientific Image of Man," 369-408.
[65] Bar-On does not overtly mention that she is a naturalist in any of her four papers I have drawn from. However, the particular manner in which she tries to achieve the fusing of the images reveals this commitment. Firstly, it is to identify natural facts that are shared between the human and nonhuman poles; secondly, it is to supply to supply a vocabulary that aids in providing an illuminating transition between the two poles. Due to this, Bar-On is fusing the two images by showing how they can be united by a common vocabulary that describes those same natural facts. To me this means that she falls under, what Macarthur terms, the 'Practical Scientific Image'; this image incorporates many commonsense items found in the practice of the successful sciences, which is a manner of fusing the two images. David Macarthur, "Liberal naturalism and the scientific image of the world," 569. A proponent of such a view would be only committed to the posits, methods and additional commonsense commitments of the successful sciences. This gives Bar-On the resources to identify the common behaviour, and so supply the middle position of EC. Therefore, I think it fit to say that Bar-On falls under, at least, a certain interpretation of *Broad Scientific Naturalism*, since this is consistent with the practical scientific image.
[66] David Macarthur, "Liberal Naturalism and Second-Personal Space: A Neo-Pragmatist Response to "The Natural Origins of Content," 569.
[67] Ibid., 569.

In addition to these two claims, there are roughly three interpretations of *Scientific Naturalism* dependent on our interpretation of the phrase 'successful science(s)' – Extreme, Narrow and Broad. Extreme Naturalism only admits physics as 'successful'; Narrow Naturalism extends the scope of physics to include the natural sciences, such as biology and chemistry; lastly, Broad Naturalism liberalizes this further to include the social sciences.[68] So this last interpretation of the phrase 'successful science(s)' is meant to include the methods and ontic commitments of the social sciences, in addition to those found in physics and the other the natural sciences, such as biology and chemistry.[69] This interpretation of what Bar-On means by 'explanation' will play a central role in my critique later on. But for now, I will clarify the remaining three terms.

Consider the term 'diachronic'. This simply means that the explanation these genealogies supply will span over a period of time. Viz., they are historical stories about the emergence of content. This is in contrast with a synchronic explanation which explains some phenomenon at a particular time-slice. Viz. they are ahistorical explanations in a sense to be contrasted with non-historical explanations which don't recognise any other time-slices as adequacy constraints on these synchronic explanations. Both synchronic and diachronic explanations of content aim to solve the *placement problem*, but the former only solves the *placement problem* at a time-slice while assuming a particular history up to that time. The diachronic explanation attempts to solve the *placement problem* by giving an account at of all the relevant time-slices leading up to the emergence of content and how these time-slices are linked through some process(es).

Continuity is next. While it is primarily used as an adjective in front of 'skepticism', I think it fair to say that the opponent of the continuity skeptic is attempting to find a continuous diachronic story. With reference to *Broad Naturalistic Explanation*, 'continuity' should be seen as qualifying that a genealogical explanation is entirely explicable using the methods and ontic commitments found within the scope of the 'successful science(s). Bar-On clarifies this sentiment in the following quotation:

> "A natural reconstruction, as we think of it, does not explain the emergence of linguistic meaning (and the representational capacities that subserve it) by merely locating increasingly complex stages on a continuum. It also tries to show how each stage develops from an earlier one in some intelligible way. One such way would involve an agent or group of agents making choices that realize a more developed form of meaning; another would involve a process such as evolution by natural selection."[70]

Here Bar-On is suggesting that for an explanation to be deemed diachronically continuous, it needs to: (1) identify stages in the story and (2) show how, for each stage, it developed from a former stage. (I have idealised away from describing any particular processes or mechanisms,

[68] D. Macarthur, "Taking the human sciences seriously," In *Naturalism and normativity*, edited by M. De Caro & D. Macarthur, 123-141 (New York: Columbia University Press, 2010), 126.
[69] D. Macarthur, "Taking the human sciences seriously," 126.
[70] Dorit Bar-On, and Mitchell Green, "Lionspeak: communication, expression, and meaning," 6.

such as evolution by natural selection, and simply mentioned that the explanation (as processes) should only appeal to *Broad Scientific Naturalism*, since there may be other factors involved, such as ontogeny and sociology.) With continuity in mind, let us consider 'synchronic middle ground'.

This means to me that firstly, there is a naturalistically synchronic account explaining how expressive communication can reasonably be seen to have risen from (simple) animal communicative systems, i.e. Bar-On's 'nonhuman pole'. And secondly, this synchronic account provides a plausible starting point to supply further explanation of how meaningful linguistic communication arose from it. Generally speaking, Bar-On's synchronic middle position is some naturalistically respectable intermediate step in the process **X**, which adds credence to the possibility that we can explain the emergence of content **C** from (simple) animal communicative systems without full-fledged content **A**.

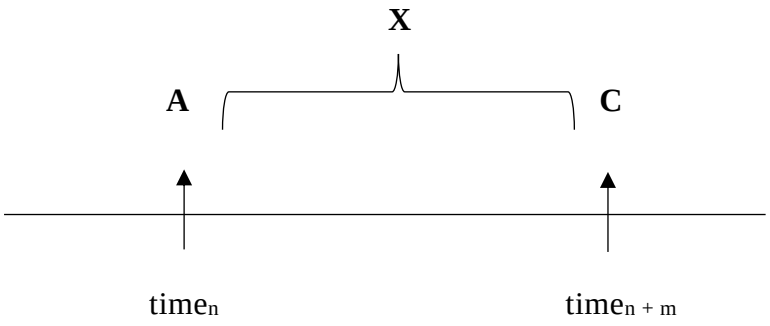

Fig. 2.1

By contrast, Bar-On's continuity skeptics deny that such a genealogy can explain content. Generally speaking, their objections revolve around identifying some missing steps in this genealogy, namely, **B** & **Y**:

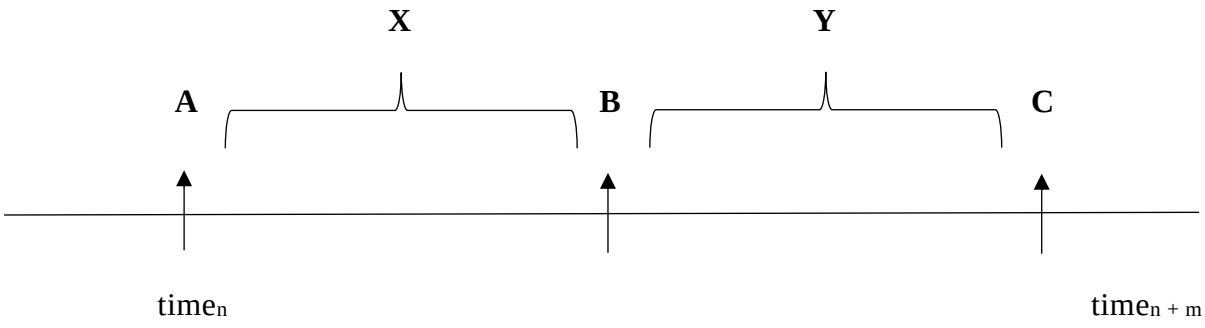

Fig. 2.2

B and **Y** are positions a continuity skeptic would point out in order to undermine this tripartite strategy. **B**, according to the continuity skeptic, is a step that has been implicitly assumed. **Y**, according to the continuity skeptic, symbolises some inexplicable gap in the

explanation, i.e. an absence of transitionary intermediate step(s). This is claimed to be caused by **B** being incompatible with some assumption made by a genealogy of content.

With these terms clarified, I would like to provide a general outline of Bar-On's strategy for undermining continuity skepticism. The central tenets of her strategy are:

1. The explanation should only appeal to *Broad Scientific Naturalism*;
2. The explanation should be diachronic;
3. Meaningful linguistic communication, thought or intentionality are to be understood as irreducible to biological, chemical and physical facts;
4. The explanation must accept the strictures of the continuity skeptic. Viz., it must accept the particular account of contentful items that the continuity skeptic provides and should provide a nonreductive explanation of that;
5. The explanation should be, in principle, continuous.

These central tenets supply an idealised scientific model that describes the essential explanatory resources for the emergence of meaningful linguistic communication. It undermines continuity skepticism because it supplies an in principle continuous diachronic explanation. I will now turn to briefly outlining Bar-On's EC and how she thinks it can supply a synchronic middle position.

2.5 Expressive Communication as a Synchronic Middle Position

Bar-On claims that EC is meant to be "poised half-way between the more 'biologically-driven' animal signalling systems … and intentional-conventional linguistic communication."[71] To support this, Bar-On must first show that it shares significant commonalities between both systems of communication. This will set it up as the precursor to linguistic communication which can then be used to explain the diachronic emergence of intentionality, meaningful communication and thought. This account of EC involves giving "commonsense *descriptions* of expressive behaviour" that can be found in creatures lying between (simple) animal communication and human communication.[72] So, the general task is to outline how EC is a type of animal communicative system, but also, how it is similar to human communicative systems. We can begin by summarising the similarities EC shares with animal communicative systems:

1. Expressive behaviours, such as vocalisations and gestures, are not symbolic and do not have a compositional structure;
2. Expressive behaviours do not involve Gricean communicative intentions or propositional contents on the part of the producer or receiver; in this sense, expressive behaviour is akin to other animal signals that indicate states of affairs, such as hunger, danger, fertility, etc… through nonnatural meaning;

[71] Dorit Bar-on, "Origins of meaning: Must we 'go Gricean'?" 369.
[72] Dorit Bar-On, "Expressive communication and continuity skepticism," 329.

3. Since expressive behaviour does not involve communicative intentions, it does not require the attribution of a TOM[73] or individual rational interpretative abilities to these creatures; these behaviours are merely meant to affect how other creatures will relate to an object in the environment;
4. Finally, expressive signalling is "*naturally designed*"; the expressive behaviours are designed by natural selection, and other forms of ability transmission, to convey information and secure effective expressive communication.[74]

On the other hand, expressive behaviour is similar to fully-fledged linguistic communication in the following ways:

1. "Expressive behaviour shows signallers' world-directed states of mind".[75] These behaviours go beyond mere indicator-meaning; they show the expresser's state of mind, the object that the expresser's state of mind is directed towards and how the expressor will react.[76]
2. "Expressive signals inherit the complexity of expressed states of mind, showing the intentional object of these states (as well as their type and degree)."[77] This is to say that these signals have a referential and predicative dimension that exhibit the signaller's perception of the object. [78, 79]
3. "The states shown through expressive behaviour can be both affective and cognitive."[80] These states can be both instinctive responses to certain stimuli (i.e. affective responses) and show attuned observers the object the state of mind is directed towards. In other words, these states are Janus-faced because they simultaneously express the state of mind and the object the state of mind of the expresser is targeted at.[81] For example, a wolf's bearing of teeth at a predator simultaneously shows the wolf's state of anger or hostility and the predator to which that affective state of mind is targeted towards.
4. "Expressive behaviour is subject to voluntary suppression, modulation, and control."[82] These behaviours are not purely reflexive, they embody a sort of agency. This is because the behaviours will often show receivers how they will be acting and how the receivers should be disposed to act.[83] Furthermore, depending on the context, producers of expressive behaviour can voluntarily modify the intensity of their behaviour so that it shows different attributes of what the state is about.[84, 85]

[73] By TOM I refer to "Theory of Mind". But more generally, it could be claimed that these creatures lack an ability to engage in metarepresentational capacities. Dorit Bar-on, "Origins of meaning: Must we 'go Gricean'?" 359.
[74] Ibid., 369.
[75] Ibid., 370.
[76] Dorit Bar-On, "Expressive communication and continuity skepticism," 320.
[77] Dorit Bar-on, "Origins of meaning: Must we 'go Gricean'?" 370.
[78] Ibid., 357-358.
[79] For more detail on the referential and predicative dimensions see: Dorit Bar-on, "Origins of meaning: Must we 'go Gricean'?" 357-358. & Dorit Bar-On, "Expressive communication and continuity skepticism," 321.
[80] Dorit Bar-on, "Origins of meaning: Must we 'go Gricean'?" 370.
[81] Dorit Bar-On, "Expressive communication and continuity skepticism," 320.
[82] Dorit Bar-on, "Origins of meaning: Must we 'go Gricean'?" 370.
[83] Dorit Bar-On, "Expressive communication and continuity skepticism," 321.
[84] Ibid., 322.
[85] A good example of this is where the producers of expressive behaviour will vary the intensity of an alarm call to show attuned observers how near the danger is. This corresponds to the predicative dimension of expressive behaviour

5. “The use of expressive signals exhibits various sorts of flexibility (e.g. audience-effects and context sensitivity).”[86]
6. “Gestural communication, specifically, exhibits individual idiosyncrasy and group variability.”[87]
7. “Expressive communication is subject to some intersubjective learning and dyadic modification.”[88] That is to say, certain communicative behaviours are not innate, but rather learnt through ontogenetic socialization; furthermore, these communicative behaviours are dyadic in the sense that they involve interactions that convey certain states of mind to others, e.g. a request to be fed by a mother or a gesture exhibiting a willingness to play with another.[89]
8. “Expressive communication is at times triadic, relying on shared attention mechanisms that allow signalers and receivers to attend together to objects or events of mutual concern.”[90] That these expressive communicative behaviours are triadic means that they involve, at least, two subjects which are both aware of some object and are mutually aware of each other’s awareness of the object. Basically, expressive behaviour is capable of allowing interactions involving triangulation.[91]

These observations allow Bar-On to set-up the EC hypothesis, which we can assume to be adequate for the purposes here:

> “Expressive communication is a form of *social*, *intersubjective*, *world-directed* interaction that is naturally designed to show the states of mind of expressers to suitably endowed observers, so as to move them to act in certain ways (toward the expresser or the object of her expressed state), in part by foretelling the expresser's impending behavior.”[92]

Bar-On maintains that, by identifying animals capable of these behaviours, the hypothesis can help explain the emergence of meaningful linguistic communication and objective thought.[93] What is important is that communication between animals capable of expressive behaviour can exhibit forms of intersubjectivity similar to that found in meaningful linguistic communication. These intersubjective expressive communicative behaviours do not require the attribution of propositional content, but nonetheless display features that are precursors to aspects of contentful items. Given this, Bar-On contends that the processes which facilitate for the ritualisation of these intersubjective communicative behaviours “could enable expressive behaviours to evolve into standard signals with recognizably semantic and pragmatic features.”[94]

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as expressive signals. To support this, Bar-On draws from: Dorothy L. Cheney, and Robert M. Seyfarth. *Baboon Metaphysics: The Evolution of a Social Mind* (Chicago: University of Chicago Press, 2008), 221.

[86] Dorit Bar-on, “Origins of meaning: Must we ‘go Gricean’?” 370.
[87] Ibid., 370.
[88] Ibid., 370.
[89] Ibid., 366-367.
[90] Ibid., 370.
[91] Dorit Bar-On, “Expressive communication and continuity skepticism,” 310-311.
[92] Ibid., 323.
[93] Ibid., 324.
[94] Dorit Bar-on, “Origins of meaning: Must we ‘go Gricean’?” 367.

However, in order for these processes to provide the shift from EC to meaningful linguistic communication, Bar-On will have to show two things about EC. Firstly, EC needs to be seen as a synchronic middle position between the capacities of (simple) animal communicative systems and meaningful linguistic communication – this has been briefly motivated in this section. Secondly, it will need to be shown whether EC, as a middle position, can support an in principle continuous diachronic explanation of the emergence of meaningful linguistic communication. This possibility, as Bar-On views it, will be discussed in the next section.

2.6 EC as a Diachronic Intermediary

In "Expressive Communication and Continuity Skepticism"[95] Bar-On considers Davidson's remarks **(D)** on the emergence of the mental as a particular case study of continuity skepticism, which she aims to undermine with EC. To start the motivation, consider:

> "I believe, [continuity skeptics] miss the potential of expressive communication to point us to *natural precursors* of objective thought and meaningful linguistic communication. These are intersubjective communicative interactions …"[96]

According to Bar-On, the form of intersubjectivity present in EC accounts for *proto-objectivity* which is a natural precursor to the objectivity found in human thought and linguistic communication.[97] To get a firm idea of how EC gives rise to intersubjectivity, and thus *proto-objectivity*, we need to first turn to Davidson.

In Bar-On's interpretation, Davidson does not think there is a way to explain the emergence of thought, since there can be no intermediate positions explaining this emergence process.[98] This is motivated by his idea of triangulation. Propositional thought and meaningful communication requires triangulation, where two subjects S1 and S2 are 'linked', i.e. can engage with each other, and each subject is 'linked' with an object O in the world which they can engage with.[99, 100] But there are two forms of triangulation we can distinguish between here. Pure and reflective triangulation. Pure triangulation concerns behaviour that is non-linguistic. Each subject can have O-responses to object O in the world and they can even be aware that the other subject's O-response is a response to O. This allows for there to be a difference in their O-responses.[101] For example, S1 could see O and have an O-response while S2 could see O and have an O*-response. As discussed, a difference in O-response is essential to objectivity for Davidson. This is because objectivity requires that S1 perceives S2's response to O, and furthermore, can think that it fails to correspond to O – S1 thinks that S2 is mistaken in his response to O.[102] Such perception of a mistake makes room for the concept of error, which is essential for having a concept of intersubjective truth, and hence the concept of objectivity about the world. But Davidson thinks that pure triangulation is not

[95] Dorit Bar-On, "Expressive communication and continuity skepticism," 293-330.
[96] Ibid., 324.
[97] Ibid., 324
[98] Donald Davidson, *The Emergence of Thought (1997)*, 127.
[99] Ibid., 121.
[100] Dorit Bar-On, "Expressive communication and continuity skepticism," 307.
[101] Ibid., 307.
[102] Ibid., 307.

sufficient for the emergence of objective thought. This is because mere intersubjective interactions do not require the attribution of a "reflective grasp of the concepts of error, belief, truth," etc..[103] All that can be attributed to their difference in response to O, without using linguistic devices, would be behavioural discord. This can be represented as follows:

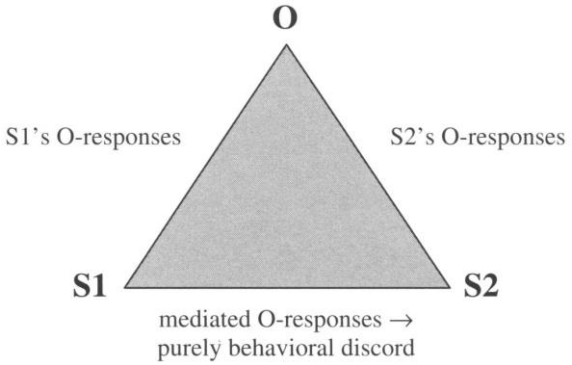

Fig. 2.3[104]

According to Davidson, nothing short of linguistic communication will allow for subjects to disagree by a "reflective grasp of the concepts of error, belief, truth," etc…[105] Mastery of language allows the two agents to communicate using vehicles capable of propositional content, without which "there is no way the agents can make use of the triangular situation to form judgements about the world."[106] So with language, subjects can engage in reflective triangulation. In the same triangular situation, subjects can respond to O with true or false utterances. Since they can do this, when there is a difference between their responses (as assertions) to O, this can be seen to be a difference in what is held true about O.[107] This allows for the concept of objectivity, since it requires that subjects recognise that there is a gap between what they hold true and what is true.[108] Thus, the subjects will have a concept of the other subject being in error, thus they will have a concept of intersubjective truth. This can be represented as follows:

[103] Ibid., 308.
[104] Ibid., 308.
[105] Ibid., 308.
[106] Donald Davidson, *The Emergence of Thought (1997)*, 130.
[107] There may be instances where the difference in the subjects' assertions about O are not due to a difference in what is held true. For example, the difference in assertions might be due to: (1) a difference in the subjects' interests relative to O or (2) a mere difference in the token assertions used about O, without there being a difference in what is held true about O. Notwithstanding these subtleties, with the ability to make true or false utterances, comes the possibility that there is a difference between the subjects' responses to O as a product of a difference between what is held true. This possibility is all that is necessary for reflective triangulation and is what I would like to focus on henceforth.
[108] Davidson says that "propositional thought, is objective in the sense that it has a content which is true or false independent (with rare exceptions) of the existence of the thought or the thinker." Ibid., 129.

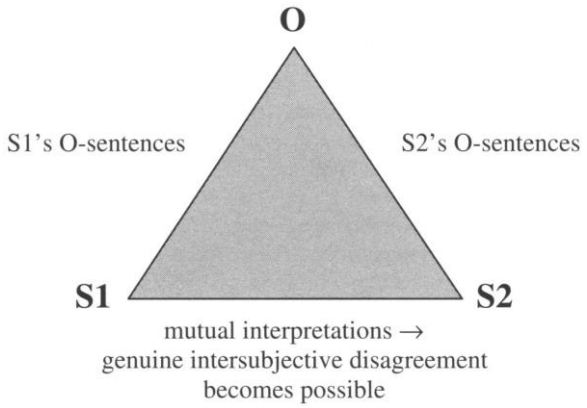

Fig. 2.4[109]

A lot more could be said here, but for the purposes of this section it is enough to say that Davidson thinks that reflective triangulation is necessary and sufficient for the emergence of objective thought and meaningful linguistic communication.[110] And since nothing short of language is sufficient for reflective triangulation, there will be no way to explain how non-linguistic creatures engaged in pure triangulation could give rise to reflective triangulation, according to Bar-On.[111] Only the presence of language can explain the objectivity of thought and meaningful linguistic communication, so there can be no intermediary positions explaining how this came about – that is, without assuming non-linguistic animals are engaged in reflective triangulation which presupposes language, the very thing we are trying to explain the emergence of.

There is a slightly different way of observing the difference between pure and reflective triangulation, one that does not focus on the presence of language. This involves observing that reflective triangulation requires creatures that have the capacity to grasp normative statuses, such as the concept of being in error, while pure triangulation does not – it only involves discord between responses. It is, specifically, this grasp of normative statuses that allows for content to arise, since it is required for our concept of intersubjective truth, hence objectivity. Given this, the difference between reflective and pure triangulation involves the presence or absence, respectively, of the capacity to grasp normative statuses. Since the presence of this capacity is essential for reflective triangulation, contentful items are determined by norms – CDN. This grasp of normative statuses corresponds to the Kantian notion of *acting in accordance with one's conception of the rule* (as opposed to *acting in accordance with the rule*). Because of this, one could see the role of reflective triangulation as creating a situation in which to explain the emergence of our capacity to *act in accordance*

[109] Dorit Bar-On, "Expressive communication and continuity skepticism," 309.
[110] Donald Davidson, "Externalisms," In *Interpreting Davidson*, edited by P. Pagin and G. Segal P. Kotatko, 1-16 (Stanford: CSLI Publications, 2001), 13.
[111] Dorit Bar-On, "Expressive communication and continuity skepticism," 309-310.

with our conceptions of rules.[112] Importantly, this situation, following Davidson, shows that "thought as well as language is necessarily social."[113]

Furthermore, since Davidson thinks "a reduction of the intentional to the extensional […] is not to be expected"[114], and the grasp of normative statuses determines the intentional, then this grasp of normative statuses cannot be reducible to the extensional (or nonnormative). For Davidson, contentful items are irreducible to biological, chemical or physical facts because they have a "*normative* character".[115] Content has "standards of consistency and correctness", i.e. norms, which if not "met to an adequate degree" precludes vehicles of this content from counting as contentful.[116]

Bar-On claims that EC can explain a third form of triangulation that sits between pure and reflective triangulation – intermediate triangulation. She thinks that it allows for a wider "range of mismatches that go beyond mere behavioral discord, and embody a kind of disagreement that can ground *proto-objectivity*."[117] Let me first supply the example she gives:

> "S1 produces an alarm call, which is naturally designed to show conspecifics, S2 included, his imminent flight from some specific type of nearby threat (some predator O), so as to encourage S2 to do the same. Having observed the behavior, S2 is in a position to respond to it in some way that is not only responsive to the presence of O (as indicated by the behavior) but is also anticipatory of S1's subsequent behavior. Instead of also fleeing, for example, S2 may upon hearing the alarm call and spying no predator, respond to S1's alarm call by, say, moving toward S1 to consume S1's soon-to-be-abandoned meal."[118]

Such scenarios are indeed observed among animals.[119] I will now describe what Bar-On thinks is happening here with reference to EC. (However, I will not attempt to explain how

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[112] Davidson admits this when he claims:

> "What introduces the possibility of error is the occasional failure of the expectation; the reactions do not correlate. Wittgenstein expresses this idea when he talks of the difference *between following a rule and merely thinking one is following a rule*; he says that following the rule (getting things right is at bottom a matter of doing as others do. Of course, the others mays sometimes be wrong. The point isn't that consensus defines the concept of truth but that is creates the space for its application." (emphasis added) Donald Davidson, *The Emergence of Thought (1997)*, 129.

What is vital is that consensus in rule following does not give rise to the concept of truth. It is precisely that creatures become aware of the fact that one can act in accordance with what one 'thinks' the rule is, that triangulation gives rise to the concept of intersubjective truth.

[113] Ibid., 129.

[114] Donald Davidson, "Externalisms," 13.

[115] Donald Davidson, "Problems in the explanation of action," In *Metaphysics and Morality: Essays in Honour of J. J. C. Smart*, edited by John Jamieson Carswell Smart, Philip Pettit and Richard & Norman, Jean Sylvan, 34-49 (Oxford: Blackwell, 1987), 46.

[116] Ibid., 46.

[117] Dorit Bar-On, "Expressive communication and continuity skepticism," 324.

[118] Ibid., 324-325.

[119] Many instances where animals deceptively use alarm calls to steal food from another species (i.e. kleptoparatism) are instances of this. One example would be the use of mimicked false alarm calls by forked-tailed drongo birds, so that these birds may kleptoparasitize the food foraged by meerkats. An instance of this would be when a meerkat finds some food, e.g. a scorpion, and a drongo bird vocalises a mimicked meerkat alarm call that there is danger nearby; this false alarm call will cause the meerkat to abandon its scorpion, giving the drongo bird the opportunity to steal the

this follows from EC, since for the purposes of this paper I am granting that EC is correct and that intermediate triangulation follows from it.) She starts off by observing that S2's behaviour differs from the behaviour that S1 performs and also from the behaviour that is expected of S2 if it heard the alarm call. This suggests that there is some form of disagreement about whether there is a predator. "[I]t can be said to *embody* O-related disagreement with S1's behavior."[120] This suggests that S2 is holding two separable yet simultaneous tabs – one about the world, the other about S1's expected behaviour.[121] Thus, given the ensuing behaviour of S2, this suggests that S2's behaviour embodies some form of disagreement with S1's appraisal of O. S2 must have some conception that S1 has got things wrong. If it could not hold these two separable yet simultaneous tabs, then either it ought to have reacted in a similar manner as S1, due to natural design, or there would have been mere behavioural discord due to some error in appraising the environment on S2's behalf. This can be represented as follows:

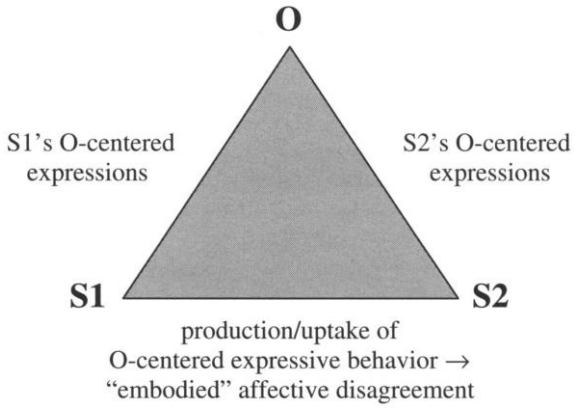

Fig. 2.5[122]

So we have a form of triangulation that can allow for a "broader range of intersubjective mismatches/disagreements than … the pure case."[123] This is not the same as reflective triangulation; there is no presupposition of a reflective grasp of the concepts of error, truth, objectivity, etc... Yet, we still have a richer form of intersubjectivity than allowed in the pure triangulation case. It permits embodied affective disagreement which is what accounts for *proto-objectivity*.

From this case study of Davidson's continuity skepticism, we can roughly see how Bar-On thinks that EC sets up a middle position for a diachronic continuity story. It allows for

food. Tom Flower, "Fork-tailed drongos use deceptive mimicked alarm calls to steal food," *Proceedings of the Royal Society B: Biological Sciences* 278, no. 1711 (2011): 1548-1555. Interestingly, drongo birds will also use this mimicked alarm call 'truthfully', i.e. when there is danger. So the mimicked alarm calls can be used flexibly for different functions by drongo birds. As Flower writes: 'Animals commonly eavesdrop on the alarm calls of other species in their environment […] and drongos appear to exploit this behaviour by using deceptive alarm calls to steal food from target species." Tom Flower, "Fork-tailed drongos use deceptive mimicked alarm calls to steal food," 1553.

[120] Dorit Bar-On, "Expressive communication and continuity skepticism," 325.

[121] Ibid., 325.

[122] Ibid., 326.

[123] Ibid., 326.

intermediate triangulation and several other features which give credence to the idea that we have found natural precursors to objective thought and meaningful linguistic communication. Consider Bar-On's optimistic closing remarks about EC as a middle position. She suggests that expressive vehicles could become separable from the affective states that induced those expressive vehicles.[124] The how-possibly story for this claims that as expressive vehicles "become gradually both more stylized and more refined; it can be reproduced and imitated, so as to culminate in a distinct, repeatable vocal pattern, distinguishable" from the cause of the expressive vehicle.[125] These separated expressive vehicles could then "begin functioning as stand-ins for the relevant objects, forming a standing […] lexicon."[126] So given the capacity for intersubjective interactions due to intermediate triangulation, and some form of proto-language, we can see how this nonreductively gives rise to a situation for reflective triangulation where creatures are able to exhibit genuine disagreement through the use of lexical items. This is why Bar-On believes that if EC is a suitable synchronic middle position, we can hope to shed light on the emergence of meaningful linguistic communication. In sum, by providing a common vocabulary between meaningful linguistic communication and (simple) animal communicative systems through EC, we can then open up the possibility for explaining how creatures engaged in reflective triangulation can be seen as nonreductive elaborations of the capacities displayed by creatures engaged in intermediate triangulation.

More significantly, though Bar-On does not discuss this, with EC comes the emergence of behaviour that can be seen to accord with quasi-norms. Viz., intermediate triangulation supplies a situation in which one can start to see creatures' behaviour aping norm-governed behaviour in certain contexts. This is because, to take the drongo bird as an example, its mimicked false alarm call and subsequent kleptoparasitic behaviour exhibits embodied affective disagreement with the meerkats' uptake of the O-centered false alarm call exhibited by their fleeing. In this instance, the drongo bird's embodied behaviour can be observed to be exploiting the meerkats' natural response to flee when they hear a faux meerkat alarm call. This exploitative (embodied) behaviour of the drongo bird suggests that it is acting in discordance with the regular way the alarm call is to be used. This is vital, since it indicates how a proponent of diachronic continuity could start to explain how the context for reflective triangulation emerged. Quasi-norm-governed behaviour has been partly explained, and this appears to put us closer to explaining how such creatures start to behave in a manner that exhibits full-fledged norm-governedness.

In what follows, I will attempt to show that given EC and what follows from it is correct, e.g. *proto-objectivity inter alia*, this does not necessarily give credence to the idea that we have found natural precursors to objective thought and meaningful linguistic communication by the lights of continuity skeptics. Put slightly differently, EC does not offer a viable strategy for undermining continuity skepticism.

[124] Ibid., 328.
[125] Ibid., 328.
[126] Ibid., 328.

2.7 Are Continuity Skeptics, Skeptics about Continuity?

We have now come full circle by considering how Bar-On argues for her two aims. This involved characterising: (1) how she understands 'continuity skepticism' and (2) the strategy of EC for undermining it. However, in arguing for these aims, she also characterised the dispute over diachronically continuous explanation in contrast to the position held by continuity skeptics.[127] By outlining the dispute in this manner, I will demonstrate that it precludes her strategy from undermining continuity skepticism. It only does so at the cost of begging the question.

I will indicate how this is due to a mischaracterisation of those who hold positions that she attributes to be versions of continuity skepticism, i.e. Davidson and Brandom. (The mischaracterisation will be diagnosed as being a product of not keeping score of the different forms of explanation espoused by these 'continuity skeptics'.) This is why I would like to redescribe the taxonomy of how the dispute over diachronically continuous explanations should look.

2.7.1 So What? A Continuity Skeptic's Response

If we grant Bar-On's account of intermediate triangulation as a middle position between Davidson's pure and reflective triangulation, then it seems clear to me that it gives rise to something more than mere behavioural discord (in the case of pure triangulation). But here is where I would like to raise my initial discontent. I have the following question: if Bar-On is correct that EC establishes a synchronic middle position, then does intermediate triangulation make the case for a diachronic continuity, in principle, possible? To this question, I would answer negatively by the lights of the continuity skeptics – at least some of them.

So let us start with the question: Does intermediate triangulation establish the possibility of a continuous diachronic explanation by the lights of continuity skeptics? Bar-On already anticipates a response by the continuity skeptic and supplies her rejoinder:

> "A committed continuity skeptic could no doubt insist that the interaction involved in intermediate triangulation only merit purely behaviouristic, nonintentional characterizations, just like those in its predecessor, pure triangulation. The obvious response to this will be to point out that *the same is true of reflective triangulation*. There is nothing to prevent a committed skeptic from redescribing inter-subjective *linguistic* interactions in terms that leave it open whether the subjects involved are really minded, or really treat each other as minded subjects. Simply to invoke the possibility of redescription is to land in yet another kind of skepticism - a version of *other-minds skepticism* - which is, in fact, even more radical than continuity skepticism."[128]

[127] Ibid., 293-330.
[128] Ibid., 327.

I see the core of her rejoinder to be that the mere possibility of redescribing intermediate triangulation in nonintentional terms (just like pure triangulation is described), would not preclude the possibility of redescription in other domains. But if this is possible then the continuity skeptic must accept that reflective triangulation could be redescribed in such a way that is open to unacceptable 'radical skeptical scenarios'. There is an implicit argument at play here:

1. If the mere possibility of non-intentional redescription suffices to undermine an intentional description, then this applies in the case of reflective triangulation and delivers extreme skepticism.
2. The only reason advanced against the intentional description of intermediate triangulation is the mere possibility of non-intentional redescription.
3. Therefore, accepting the argument against intermediate triangulation delivers extreme skepticism.

What Bar-On concludes from this is:

> "Insisting that the animal case *must* be treated entirely differently from the linguistic case would either be question begging or require a separate, substantial defence."[129]

Very well, the continuity skeptics are stuck with intermediate triangulation. But here I imagine a continuity skeptic emphatically retorting with:

> 'So what? This does not show that EC is a synchronic bridging position in a continuous diachronic story for explaining how contentful items emerged. All it vindicates is the possibility of creatures with states exhibiting *proto-objectivity*.'

The continuity skeptic could happily accept EC and intermediate triangulation, but still maintain that nothing short of linguistic communication or a normative practice is sufficient for the emergence of intentionality and objectivity in the *order of explanation*. What is important here is the manner in which Bar-On interprets those who she characterises as continuity skeptics. For example, Bar-On maintains that Davidson does not think a continuous diachronic explanation of the emergence of content is possible.[130] This is because Davidson takes the normative character of language to be first in the *order of explanation* of contentful items. More importantly, the normative character of language cannot be seen as elaborations on nonnormative features found in creatures engaged in EC. Therefore, creatures engaged in reflective triangulation *cannot* be seen as nonreductive elaborations on creatures engaged in intermediate triangulation, since there is an essential component missing – normativity. Given this reading, why should EC, and the intermediate triangulation it engenders, be a synchronic middle position in the diachronic explanation of the emergence of content for him? I contend that it would be an intermediate step (in the *order of being*), but it

[129] Ibid., 328.
[130] Ibid., 310.

would not provide a "satisfactory vocabulary" that would enable us to "describe the process which leads from" scenarios of pure-triangulation to reflective triangulation.[131]

To generalise, the continuity skeptic is not necessarily discontent with intermediate triangulation, but is rather asking for the middle position between intermediate and reflective triangulation – one that explains the emergence of the normative. However in the eyes of Bar-On's continuity skeptic, intermediate triangulation becomes the new pure triangulation. So long as EC does not describe how the capacity for grasping norms emerged and so how genuine error emerges, then it cannot be considered as aiding the continuous explanation of a situation for reflective triangulation to emerge. It fails to explain how objectivity could nonreductively emerge from *proto-objectivity*. Therefore, it fails to explain the emergence of content by the lights of continuity skeptics like Davidson.

This would be a Sellarsian point that the emergence of the normative is first in the *order of understanding* when it comes to explaining the content. Resultantly, both pure and intermediate triangulation are 'equally far off' in the *order of understanding* for explaining the emergence of content. This is not to deny that Bar-On's account of intermediate triangulation is true, nor that it constitutes a more sophisticated form of animal communication sharing some commonalities with human communicative systems. Rather it is to deny that intermediate triangulation is a middle position that undermines continuity skepticism. EC is simply part of the *order of being*, i.e. *causal order*.

In this sense, it can be conceded that intermediate triangulation is clearly a middle position between human and (simple) animal communicative systems. It is a middle position in the sense that it admits that EC is a causal prerequisite for the acquisition of intentional items. Nonetheless, the continuity skeptic would deny that such precursors add any conceptual purchase to the explanation of the emergence of meaningful linguistic communication, thought and intentionality in the *order of understanding*.[132] Because intermediate triangulation fails to supply a 'middle position', in the *order of understanding*, by the lights of continuity skeptics, it is question begging to insist that EC and intermediate triangulation undermines continuity skepticism in general.

In Bar-On's defence, surely the discussion above would just be another way of overestimating what is essential to meaningful linguistic communication, which would "either be question begging or require a separate, substantial defence."[133] However, consider those who hold a linguistic view of intentionality, such as Brandom and Davidson. Here nothing short of language, or a normative linguistic practice is sufficient for content. But if this is the case, then Bar-On's how-possibly story is a chimera to them. They would claim that it begs the question, since it flagrantly ignores aspects of what they take to be essential to meaningful linguistic communication. To make this clearer, without getting into the weeds on particular accounts of continuity skepticism, I think it fair to say that both Davidson and

[131] Donald Davidson, *The Emergence of Thought (1997)*, 127.
[132] This response concedes that EC entails there is less synchronic discontinuity and no synchronic disconnect, but to denies that there is a diachronic discontinuity – neither of these former notions are inconsistent with diachronic discontinuity.
[133] Dorit Bar-On, "Expressive communication and continuity skepticism," 328.

Brandom would accept some form of *Liberal Naturalistic Explanation*.[134] However, they would both deny that there is a *Broad Naturalistic Explanation*. This is why, in general, they will think Bar-On's middle position is question begging – it is only a potentially plausible middle position if you already accept that some *Broad Naturalistic Explanation* is possible.

I don't deny that what I have been arguing for above begs the question against Bar-On. But this is precisely a product of what I aimed to show. What I have said is question begging from the perspective of the proponent of *Broad Naturalistic Explanation*. However, it is not question begging from the perspective of the proponent of *Liberal Naturalistic Explanation*. In fact, what Bar-On fails to recognise – in characterizing the dispute of diachronic continuity with reference to continuity skepticism – is that the question begging accusation cuts both ways. From the perspective of continuity skeptics who accept some form of *Liberal Naturalistic Explanation*, they could say:

> 'Insisting that the features found in the intermediate triangulation *must* give rise to the linguistic case would either be question begging or require a separate, substantial defence.'

The above is merely polemical, but it does raise an important point. Someone might hold that the capabilities found in mastery of language are, not only irreducible to capabilities found in non-linguistic animals, but also, unilluminated by the resources found in *Broad Naturalistic Explanation* alone. This does not preclude a continuous explanation from occurring for those who deny *Broad Naturalistic Explanation*. It simply requires a liberalisation of the resources utilised for explaining how linguistic mastery emerged. In Davidson's case, this clearly requires an explanation of the emergence of our ability to grasp norms. If these norms are taken to be irreducible to nonnormative facts, then a nonreductive explanation of the normative is required.[135] A nonreductive *Liberal Naturalistic Explanation* of the emergence

[134] Davidson is committed to non-reductive naturalism of contentful items, where the content of these items is to be explained in terms of radical interpretation. Crucially for Davidson, contentful items cannot be ascribed through radical interpretation without a normative interpretative scheme that we bring to it. Donald Davidson, "Problems in the explanation of action," 46. Additionally, due to his Anomalous Monism contentful items are to be explained in an autonomous naturalistic domain that is not entirely explicable in the vocabulary of the scientific image. Daniel D. Hutto, and Glenda Satne, "Demystifying Davidson: Radical interpretation meets radical enactivism," *Argumenta* 3, no. 1 (2017): 9; David Macarthur, "Liberal naturalism and the scientific image of the world," 571); Donald Davidson, *Essays on Actions and Events: Philosophical Essays*, 223 & 231. Thus, Davidson's naturalism is not committed to using resources found exclusively within the "successful sciences". His notion of naturalism permits non-scientific methods and facts, hence I think it fair to say that Davidson's explanatory toolbox is in line with *Liberal Naturalistic Explanation*. Brandom can be seen to be a *Liberal Naturalist* of sorts too. He makes no attempt to reduce the normative vocabulary to a nonnormative vocabulary, where this nonnormative vocabulary involves biological, chemical and physical facts. But he qualifies that "[t]hough this normative dimension of linguistic practice is taken to be ineliminable, it is not treated as primitive or inexplicable." Robert Brandom, *Making it explicit*, xiii. This "normative dimension" is meant to be explicable in terms of "social-practical activity" where this can be analysed in terms the effects performances have on the commitments and entitlements of those in the practice. Robert Brandom, *Making it explicit*, xiii-xiv. However, Brandom follows these points with the claim that "[t]he natural world does not come with commitments and entitlements in it; they are products of human activity." Robert Brandom, *Making it explicit*, xiv. This suggests that Brandom is not working within the austere resources of *Broad Scientific Naturalism.* He is satisfied with showing a normative practice can confer content on various performances – through the role they play in the practice – without the use of purely scientific facts and epistemic methods.

[135] Davidson says that "[t]he triangular relationship […] is, I have argued, necessary to thought. It is not sufficient, as is shown by the fact that it can exist in animals we do not credit with judgement. For this reason we are in a position to say something about a situation that must exist if thought does, but it is a situation that can exist independently, and so can precede thought in the order of things. It can exist first, and it surely does. Thus we can say that a certain kind of

of the normative might succeed on this front without being restricted to the austere toolbox of *Broad Scientific Naturalism*.

In summary, the continuity skeptic can still accept EC and intermediate triangulation, however, they would just deny that it alone vindicates the possibility of diachronic continuity – it is not a satisfying philosophical middle position to them. What gave rise to this? Differing conceptions of what sort of explanation is sufficient for EC to help explain a diachronic continuity story of the emergence of human language, communication and thought. Therefore, there can be no non-question begging middle position supplied by EC that undermines the continuity skeptics in general. More generally, any diachronic middle position will assume some interpretation of explanation, and this in turn, will make it question begging to those who hold the other interpretations.

Given this, we can characterise continuity skeptics more generally. They hold that there is no middle position under the *Broad Naturalistic Explanation*, while opponents think there is. But with this made explicit, we can now see that Bar-On's general aim of finding a "sensible middle position" between Overestimators and Underestimators resurfaces in a more sinister form.[136] EC can be seen as overestimating what can be achieved by an explanation given the continuity skeptics' strictures, while continuity skeptics can be seen as underestimating what can be achieved by an explanation given the commitments of opponents. So characterising a dispute in relation to whether you accept that a *Broad Naturalistic Explanation* is sufficient for diachronic continuity or not, does not provide a way to undermine continuity skepticism without question begging – the characterisation bakes within it a stalemate.

Furthermore, there is the observation that continuity skeptics under her characterisation would not consider themselves skeptics about diachronic continuity. They may respond by insisting that they do think there is a diachronic continuity story to be told about the emergence of intentionally, meaningful communication and thought under a *Liberal Naturalistic Explanation*. Alternatively, they may simply not be supplying such an emergence account. So Bar-On's dubbing of certain theorists as continuity skeptics seems inappropriate.

Because of these points I would also like to suggest an alternative manner for framing the dispute over diachronically continuous explanations. I want pre-emptively to suggest that what leads to this disagreement about explanation is simply different views about what human language, communication, thought *is now*. If one does not keep score of what synchronic theory of meaning, thought or intentionality is held by a theorist, then this will invariably result in disagreements over what constitutes a continuous explanation in the *order of understanding*. These points are somewhat trite, but they will be elaborated on in the next section.

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primitive social interaction is part of the story of how thought emerged." Donald Davidson, *The Emergence of Thought (1997)*, 130. Though one may point out that Bar-On's intermediate triangulation displays precisely Davidson's preceding 'primitive social interaction', this would be to assume that Bar-On's intermediate triangulation involves norm-governedness. Since it does not, and furthermore, norm-governedness cannot be reduced to extensional items, then Bar-On does not set up an appropriate middle position that Davidson would require for this 'primitive social interaction'.

[136] Dorit Bar-On, "Expressive communication and continuity skepticism," 296.

2.7.2 Naturalistic Genealogy as an Adequacy Constraint

In this section I will present an alternative taxonomy for genealogies of content – one that does not frame the possibility of continuity in explanation with reference to not holding some rendition of *Scientific Naturalism*. This involves detailing the essential parts of a genealogy of content and the role it plays in solving the *placement problem*. I would like to start with a distinction made by Lewis:

> "I distinguish two topics: first, the description of possible languages or grammars as abstract semantic systems whereby symbols are associated with aspects of the world; and, second, the description of the psychological and sociological facts whereby a particular one of these abstract semantic systems is the one used by a person or population. Only confusion comes of mixing these two topics."[137]

Here Lewis is expressing that there are two sorts of 'theory of meaning' which deal with different questions, thus ought to be kept apart in careful theorising – *semantic theories of meaning* and the second *foundational theories of meaning*.[138] Expanding on this for the purposes of generality, I will term the first *formal semantics* and the second *foundational semantics*.[139] The former addresses questions such as "What is the meaning or content of this term?" and is generally concerned with specifying the meanings of linguistic items for some language, grammar or intentional system.[140] The latter addresses questions such as "In virtue of what facts about my society, biology, etc. does this term have its meaning or content?" and is generally concerned with explicating what facts about psychology, sociology, history, etc. bestow the contents that our intentional items already have.[141]

To make these ideas more concrete, consider Brandom's Normative Pragmatics. Normative Pragmatics, as advanced in 'Making it Explicit', can be seen to involve two distinct components – inferentialism and neo-pragmatism.[142] Inferentialism, generally, is the *formal semantics* that "starts with a practical distinction between good and bad inferences, understood as a distinction between appropriate and inappropriate doings, and goes on to understand talk about truth as talk about what is preserved by the good moves."[143] This sort of theory aims to supply an answer to the question "What is the content of this expression?" in terms of good and bad inference. However, there is no

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[137] David Lewis, "General Semantics," *Synthese* 22, no. 1–2 (1970): 19.
[138] Jeff Speaks, "Theories of Meaning," *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta, Spring 2021 Edition, https://plato.stanford.edu/archives/spr2021/entries/meaning/.
[139] Brandom uses the terms *formal semantics* and *philosophical semantics* to discuss the very same notions I have called *formal semantics* and *foundational semantics*, respectively. See: Robert Brandom, *Making it explicit*, 142-145. The only reason why I have chosen not to use Brandom's term 'philosophical semantics' is due to the fact that he uses this term synchronically only, while I wish to use it to refer to diachronic semantics too. (The relevance of this will become apparent in my discussion.)
[140] Jeff Speaks, "Theories of Meaning."
[141] Ibid.
[142] Robert Brandom, *Making it explicit.*
[143] Robert Brandom, *Articulating Reasons: An Introduction to Inferentialism* (Cambridge, MA: Harvard University Press, 2000), 12.

required specification of the facts that make these inferences good or bad. All that matters here is that there is a stipulated notion of good and bad inference.[144]

By contrast, Brandom's neo-pragmatism aims to answer how an expression's content is determined by a normative socio-cultural practice. This is to answer the question "In virtue of what facts do our expressions have the content they have." There are two parts in this *foundational semantics.* Firstly, content must be explained in terms of normative attitudes, such as treating things as correct and incorrect (this is how good and bad inference are to be explained, hence content).[145] Secondly, the practice of treating things as correct and incorrect is to be explained in terms of sanctions within the socio-cultural practice.[146]

Now both semantic theories are required to give a thoroughgoing account of content, but they are distinct in their aim to answer separate questions. Nonetheless, without this notion of good and bad inference in the *formal semantics*, there would be no target for neo-pragmatism to determine facts for. So, while these semantic theories aim to answer different questions, they are related insofar as the choice of *foundational semantics* depends on the particular characteristics exhibited in the *formal semantics*. In short, the choice of *formal semantics* delimits the choice of *foundational semantics*.

There is another relation between these two semantics expressed by Brandom. Simply put, one cannot claim to have provided a plausible *formal semantics* if there isn't a *foundational semantics.*[147] The semantic concepts that the *formal semantics* traffics in will be vapid so long as there is no *foundational semantics* that explains why and how these semantic concepts have the content they have. If it is borne out that no such *foundational semantics* is possible for such a *formal semantics*, then this would suggest that the *formal semantics* does not adequately account for content – in language and the mind. In this sense, *foundational semantics* is an adequacy constraint on *formal semantics*.

So what do genealogies of content answer about content? With reference to the distinction above, genealogies of content are a type of *foundational semantics*; they aim to determine the conditions necessary and sufficient for content to emerge. They are not directly concerned with the questions on whether content in natural language is specified by inferentialism, Fregean semantics, Davidsonian semantics, etc. However, there is still an important ambiguity to unpack in the notion of *foundational semantics*. The ambiguity lies in whether you are interpreting it as diachronic or synchronic "In virtue" explanation of content.

The synchronic *foundational semantics* only aims to explain content in terms of some other facts at some point in time. For example, neo-pragmatism as mentioned above, is a

[144] Another way to put this point is to say that inferentialism *uses* the notions of good and bad inference, it does not try to supply an account of what makes them good and bad.
[145] Jeff Speaks, "Theories of Meaning."
[146] Robert Brandom, *Making it explicit*, 36.
[147] Ibid., 144.

foundational theory for inferentialism, but it is synchronic in the sense that it attempts to explain how content is determined by socio-cultural practices at *some* point in time. By contrast, the diachronic *foundational semantics* aims to explain how content emerged over time in terms of other facts, i.e., it is genealogical. For example, "In virtue of what facts over time did content arise from creatures without content?" This example allows us to observe that synchronic *foundational semantics* cannot claim to have provided a plausible account that explains in virtue of what linguistic items have the content they have, if no account of the emergence of content from non-contentful states has been provided. So a diachronic *foundational semantics* of content is an adequacy constraint on a synchronic *foundational semantics*.

Furthermore, since it is an adequacy constraint on the synchronic *foundational semantics*, the former will have to be sensitive to the particular characteristics of the latter. Specifically, it will have to explain how the particular facts, that the synchronic *foundational semantics* used to explain content, emerged over time. E.g., neo-pragmatism is a synchronic *foundational semantics* that explains content in terms of normative socio-cultural practices; and because it takes norms to determine content, then the diachronic *foundational semantics* must explain the emergence of the normative socio-culture practice overtime *inter alia*. As a result, when discussing a genealogy of content one must keep score of what type of explanation one's synchronic *foundational semantics* is committed to. This in turn will affect what will be first in the *order of explanation* when supplying a diachronic *foundational semantics*. The discussion so far can be captured in the following diagram:

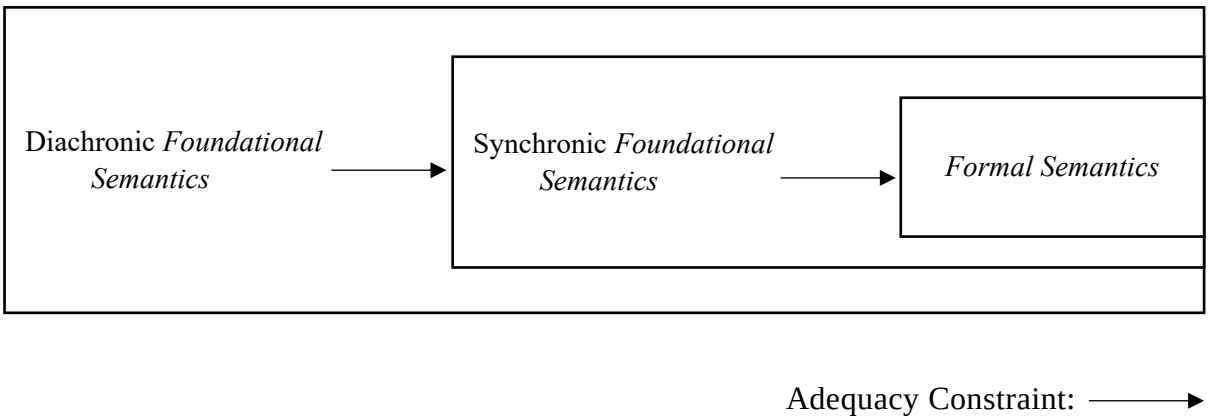


Fig. 2.7

With reference to the tripartite structure of naturalistic genealogies of content, synchronic *foundational semantics* and *formal semantics* both fall under **C**, i.e. where the *placement problem* is solved; diachronic *foundational semantics*, by contrast, fall under the **A** & **X**. This way of looking at the strategy neatly dovetails with Brandom's thoughts on the

emergence of content. He is primarily concerned in "Making it Explicit" with giving an account of **C**, i.e. his Normative Pragmatics.[148]

Provided with this new taxonomy, there is still an open question: if Bar-On is correct that EC establishes a synchronic middle position between human and (simple) animal communication, then does intermediate triangulation make the case for a diachronic continuity, in principle, possible given a *Broad Naturalistic Explanation*? This involves dropping the central tenet that:

Ψ The explanation must accept the strictures of the continuity skeptic. Viz., it must accept the particular account of contentful items that the continuity skeptic provides and should provide a nonreductive explanation of that;

The central tenets of Bar-On's genealogy can then be slightly adapted as follows:

Central Tenets of Bar-On's Genealogy of Content

1. The explanation should only appeal to *Broad Scientific Naturalism*;
2. The explanation should be diachronic;
3. Content is determined by reflective triangulation;
4. Meaningful linguistic communication, thought or intentionality are to be understood as irreducible to nonnormative biological, chemical and physical facts;
5. It is possible to supply a nonreductive explanation of the emergence of reflective triangulation from intermediate triangulation.
6. The explanation should be, in principle, continuous.

Whether this set of claims is consistent, thus provides an, in principle, continuous explanation will be explored in the following sections.

[148] Brandom claims that he is "concerned to say what doing the trick consists in, what you have to do to count thereby as having done the trick – where the trick is being able to say or think *that* things are thus-and-so […]." Robert Brandom, "Reply to Daniel Dennett's "The Evolution of 'Why?'"," In *Reading Brandom: On Making It Explicit*, edited by Bernhard Weiss, and Jeremy Wanderer, 305-308 (New York: Routledge, 2010), 306. This idea of '*having done the trick'* derives from his claim that "it is clear that there were nonlinguistic animals before there were linguistic ones, and the latter did not arise by magic." Robert Brandom, *Making it explicit*, 155. So '*having done the trick'* is what is involved at step **C**. But what I am investigating in this dissertation, and with reference to Bar-On's strategy, is something that Brandom does not address. Consider "[t]he question of how the trick is done – how creatures situated, wired up, and trained as we are could come to engage in practices and display abilities that qualify as discursive in this demanding sense – is explicitly put to one side. I do acknowledge, of course, that it is a criterion of adequacy of the account I offer that it be *possible* to tell such a story. […] Also left outside the scope of the project is the question of how there came to be, or could have come to be, creatures who could do the trick." Robert Brandom, "Reply to Daniel Dennett's "The Evolution of 'Why?'"," 306. What I am primarily interested in here is '*how the trick is done'* and '*what sort of creatures can do the trick'*. These refer to stage **X** and step **A**, respectively. What the discussion and quotations above display, is a misinterpretation in Bar-On's reading of Brandom. At no point in "Making it Explicit" does Brandom claim that he endorses a diachronic discontinuity. In fact, he explicitly states that that he has put the question of '*how the trick is done*' to one side and will be focussing purely on what '*having done the trick*' involves. Brandom, at most, could be interpreted as thinking that the intentionality of humans, cannot be entirely explicated in terms of the "lower grades of intentionality" found in animals in the *order of understanding*. Robert Brandom, *Making it explicit*, 7.

2.8 The Zenoesque Paradox of Content

I would like to suggest that, even under the purview of *Broad Scientific Naturalism*, Bar-On still fails *prima facie* to establish a middle position which vindicates the possibility of a continuous explanation. This is a product of the Zenoesque Paradox of Content. The inspiration for this argument derives from the remarks made by Davidson in "The Emergence of Thought"[149] that culminate in **(D)**. The thrust of his remarks were that either one illicitly uses contentful vocabulary to describe some pre-mentalistic stage, thus begging the question; or there will be a stage where there is no content followed by a stage with content. Both alternatives fail to shed light on the steps leading up to the emergence of content. As mentioned, Bar-On interprets **(D)** as showing that there is a diachronic discontinuity, thus no possible way to provide a successful genealogy.[150] This interpretation, however, is not endorsed by Davidson:

> "It is not that we have a clear idea what sort of language we could use to describe half-formed minds; there may be a very deep conceptual difficulty or impossibility involved. That means there is a perhaps insuperable problem in giving a full description of the emergence of thought. I am thankful that I am not in the field of developmental psychology."[151]

In fact, he follows this by providing some constructive remarks on how to potentially tackle the emergence of thought.[152] This is a prime example of Bar-On's misattribution of the term 'continuity skeptic'. My interpretation of Davidson's 'skeptical' remarks is that he is simply stating a constraint and a difficulty for explaining the emergence of thought and thus content. These can be summarised as:

(1) *Constraint on Genealogy*: do not anthropomorphise, i.e. do not use intentional items, implicitly or explicitly, to explain intentional items and,
(2) *Difficulty*: because of the constraint, there seems to be a difficulty in describing some intermediate step(s) that explain the transition without reduction between the final step with content and preceding steps without.

So Davidson does not provide a skeptical argument, rather he presents us with a puzzle. To solve this puzzle one will need to demonstrate two things; (1) that it is possible for there to be describable intermediate steps that do not beg the question by assuming content and (2) that for any describable intermediate step, there will be a subsequent describable step explicable in relation to the former. But what are the conditions that need to hold in order for a genealogy of content to be deemed continuous? Furthermore, how am I understanding intermediate steps and which ones are relevant to a continuous explanation? These will be clarified in the next two sub-sections. Following this, we will turn to the Zenoesque Paradox of Content.

[149] Donald Davidson, *The Emergence of Thought (1997)*.
[150] Dorit Bar-On, "Expressive communication and continuity skepticism," 293-330.
[151] Donald Davidson, *The Emergence of Thought (1997)*, 128.
[152] Ibid., 128-134.

2.8.1 Clarifications on Continuity

The literature is scant on descriptions of what continuity in diachronic explanation amounts to. Nonetheless, given the discussion of Bar-On so far, we can observe that what she takes as sufficient for supplying a continuous explanation of contentful items is the role that her intermediate step(s) of expressive communication plays.[153] It provides a link between creatures without contentful items and creatures with it. This intermediate step *qua* middle position allows her to claim that we can begin to explain how the latter emerged from the former in a wholly nonreductive manner. As discussed earlier, Bar-On is suggesting that for an explanation to be deemed diachronically continuous, it needs to: (a) identify stages in the story and (b) show how, for each stage, it developed from a former stage. *Prima facie*, these satisfy the second condition for solving *Davidson's Puzzle*. As for the first condition, it is simply a requirement that the explanandum is not assumed in the explanans. This is why I propose the following general characterisation of continuity:

> **Continuous Diachronic Explanation**: (1) it is possible for there to be describable intermediate steps that do not beg the question by assuming intentional items, (2) that for any describable intermediate step, there will be a subsequent describable step explicable in relation to the former.

Any diachronic explanation not satisfying either condition should be considered discontinuous. Additionally, due to the commitment to *Broad Scientific Naturalism*, a third condition should be added to the definition:

> (3) Each intermediate step leading up to the emergence of content should be describable in a naturalistically respectable way.

But what does this 'naturalistically respectable' mean here? This simply means that the explanation should only use the methods for acquiring knowledge and the ontological commitments of the sciences considered in the scope of 'successful science(s)'. So, a naturalistic genealogy of content is continuous if it satisfies all three conditions, otherwise it is diachronically discontinuous.

Notwithstanding these remarks, they only show that an appropriate intermediate step may be sufficient for continuity, not that it is necessary for continuity. Continuity could be the product of processes working on some state-of-affairs where the process, taken over time, get us from start to finish. Only as a product of this would the explanation have linked intermediate steps. So what I will need to show is that intermediate steps and the manner in which they are linked, is not only sufficient for continuity, but necessary for it. This will be discussed in Ch. 5 – *5.5 The Reconceptualised Definition of Continuity Objection.* Till then, I will concern myself with explicating the definition that I think will be

[153] See the following for more details on how Bar-On thinks that intermediates steps are sufficient for continuity: Dorit Bar-On, "Expressive communication and continuity skepticism," 296 & 329-330; Dorit Bar-On, and Mitchell Green, "Lionspeak: communication, expression, and meaning," 6.

necessary and sufficient for continuity as this notion is required for the Zenoesque Paradox of Content, and more generally, *Discontinuity Arguments*.

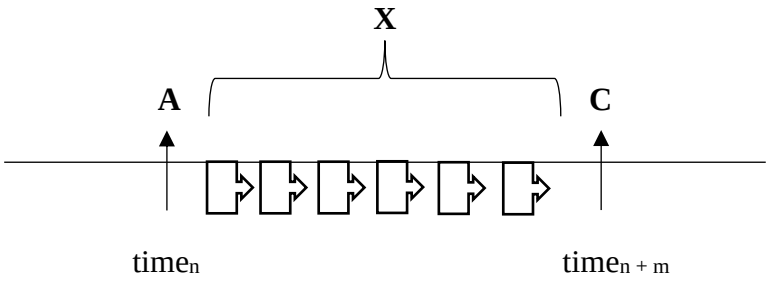
2.8.2 Clarifications on Intermediate Steps & Processes

This subsection discusses my understanding of intermediate steps and the role they play in continuous diachronic explanations. There are three questions that I will aim to answer:

(1) What are intermediate steps?
(2) Which intermediate steps are relevant to the continuous explanation?
(3) How are processes meant to be understood?

On the first question, when I use the phrase intermediate steps in the explanation, it is ambiguous between *intermediate steps that are part of the target of the explanation* and *intermediate steps that are part of the explanation*. I have specifically used the phrase 'describable intermediate steps' to signify that I am referring to *intermediate steps that are part of the explanation*; since I am only dealing with explanation in my thesis, I have often just reverted to the abbreviation 'intermediate steps'. Another brief clarification is on the duration an intermediate step occupies in the genealogy of content. These can be either time-slices or time periods; it entirely depends on the sort of model being supplied. For this reason, I could have used the phrase 'intermediate stages'.

Finally, where do these intermediate steps come from? These intermediate steps are not to be understood as those that an observer in an ideal epistemic position could consider. Rather, these are to be broadly understood as entailments of the genealogy of content. More specifically, they are entailments about stages of development in **X** between **A** and **C** (see Fig. 2.8). These entailments are possible because a genealogy of content is a type of scientific model. It is important to clarify that my use of use of the term 'model' refers the theoretical system that is constructed to represent the target system. In our case, a genealogy of content is a theoretical construct that aims to represent the processes in the natural world that give rise to the emergence of content. As mentioned, I am purely interested in the objects of the genealogy and not with the actual objects the genealogy is about. This corresponds to the difference between *objects a model is about* and *objects of the model*, respectively. For example, there is a difference between intermediate triangulation as a process described in the genealogy that explains embodied affective disagreement, and the expressive behavioural interactions that exhibit the process of intermediate triangulation in the world. These intermediate steps are only derivable after a basic diachronic model is constructed satisfying all the central assumptions of the genealogy. This allows us to investigate whether the processes (as *objects of the model*) at **X** can, in principle, get us from **A** to **C**. Viz., **X** can be seen to possibly get us from **A** to **C** if and only if the intermediate steps, entailed by the genealogy, satisfy the definition of continuity:



Intermediate Step: 

Fig. 2.8

On the second question, which intermediate steps are relevant to the continuous explanation? This question is asking whether all the intermediate steps need to be considered or only a select few in order to determine whether the explanation satisfies the definition of continuity. If the answer is 'only a select few', then which ones? My answer is simple. Because I am committed to the central tenet of *Broad Scientific Naturalism*, the relevant intermediate steps are those that the scientific community deem are necessary to support those certain processes apply at **X**. In other words, the relevant intermediate steps are those that are taken as vital for confirming the scientific processes that explain how we get from **A** to **C**. Though I will discuss this in greater depth in Ch. 5, we can now see that these intermediate steps ought to be novel and highly refutable predictions entailed by the model of the process(es) that explain how we can get from **A** to **C**.[154] Importantly, the relevant intermediate steps do not need to be confirmed, rather they are relevant if the scientific community deems that there ought to be evidence to support them in order for the model of the process to be confirmed. Therefore, the relevant intermediate steps should be seen as indispensable predictions of the model.

Finally, how are processes meant to be understood? As with intermediate steps, a similar point applies to the notion of processes. Firstly, processes need to be understood as describable in the model *qua* genealogy. However, I am not interested in the processes as *objects the model is about*, rather I am interested in the processes *qua* a model or a process model. Let me clarify. A process model could be something like evolution by natural selection. This can be understood as a recipe that lists what is essential for evolution by natural selection to occur. An example would be Lewontin's:

> "A sufficient mechanism for evolution by natural selection is contained in three propositions:

[154] As a toy example, consider the research programme of General Relativity (GR). It would not be confirmationally significant to point to the fact that whenever I drop a ball, it falls to the ground. In fact, this would not even be considered evidence, even though GR entails that this will always happen under certain conditions. Rather, for something to count as evidence, it should be for a prediction entailed by a model that is novel and highly refutable. Eddington's Experiment of GR is a prime example of this: Frank Watson Dyson, Arthur Stanley Eddington, and Charles Davidson, "IX. A determination of the deflection of light by the Sun's gravitational field, from observations made at the total eclipse of May 29, 1919," *Philosophical Transactions of the Royal Society of London. Series A, Containing Papers of a Mathematical or Physical Character* 220, no. 571-581 (1920): 291-333.

> 1. There is variation in morphological, physiological, and behavioral traits among members of a species (the principle of variation).
>
> 2. The variation is in part heritable, so that individuals resemble their relations more than they resemble unrelated individuals and, in particular, offspring resemble their parents (the principle of heredity).
>
> 3. Different variants leave different numbers of offspring either in immediate or remote generations (the principle of differential fitness).
>
> [A]ll three conditions are necessary as well as sufficient conditions for evolution by natural selection. […] Any trait for which the three principles apply may be expected to evolve."[155]

Of course there will be more details to add, but this is the essence of the process. Variation, heritability and differential fitness together result in evolution by natural selection.[156] It is an idealised model describing the necessary and sufficient conditions for the process of evolution by natural selection to occur. If this process is to be used in Bar-On's genealogy, then it would be a sub-model in the broader model of her genealogy. Using this recipe, we can now distinguish between the *process of evolution as a model* (or recipe) and the *process of evolution that the model is about*. The former corresponds to the recipe supplied above, while the latter corresponds to the change in the world that the recipe aims to describe. Again, since I am purely interested in whether genealogies of content supply, in principle, continuous explanations, then I will only concern myself with the notion of *processes as models* (so from now on, just process models).

Now I claimed earlier that these processes at **X** get us from **A** to **C**. However, I clarified that the processes should be seen as possibly supplying a continuous explanation from **A** to **C** if and only if the relevant intermediate steps, entailed by the genealogy, satisfy the definition of continuity. But what of the response that a continuous explanation is one which supplies a process by which **C** emerges from **A**? Here intermediate steps do not confer the property of continuity on the process; it is the process that is continuous. To support this, one might draw on the recipe of evolution by natural selection above as an example. This describes a process which, if the conditions of variation, heritability and differential fitness are met, will supply an in principle continuous explanation of how some trait evolved. There may be intermediate steps in this process, but this is not relevant for assessing whether the process is continuous. In my opinion, this renders the continuity of the process model scientifically mysterious – to be motivated in Ch. 5. Having outlined my definition of continuity and the role intermediate steps play in it, we can finally turn to the Zenoesque Paradox of Content.

[155] R. C. Lewontin, "Adaptation," In *The Dialectical Biologist*, edited by R. Levins and R. C. Lewontin, 65–84 (Cambridge: Harvard University Press, 1985), 76.
[156] Peter Godfrey-Smith, *Darwinian populations and natural selection* (Oxford University Press, 2009), 19.

2.8.3 Is Bar-On's Genealogy Continuous?

The Zenoesque Paradox of Content aims to show that one should be pessimistic about Davidson's *Difficulty*, in relation to Bar-On genealogy, even if we assume *Broad Naturalistic Explanation*. Viz. there is no way to provide a continuous explanation owing to the fact that there will always be an inexplicable gap in the explanation.

First, assume that content is irreducible to nonnormative biological, chemical and physical facts. Due to this, items involving content-based intentionality will be different in type from all forms of animal mentality and communication preceding it. I.e. animal forms of mentality and communication do not have propositional content because they can only partake in interactions of pure or intermediate triangulation).[157] So at most, creatures engaged in intermediate triangulation will be able to display affective embodied disagreement which gives rise to *proto-objectivity*. Let us then call this ability that animals display proto-intentionality. Now assume that there is some describable intermediate step between proto-intentionality and content-based intentionality. It doesn't matter what intermediate step is chosen, so long as it is an indispensable prediction entailed from a nonreductive process in Bar-On's genealogy of content. We already have an example of such an intermediate step proposed by Bar-On – intermediate triangulation. This can be assumed to be a suitable middle position, because we are assuming *Broad Naturalistic Explanation*.

Of course, this intermediate step cannot involve content on pain of begging the question, so all we can say about this intermediate step is that it constitutes some sophisticated form of proto-intentionality (or intermediate triangulation). Thus, this intermediate step cannot illuminate the emergence of content. No matter, Bar-On can find another middle position as a prediction between this sophisticated form of proto-intentionality and content-based intentionality. Again, the problem arises when we realise that this middle position cannot involve content, so simply constitutes an increased sophistication in proto-intentionality. (It would be to describe a more stylised rendition of intermediate triangulation.) This process of supplying a middle position and identifying that it does not involve content can be indefinitely iterated *ad nauseam.*

The reason that this procedure can be iterated is due to the fact that Bar-On does not supply an intermediate step or series of intermediate steps that nonreductively address the transition from the nonnormative behaviours found in EC to the capacity to grasp normative statuses – which is taken to be irreducible to the nonnormative but nonetheless essential for determining content. The result of this procedure is simply that one can never supply an illuminating middle position that explains the transition between proto-intentionality and content-based intentionality given Bar-On's central tenets. In other words, the Zenoesque Paradox of Content demonstrates that Bar-On still fails to establish a middle position between (simple) animal communicative systems and meaningful linguistic communication that can aid in supplying a diachronic explanation of the latter's emergence – there will always be an inexplicable gap in the explanation.

[157] In Bar-On's case, this is because (simple) animal communication does not give rise to reflective triangulation, and furthermore, capacities required for reflective triangulation are irreducible to capacities required for pure triangulation.

What is important to note is that this inexplicable gap is the product of a tension between Bar-On's synchronic *foundational semantics*, e.g. content is determined by reflective triangulation, and her diachronic *foundational semantics*, e.g. creatures engaged in reflective triangulation can be seen as nonreductive elaborations on creatures engaged in intermediate triangulation. In summary, the diachronic *foundational semantics* does not appropriately explain how the essential feature of the synchronic *foundational semantics* emerged.[158]

This demonstrates that the central tenets of Bar-On's genealogy are inconsistent. As a result, it presents the genealogy with a trilemma. Either accept that the explanation is discontinuous or reject that the explanation is in line with *Broad Scientific Naturalism* or reject that content is irreducible to nonnormative biological, chemical or physical facts. If Bar-On maintains that the *Broad Naturalistic Explanation* is continuous, then this would involve an implicit rejection of the irreducibility of content to nonnormative biological, chemical or physical facts. This would signal a departure from the genealogy she aims to supply.

Now the Zenoesque Paradox of Content, I admit, is grossly contrived. I do not aim to bring it up as a serious objection to Bar-On's genealogy, rather it is meant to present a weak difficulty to draw out an interesting response. Basically, what the Zenoesque Paradox of Content aims to show is that the explanatory resources of Bar-On's genealogy are too austere to describe a process that takes us from the former stages to the explanandum – there is a lack of vocabulary. This will be instrumental for setting up my *Continuity-Discontinuity Regress Argument*. In what follows, I will be attending to the type of response hinted to above, since I think it captures most of the discomfort found with the weak and contrived nature of the Zenoesque Paradox of Content. The response can be framed through the question: Why not just add additional ingredients to explanatory resources of the genealogy while remaining committed to *Broad Scientific Naturalism*? This is to add a suitable vocabulary for describing the transition.

2.9 Additional Ingredients

There is a simple response to the Zenoesque Paradox of Content. This can be seen by recognising that this paradox only works on an overly restrictive focus on what is permitted in explaining how to bridge the difference in type between content-based intentionality and proto-intentionality. Hutto and Satne have already indirectly addressed this idea in their Natural Origins of Content programme (NOC):

> "[NOC's] preferred diachronic explanation of the natural origins of content is kinky. It is kinky because it doesn't play out along a single dimension; […] It is not an account of mere elaborations because it does not see all cognitive properties as just more complex versions of what has come before. […NOC's] tale is one of cognitive niches and how they scaffold and introduce novel cognitive features and capacities.

[158] At this point, there may be ample discomfort incurred with structure of the Zenoesque Paradox of Content; it unacceptably generalises over to other diachronic explanations that the scientific community consider to be successful. This will be discussed in Ch. 5 – *5.4 Generality Objection*.

> The [NOC] assumption is that socio-cultural practices introduce something genuinely new and qualitatively distinct into the cognitive mix."[159]

This highlights what is at fault with the *Discontinuity Argument*. It is the restrictive focus on intermediate steps as only involving increased sophistication on proto-intentionality. If this is all that is permitted in suppling a genealogy, then there clearly is a problem in getting to content-based intentionality. If we are not allowed to synchronically reduce content to proto-intentionality, but this is the only manner in which we can try to explain the emergence of content, then obviously there will be inexplicable gaps in explanation. What they suggest, in order to avoid this paradox, is the introduction of some new ingredients that do not presuppose content, but nonetheless allow proto-intentionality to get to content-based intentionality. So, they deny that the only manner to get content-based intentionality from proto-intentionality is through some illicit reduction of the former to the latter.

The basic idea is that proto-intentionality plus some ingredients will give us content-based intentionality. In the NOC programme this ingredient is the development of normative socio-cultural practices with participants that only have proto-intentionality. Rather than focusing only on the differences between proto-intentionality and content-based intentionality, they recommend looking at how ur-intentional creatures engaged in socio-cultural practices can explain content-based intentionality. So long as the development of normative socio-cultural practices can be explained in a continuous and naturalistically respectable way, then there is no problem with explaining the emergence of content in a non-gappy way. So **B** can be avoided by recognising the explanatory function of **X** as upgrading what we have at **A** to **C**.

There may be other sorts of ingredients that can be supplied, but what this brief example from Hutto & Satne displays is that the Zenoesque Paradox of Content can be easily overcome, allowing Bar-On to go through the horns of the trilemma. However, this will only be possible if Bar-On takes on additional ingredients to her genealogy. In the following chapter, I will discuss a genealogy of content that is in the spirit of Bar-On's central tenets, but already incorporates the additional ingredients to the central tenets – Hutto & Satne's NOC programme. I will further elaborate on how their NOC programme aims to explain the emergence of content and discuss how it specifically overcomes the Zenoesque Paradox of Content. This will be instrumental for the purposes of my thesis, since in Ch. 3 I will also show that the NOC programme falls to a similar type of *Discontinuity Argument* as Bar-On does to the Zenoesque Paradox of Content.

[159] Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," In *Embodiment, enaction, and culture: Investigating the constitution of the shared world*, edited by Christoph Christoph Durt, Thomas Fuchs and Christian Tewes, 107-127 (New York: MIT Press), 15-16.

Chapter Three:

3. The NOC Programme & Sultanescu's Response

3.1 Taking Stock – the stage of the dialectic

The previous chapter had two functions. The first function was to clarify what the playing field over diachronically continuous explanations of content looked like and how they should look. In order to clarify this function, I provided a review of:

(1) Bar-On's notion of continuity skepticism;
(2) The genealogy of the possible emergence of meaningful linguistic communication through EC and intermediate triangulation;
(3) The manner in which she uses the genealogy to undermine continuity skepticism. This genealogy involved setting up a nonreductive 'synchronic middle position' acceptable by the strictures of Davidson's argument, as interpreted by Bar-On.

Following this, I provided a criticism of the way she characterized the dispute over diachronically continuous explanations by comparison with continuity skepticism. I claimed that this characterization led to setting up a question begging stalemate between continuity proponents and continuity skeptics. Continuity skeptics were shown to not necessarily be skeptics about continuous diachronic explanations; rather they merely had different explanatory requirements – Bar-On's being more restrictive in comparison to her 'continuity skeptics'. Furthermore, it demonstrated how Bar-On had misinterpreted Davidson and Brandom as skeptics about the possibility of continuous explanations. For these reasons, I supplied an alternative taxonomy of the dispute over continuous diachronic explanations of content that did not misconstrue the explanatory possibilities of Davidson and Brandom. This taxonomy kept score of the various types of naturalistic explanations that could be endorsed in giving a continuous diachronic explanation of the emergence of content. This closed the first function of the chapter.

However, there was still the open question whether her genealogy of the emergence of meaningful linguistic communication succeeded in telling an, in principle, continuous story under the purview of *Broad Scientific Naturalism*. Exploring the viability of this question was the second function of the chapter. Against Bar-On's strategy, the Zenoesque Paradox of Content was raised. This argument aimed to demonstrate that, in spite of Bar-On's attempts to supply a possibly continuous explanation of the emergence of content, there would still be at least one inexplicable gap in explanation. Therefore, the genealogy was *prima facie* discontinuous. Given this discontinuity, it demonstrated that the central tenets of her genealogy were inconsistent. Furthermore, if Bar-On wished to maintain that her genealogy did supply an, in principle, continuous *Broad Naturalistic Explanation* of the emergence of content, then the genealogy implicitly and illicitly involved the reduction of content to nonnormative biological, chemical or physical facts. Nonetheless, it was acknowledged that the Zenoesque Paradox of Content was not a serious objection to this genealogy. It merely aimed to show that, given the central tenets, there was something missing from Bar-On's

genealogy. This objection was illustrative in indicating a possible avenue of response for Bar-On that involved adding additional ingredients to her genealogy of content in order to resolve the discontinuity identified by the Zenoesque Paradox of Content.

This chapter examines a particular instance of this sort of response. I will be demonstrating this by outlining Hutto & Satne's Natural Origins of Content (NOC) programme and how it specifically overcomes the Zenoesque Paradox of Content. However, a further argument, derived from Sultanescu,[160] will be raised in order to show that this particular manner of avoiding the discontinuity fails as it is susceptible, yet again, to another charge of discontinuity. Finally, and in a manner consistent with the previous chapter, suggestions will be made on how Hutto & Satne's NOC programme can overcome this further discontinuity argument.

3.2 The NOC Programme

In this section, I wish to outline what I take to be essential for Hutto and Satne's NOC programme to succeed in supplying an, in principle, continuous diachronic explanation. The guiding heuristic I will use to identify what is essential to NOC is anything that indispensably contributes to their aim that:

> "it is possible, in principle, to explain the origins of content involving cognition in a scientifically respectable, gapless way."[161]

Other features that contribute to a richer explanation, but are not indispensable, will not be discussed for the sake of brevity.

3.2.1 A Prelude to Hutto & Satne's NOC - Radical Enactivism

Hutto & Satne endorse Radically Enactive (or Embodied) Cognition – from now on just REC.[162] To understand this view, first consider Enactivism. Broadly speaking, Enactivism is the view claiming that if we want to understand cognition, be it simple or complex, we must give explanatory priority to the "dynamic interactions between organisms and features of their environments over the contentful representations of these environments."[163] While Enactivists will differ on a number of details, Hutto & Satne claim they all share this in common, i.e. "embedded and embodied activity of living beings provides the right model for understating minds."[164]

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[160] Olivia Sultanescu, "Bridging the gap: A reply to Hutto and Satne," *Philosophia* 43, no. 3 (2015): 639-649.
[161] Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 3.
[162] For their view on Radical Enactivism see: Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 3-26; Daniel D. Hutto, and Erik Myin, *Evolving enactivism: Basic minds meet content* (Cambridge: MIT press, 2017); Daniel D. Hutto, and Erik Myin, *Radicalizing enactivism: Basic minds without content* (Cambridge: MIT press, 2012); Daniel D. Hutto, and Glenda Satne, "Demystifying Davidson: Radical interpretation meets radical enactivism," 127-144; Daniel. D. Hutto, Demystifying Davidson: Radical interpretation meets radical enactivism 2017); Glenda Satne, "Understanding others by doing things together: an enactive account," *Synthese* 198, no. 1 (2021): 507-528.
[163] Daniel D. Hutto, and Erik Myin, *Radicalizing enactivism: Basic minds without content,* xi.
[164] Ibid., 4.

Their view of REC adds that cognition is not always contentful.[165, 166] This is not to deny that some forms of cognition have content; mental states and linguistic utterances would be examples of content involving cognition. REC admits that these contentful items of cognition would have the conventional semantic properties of truth and reference.[167] Additionally, REC holds that "it is possible, in principle, to explain the origins of content involving cognition in a scientifically respectable, gapless way."[168] With reference to this last point, Hutto and Satne commit themselves to a form of *Broad Scientific Naturalism* which they coin 'Relaxed Naturalism'. To see why their Relaxed Naturalism is a form of *Broad Scientific Naturalism* consider the following:

> **Relaxed Naturalism:** "A relaxed naturalism is one that avails itself of a wide range of scientifically respectable resources, drawing on the findings of a wide range of sciences that includes not just the [natural] sciences but also cognitive archaeology, anthropology, developmental psychology and so on."[169]

It is quite clear that they include the social sciences in what they consider 'successful science(s)'. Furthermore, by 'resources' and 'findings' they refer to both the methods for acquiring knowledge and the ontological commitments of the sciences. Therefore, Relaxed Naturalism is a form of *Broad Scientific Naturalism*. The contrasting naturalistic view to REC claims that cognition, such as representations, entail that there is content of some form; this is the view of Content Involving Cognition (CIC). [170] Generally speaking, CIC is committed to representationalism about content. This is the view that intentionality involves representational content, where the satisfaction conditions of content involve referential relations between states or sign-designs and the world. There are a variety of versions of CIC, but the version I will use as a contrast aims to reduce these contentful states to non-contentful states, e.g. lawful co-variance of two physical states (as in the case of Dretske's informational semantics)[171] or biological functions (as in the case of Millikan's teleosemantics).[172, 173]

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[165] Ibid., 5.
[166] Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 3.
[167] Ibid., 3.
[168] Ibid., 3.
[169] Ibid., 6.
[170] Daniel D. Hutto, and Erik Myin, *Radicalizing enactivism: Basic minds without content*, 9.
[171] F. I. Dretske, *Knowledge and the Flow of Information* (Oxford: Blackwell, 1981).
[172] Ruth Garrett Millikan, *Language, thought, and other biological categories: New foundations for realism* (Cambridge: MIT press, 1987); Ruth Garrett Millikan, *Varieties of meaning: the 2002 Jean Nicod lectures* (Cambridge: MIT press, 2004); Ruth Garrett Millikan, *Language: A biological model* (Oxford: Oxford: University Press on Demand, 2005).
[173] There are other accounts of CIC which do not involve reductionism of, broadly, intentional items to extensional items. Burge is a good example of a CICer holding such a view. Firstly, he holds that reductive CICers were doomed to fail since there is "a *root* mismatch between representational error and failure of biological function." Tyler Burge, *Origins of objectivity* (Oxford: Oxford University Press, 2010), 301. He thinks representational content should be understood as irreducible to other natural facts, but nonetheless, naturalistically respectable, therefore natural facts in their own right. Burge claims that "[e]xplanatory practice in psychology grounds appeal to representational states." Ibid., 308. For example, Burge observes that there "is nothing unnatural about taking perceptual representations as an unreduced primitive in science or commonsense." Ibid., 311. I will not be considering such accounts since my primary focus is on REC.

Hutto & Satne motivate REC by appeal to the difficulties that these reductive versions of CIC have with regard to the Hard Problem of Content (HPC) under the purview of naturalism.[174] For them the HPC shows that reductive CIC faces a dilemma. On the one horn, content is preserved, at the cost of rejecting naturalism; on the other horn, naturalism is preserved at the cost of rejecting content.[175, 176] I will not spend time motivating their conclusion that "informational content is incompatible with explanatory naturalism" since it is not relevant to this chapter's purposes.[177] It suffices to say that Hutto & Satne take the HPC to show that we need to accept REC.[178] This is because, as Korbak interprets the HPC, "naturalist theories of content fall short of giving a reductive account of how contents emerge in basic minds."[179] Because of this shortcoming, it motivates Hutto & Satne's endorsement of the assumption that cognition is not always contentful. This point is put slightly differently in Hutto & Satne's "The Natural Origins of Content":

> "The offending assumption is that "to have intentionality is to have (semantic) content" […] The only way forward is to reject this assumption, distinguishing primitive, contentless from content-based forms of intentionality."[180]

Here there can be cognition that is intentional, but non-contentful; this involves a rejection of representationalism, since intentionality does not always have to involve representational relations that set-up satisfaction conditions for contentful states. By holding to this distinction, Hutto & Satne would be endorsing some form of anti-representationalism about content.[181]

Now by accepting these REC assumptions – i.e. (1) not all cognition has content, (2) some thoughts and linguistic utterances have content, (3) "it is possible, in principle, to explain the origins of content involving cognition in a scientifically respectable, gapless way" – how do Hutto & Satne propose to explain the emergence of content?[182] The abstract idea is that contentful cognition is just scaffolded cognition; this scaffolding enables us to be explain the transition between contentless and contentful cognition.[183] More concretely, creatures with contentless cognition are extended by their engagement in normative, claim-making, socio-

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[174] The Hard Problem of content is never clearly spelt out, but the essence of it is that representationalism fails to accurately capture content, therefore, some thoroughgoing anti-representationalism will have to be added to the mix. Their discussion of the Hard Problem of Content can be found in Daniel D. Hutto, and Erik Myin, *Radicalizing enactivism: Basic minds without content*, Ch. 4). The additional arguments against weaker reductive and nonreductive versions of representationalism can be found in: Ibid., Ch. 5 & 6)

[175] Ibid., xv-xvi.

[176] Nikolai Alksnis, "A dilemma or a challenge? Assessing the all-star team in a wider context," *Philosophia* 43, no. 3 (2015): 674.

[177] Daniel D. Hutto, and Erik Myin, *Radicalizing enactivism: Basic minds without content*, xv.

[178] See the following for a motivation of this claim: Daniel D. Hutto, and Erik Myin, *Radicalizing enactivism: Basic minds without content*, 58.

[179] Tomasz Korbak, "Scaffolded minds and the evolution of content in signaling pathways," *Studies in Logic, Grammar and Rhetoric* 41, no. 1 (2015): 89.

[180] Daniel D. Hutto, and Glenda Satne, "The natural origins of content," *Philosophia* 43, no. 3 (2015): 529; quoting John Haugeland, "The intentionality all-stars," *Philosophical Perspectives* 4 (1990): 384.

[181] Though Hutto & Satne do not explicitly state that they are anti-representationalists, this commitment can be ascertained from the following: Daniel D. Hutto, and Erik Myin, *Radicalizing enactivism: Basic minds without content*, 87.

[182] Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 3.

[183] Ibid., 23.

cultural practices; through this engagement, contentless cognition is scaffolded in a manner that becomes capable of contentful cognition.[184] This naturalistic diachronic explanation is meant to be pursued in a manner that does not reduce content to nonnormative biological, chemical or physical facts. Nonetheless, it aims to give a genealogy of how content emerged by explaining the transition from contentless cognition to contentful cognition.[185] In the following I will expound on what Hutto & Satne see as essential to NOC.

3.2.2 An Outline of NOC

It is useful to begin outlining NOC with reference to projects that attempt to naturalise content, such as CICers. Briefly, naturalising content is an attempt to solve the *placement problem*. This project is usually pursued as a reductive thesis, Viz., one aims to explain *X-things in terms of Y-things*, where '*in terms of*' is to be explicated in different ways relative to the requirements of reductionism, reductivism and supervenience.[186.] For example, consider the following semantic reductive thesis:

> **General Reductive Thesis**: "[N]o statement of the given class can be true unless some suitable statement or statements of the reductive class are true, and, conversely, that the truth of those statements of the reductive class guarantees the truth of the corresponding statement of the given class."[187]

Such a thesis could be used to explain content, entirely, in terms of non-contentful terms, such as biological, chemical or physical facts. Broadly speaking, this would involve the identification of intentional terms with "causal relations, nomic information or biological functions."[188] If successful, they will have given a reductive account of content, since intentional items require content in order to have the property of aboutness.[189] For example, the teleosemantic project addresses the *placement problem* by trying to reduce intentional items (the given class) to the proper function of a device (the reductive class), where 'proper function' can be understood in terms of evolution by natural selection. Such naturalistic accounts succeed as possible explanations for the existence of content in the natural world so long as the following conditions are met:

> **Conditions on Naturalistic Explanation:** (1) the explanations supplied do not presuppose content and (2) they "have recognized scientific credentials"[190].

What is important to note is that these reductive strategies are synchronic, i.e. they aim to explain the content of certain cognition in terms of other natural facts at some time-slice. This

[184] Tomasz Korbak, "Scaffolded minds and the evolution of content in signaling pathways," 89.
[185] Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 23.
[186] For a brief discussion and taxonomy on how I am understanding reductivism, reductionism and supervenience see the end of section *4.3.4 Saltation Genealogies Abstracted.*
[187] Michael Dummett, "Realism," In *The seas of language*, 230-276 (Oxford: Clarendon Press, 1993), 242.
[188] Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 529.
[189] For example, a necessary condition for the utterance that "The sky is blue" to be about the blue sky is the content that *the sky is blue*, where this content is meant to be understood in terms of unique correctness conditions for the application of the utterance.
[190] Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 521.

is a form of synchronic *foundational semantics*. However, any traditional naturalisation project, which is synchronic, can be 'hedged' within a diachronic emergence story, i.e., a genealogy. Take Millikan's biological reduction of content in terms of the proper functions of representational devices as an example. If these proper functions are then taken to be explicable in terms of evolutionary theory and history, which is already done by Millikan, then this constitutes a diachronic account of the emergence of content.[191] More generally, any naturalisation project can be made into a diachronic emergence story by simply trying to supply an additional account of how the biological, chemical or physical facts, that content is reducible to, emerged. This is to give a diachronic *foundational semantics* for a particular *synchronic foundational semantics*.

Hutto and Satne follow Cash in rejecting these reductive approaches to the *placement problem* while still aiming to satisfy these conditions on naturalistic explanation.[192] In contrast, they propose we should attempt to explain the Natural Origins of Content (NOC). Consider:

> "[W]e must forgo attempts to provide purely reductive explanations in favour of explaining how it is possible that content could arise in the natural world."[193]

This involves supplying some scientifically respectable explanation of how it is possible for there to be a transition from a world devoid of content to one with content.[194, 195] So the NOC programme explains the emergence of content by way of a nonreductive naturalistic genealogy between contentless cognition and contentful cognition as opposed to a synchronic reductive explanation of content, which assumes "that content is present *all the way down*" wherever cognition (or intentionality) is present.[196]

But how does this alternative strategy help? Firstly, it completely avoids the perennial objections that naturalisation projects face, i.e. the *disjunction problem*[197] and *gerrymandering objection,*[198] due to the acceptance of the irreducibility of content to nonnormative biological, chemical or physical facts. Secondly, by accepting the distinction between contentless intentionality and contentful intentionality, the hope is that it supplies enough of a toehold to explain the emergence of content without begging the question. Importantly, the objections to the reductive genealogies of content have

[191] Ruth Garrett Millikan, *Language: A biological model,* ch. 1, 3 & 5.
[192] For more details on why we should reject the reductive approaches and adopt nonreductive genealogical approaches see: Mason Cash, "The normativity problem: Evolution and naturalized semantics," *The Journal of Mind and Behavior* 29, no. 1/2 (2008): 99-137.
[193] Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 530.
[194] Ibid., 530.
[195] Mason Cash, "The normativity problem: Evolution and naturalized semantics," 128.
[196] Nikolai Alksnis, "A dilemma or a challenge? Assessing the all-star team in a wider context," 671.
[197] I will not be discussing the *disjunction problem* in this paper since it is not relevant to my purposes. However, see the following for a comprehensive account of this problem with reference to informational semantics and teleosemantics: Mason Cash, "The normativity problem: Evolution and naturalized semantics," 99-137; Peter Godfrey-Smith, "Misinformation," *Canadian Journal of Philosophy* 19, no. 4 (1989): 533-550.
[198] See the following for Brandom's discussion of regularism and the gerrymandering objection: Robert Brandom, *Making it explicit,* 26-46.

motivated Hutto & Satne, amongst others,[199] to find another position that does not involve the reduction of the normative to the nonnormative, but is nonetheless naturalistically respectable. This approach is best caught by Cash's positive suggestions after having discussed the *disjunction problem*:

> "Rather than attempting to give a *naturalistic justification for particular norms* by trying to reduce these norms to physical properties, we can give a *naturalistic nonreductive account of normativity in general*. Such an account will not justify any particular norms, but will naturalistically account for the existence of norm-governed practices, […] such as the practice of giving contentful intentional states as reasons for actions. This is where an appeal to evolution by natural selection can help. There appears to be a vicious circularity in explaining people's intentional states by appeal to the norms of the practice of ascribing intentional states, which themselves depend upon the intentional states of people who participate in the normative practice. But this apparently vicious circularity can be discharged, […] by giving a naturalistic evolutionary account of the transition from a world where there were no human beings, and no normative practices, and thus no practice of ascribing intentional states as reasons for actions, to a world where such normative practices are commonplace."[200]

Here Cash is expressing a problem for explaining the emergence of content and a particular strategy for overcoming it. The problem being that there is a difficulty explaining contentful items, such as beliefs and assertions, in terms of a normative system, since the normative system also requires intentional states of creatures engaged in the normative practice. The normative system and the intentional states of creatures seem to come in one package – neither is prior to the other in the *order of explanation*. The strategy he suggests, and that Hutto and Satne follow, is that we should not attempt to reduce the normative to the nonnormative, which would lead to various problems such as the *disjunction problem* and *gerrymandering objection*. Rather they attempt to explain how a normative practice emerged from a world devoid of such practices through evolution by natural selection or some other scientifically respectable processes. This would be done without any appeal to normative or intentional states; therefore, the apparent circularity is circumvented.

From this strategy we should see, firstly, that norms be viewed as irreducible to physical or biological facts, secondly, that these norms be seen as natural facts *simpliciter* since their emergence can be explained in a naturalistically respectable manner from a world that involved no normative practices. And lastly, that the focus should be shifted away from trying to explain how particular norms can be explicated in terms of other natural facts using the methods employed in the sciences; rather, the aim is to explain how

[199] Some clear cases would be D. Hutto, G. Satne, E. Myin, M. Cash, D. Bar-On and D. Macarthur See: Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 521-536; Daniel D. Hutto, and Erik Myin, *Radicalizing enactivism: Basic minds without content*; Mason Cash, "The normativity problem: Evolution and naturalized semantics," 99-137; Dorit Bar-on, "Origins of meaning: Must we 'go Gricean'?" 342-375; and David Macarthur, "Liberal Naturalism and Second-Personal Space: A Neo-Pragmatist Response to "The Natural Origins of Content," 567-578.

[200] Mason Cash, "The normativity problem: Evolution and naturalized semantics," 127-128.

normativity, or a system of norms, emerged as a basic, fundamental, or *sui generis* sort of natural fact. With the emergence of norms explained in a nonreductive manner, content can then be explained in terms of this.

This is the starting point of Hutto & Satne's NOC programme. Unlike naturalisation projects which attempt to solve the *placement problem* by giving some naturalistic reductive account of intentionality, Hutto and Satne follow Haugeland in identifying the problem with these accounts as lying in the assumption that "to have intentionality is to have (semantic) content."[201, 202] In response to this they propose that intentionality is not all of a piece. There is contentful intentionality and contentless intentionality. This is why NOC is committed to there being non-contentful minds. Some of the ways to describe this distinction are: (1) contentless cognition v. contentful cognition, (2) contentful minds v. non-contentful minds (3) content-based intentionality v. contentless intentionality and, (4) ur-intentionality v. fully-fledged intentionality. Henceforth, I will use these interchangeably.

But what is ur-intentionality? Ur-intentionality is to be understood as 'target-based directedness' and is conceptually distinct from full-fledged intentionality.[203] In more detail, ur-intentionality can be understood as a two-place relation between a subject and object; While intentionality can be understood in the traditional sense as involving a three place relation between a subject, object and mode of presentation.[204, 205] This explains, abstractly, how we are to understand ur-intentionality and how it is conceptually distinct form full-fledged intentionality. More concretely, because of REC Hutto & Satne are committed to the Embodiment Thesis which "equates basic cognition with concrete spatio-temporally extended patterns of dynamic interaction between organisms and their environments."[206] This lacks the requisite normative aspect that is required for contentful intentionality. So in order to give an account of ur-intentionality, appeal to some weaker notion of 'content' needs to be made. While the details are not relevant to this thesis, I will briefly outline the Relaxed Naturalistic approach Hutto & Satne think will give a fruitful account of ur-intentionality. They suggest utilising the teleosemantic project, but restricting its ambitions. So rather than trying to give an account of content-based intentionality using teleosemantics, it should be restricted only to

[201] John Haugeland, "The intentionality all-stars," 384.
[202] I will not discuss the motivations for this here, since my aims are only to outline NOC while assuming that naturalisation projects have failed. For more details on the motivations see: Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 521-536; Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 3-26; Daniel D. Hutto, and Erik Myin, *Radicalizing enactivism: Basic minds without content*, Ch. 4; John Haugeland, "Heidegger on being a person," *Nous* (1982): 15-26; John Haugeland, "The intentionality all-stars," 1990.
[203] Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 530-531.
[204] Marc Rowlands, "Hard problems of intentionality," *Philosophia* 43, no. 3 (2015): 742.
[205] It may be pointed out that the mode of presentation determines object. So this isn't really a three-place relation. It is a two-place relation between a subject and mode of presentation. Furthermore, a mode of presentation is intentional which means that we are simply explaining intentionality in terms of intentionality. On the latter point, that we are describing intentionality in terms of an intentional notion – i.e. modes of presentation – is not a problem here, since I am merely highlighting a fundamental relational difference between ur-intentionality and full-fledged intentionality, not a satisfying explanation of what intentionality is. On the former point, I agree that the mode of presentation *identifies* the object, but for generality, I will remain neutral on whether a mode of presentation determines the object. I am deliberately using the term loosely to permit both Descriptivist and certain Neo-Fregean uses of the notion.
[206] Daniel D. Hutto, and Erik Myin, *Radicalizing enactivism: Basic minds without content*, 5.

supplying an account of targeted-based directedness. They name this teleosemiotics.[207] As they claim:

> "[B]iology provides adequate tools for making sense of something more modest than content – it provides what is needed to understand and explain responses exhibiting a kind of Ur-intentionality that results from the targeted directedness of past organisms."[208]

So the task of NOC is to explain how we transitioned from a two-place relation describing ur-intentionality to three-place relation describing full-fledged intentionality.[209] Ur-intentionality provides the base infrastructure allowing non-contentful minds to develop sophisticated target based-responses that ape those behaviours that follow from creatures with contentful minds. What we now need is some explanation of the transition.

To begin explaining the transition, they appeal to neo-pragmatism. Broadly speaking, this is the view that contentful items – such as beliefs, mental states, utterances – derive their content through agents partaking in normative socio-cultural practices – however this is to be explicated.[210] Contentful thinking can only be understood in terms of these agents acting in accordance with rules which have been stabilised by social practices – specifically, claim making practices. Brandom supplies a useful clarification of what is essential for these practices, which I already discussed in the last chapter on *Diachronic Discontinuity.* (However, there it was used by Bar-On to motivate that he is a 'continuity skeptic', while here it is used to clearly articulate what needs to be explained in order for NOC's constructive approach to succeed.) There were two salient features he highlighted, firstly, the members need to be able to differentially respond to things and, secondly, their behaviour needs to be described as receptive to norms, otherwise there would be no way to explain how they have the concept of *getting things wrong*. The second point is due to the fact that *getting things wrong* cannot merely be described in terms of some biological regularity; this would only allow for failure to respond differentially as motivated in Ch.2. *Getting things wrong* should be understood as involving censure from the members of the community. This concept of *getting things wrong* will allow for an intersubjective notion of truth, i.e. the ability to represent things as thus-and-so independently of how they actually are. This, in effect, allows members of the community to have the intentional items with content. So neo-pragmatism is used to explain how an "organism comes to have truth-evaluable mental contents, that can be true or false."[211] This specifies what is essential to explain for Hutto & Satne's synchronic *foundational semantics*.

How does this help explain the transition? Hutto and Satne briefly summarise the general story:

[207] Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 530-531.
[208] Ibid., 531.
[209] Marc Rowlands, "Hard problems of intentionality," 743.
[210] Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 527.
[211] Ibid., 524.

> "Such practices are not only based on our shared biology but in social engagements and cultural devices that evolved over time, especially linguistic tokens, the primary bearers of semantic content. Accordingly, the capacity to have contentful thoughts depends essentially on engaging in socio-cultural practices in which biologically inherited capacities are scaffolded in open-ended ways."[212]

The key points are that (1) the origins of socio-cultural practices can be explained as having evolved over time – a diachronic *foundational semantics* – and (2) these socio-cultural practices give rise to rule-following behaviour which is essential for explaining contentful items – a synchronic *foundational semantics*. If these two points are correct, then it should not seem scientifically mysterious how content emerged. All we need to do is explain how normative socio-cultural practices emerged in a scientifically respectable way from creatures with contentless intentionality.

But there is an immediate worry with this proposal, one which Hutto and Satne label the *Essential Tension*. The worry stems from the usual idea that socio-cultural practices require agents which participate in these practices. In order to participate in these normative practices, agents must be following certain rules or norms. Some of these agents will be following these rules due to rule obeying behaviour – this is essential for the practice to be stabilised through training. But if there are agents which obey rules, then these agents are aware of these rules. Awareness of these rules requires the ability for their awareness to be about these rules; therefore, awareness requires intentionality. But intentionality requires content. The problem should now be apparent. If content is to be understood in terms of socio-cultural practices, but these practices can only come into being if we have agents possessing content, then we cannot shed light on the emergence of content through neo-pragmatism. This displays a tension between the proposed synchronic *foundational semantics* and any nonreductive diachronic *foundational semantics*. Hutto and Satne explain this in terms of "intelligent, recognitional capacities" rather than awareness. Consider:

> "The puzzle is this: if all intentionality is of a piece and only derives from social practices, how is it possible that the sort of intelligent, recognitional capacities needed to explain participation in those social practices could be in place prior to their mastery? Unless intentional content is presumed to be already in place this seems impossible."[213]

But as discussed above "intentionality is not all of a piece". We have contentless intentionality and content-based intentionality. Then, following Cash, contentless intentionality provides the basis, "through species-wide biologically based tendencies", which allows for creatures to learn and transmit learnt behaviour through "social inheritance of culturally evolved devices."[214] This basis allows for socio-cultural practices to evolve without the awareness or "intelligent, recognitional capacities" mentioned before. Then once we have the stabilised socio-cultural practice, neo-pragmatism can begin to explain how

[212] Ibid., 527.
[213] Ibid., 529.
[214] Ibid., 533.

contentful intentional items derive from that. Hutto and Satne express this in following quotation:

> "[B]iological forces put in place mechanisms that enable individual learning which work in conjunction with mechanisms for the social inheritance of culturally evolved devices. These mechanisms do not require individuals to purposefully comply with rules from the get go. Instead the mechanism of social conformity that gets the practice of learning and teaching off the ground can be understood as a mechanism to be *set up by others* and *to set up others*."[215]

Two things are important here (1) ur-intentionality allows us to side-step the worry about rule obeying behaviour, hence awareness of the rules. Social practices can establish themselves without intentional agents; (2) Social practices can be established by social conformity between ur-intentional members, where social conformity can be understood as some form of stabilised *nuts and bolts reproduction* between these members.[216]

Finally, how is this scientifically respectable? Hutto and Satne claim that the emergence of the socio-cultural practice, in the use of public symbols, can be explained as unique socio-cultural niches.[217] Briefly, they follow Clark in claiming that socio-cultural practices qua *claim making practices* are formed due to language, or more modestly, a system of public symbols being "a cognition-enhancing animal-built structure."[218] In other words, this system of public symbols is a self-constructed cognitive niche. I will not discuss the details of cognitive niches further as it is not relevant to this section's aims. All that is important is that the study of cognitive niches is pursued using the methods of various scientific enterprises, e.g. ethology, evolutionary theory (cultural and biological), comparative psychology, developmental psychology etc.. Furthermore, so long as this process of explaining the emergence of these socio-cultural practices can be pursued by using the relevant scientific resources in a manner that does not allow for the possibility of inexplicable intermediate steps in explanation, then there is no reason for thinking that the emergence of content will have a discontinuous diachronic explanation.[219] As I interpret Hutto and Satne, they are not claiming that NOC will provide a successful continuous diachronic explanation, rather they are setting up a programme that is not evidently discontinuous. Simply put, NOC is a genealogy that *could* explain the emergence of content.

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[215] Ibid., 533.
[216] Nuts and Bolts Reproduction is a particular manner in which some activity can become conventional. This involves some coordination problem that requires a critical mass of the members in the group to perform a variety of different actions (at minimum two). Only once all these actions are performed, do the members solve the coordination problem. This pattern of mutual behaviour can then be reproduced if it served some function. This may eventually lead to a convention. Furthermore, the convention can be achieved and reproduced unconsciously. Examples of this would be driving on opposite sides of the road and handshakes. Conventionally, handshakes can only occur if people both supply a right or left hand. Furthermore, most people do not consciously learn to supply their right hand, and not left, when another puts his hand forward. Ruth Garrett Millikan, *Language: A biological model*, 31.
[217] Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 23.
[218] Andy Clark, "Language, embodiment, and the cognitive niche," *Trends in cognitive sciences* 10, no. 8 (2006): 370.
[219] Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 23.

3.2.3 The Central Tenets of NOC

Let me capture and summarise the general structure of Hutto & Satne's NOC programme. Their genealogy already kicks off with a synchronic account denoted by **A** (see Fig. 3.1). This is to be found in their account of ur-intentionality, where this to be understood as 'target-based directedness' which is conceptually distinct from full-fledged intentionality.[220] This target-based directedness can be further understood as a two-place relation between a subject and object.[221] So ur-intentionality tries to capture "something more modest than content."[222] This two-place relation is to be explicated in terms of biological functions due to natural selection, in the spirit of the teleosemantic project – i.e. teleosemiotics. The programme continues by claiming that this platform at **A** provides the basis, which allows for creatures to learn and transmit learnt behaviour through "social inheritance of culturally evolved devices."[223] In other words, it allows for the development of social engagements by creatures, such as learning, punishing, reinforcing, etc., which eventually led to the institution and stabilization of cultural practices.[224] I have labelled this diachronic development as **X**. Once a socio-cultural practice has been stabilised, then neo-pragmatism can begin to explain how contentful items derive from this practice. This is the final (synchronic) reductive step labelled by **C**.

The Structure of a Naturalistic Genealogy of Content

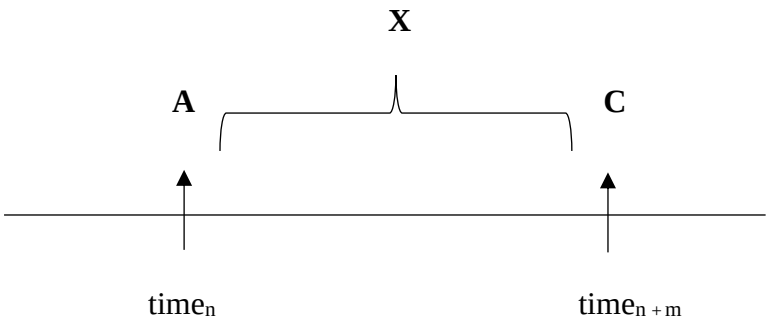

Fig. 3.1

With these structural points outlined, consider the following summary of NOC:

Central Tenets of NOC

1. The explanation should only appeal to *Broad Scientific Naturalism*, specifically, Relaxed Naturalism;
2. The explanation should be diachronic;

[220] Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 530-531.
[221] Marc Rowlands, "Hard problems of intentionality," 742.
[222] Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 531.
[223] Ibid., 533.
[224] Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 17.

3. Not all cognition has content, where the contentful cognition is irreducible to contentless cognition understood in terms of nonnormative biological, chemical or physical facts;
4. Some thoughts and linguistic utterances have content, through neo-pragmatism;
5. It is possible, in principle, to nonreductively explain the transition from a world with ur-intentionality to contentful intentionality, through the emergence of a normative socio-cultural practice.
6. The explanation should not involve explanatory gaps. Viz. In explaining the transition from a world without content to one with it (1) it must be possible for there to be some describable intermediate steps that do not beg the question by assuming content and (2) for any intermediate step, there will be a describable subsequent step and (3) each step leading up to the emergence of content be describable in a naturalistically respectable way.

However, there are some[225] who would deny that such a genealogy can explain content. These critics are typically labelled under the unfortunate misnomer "continuity skeptics", which I have argued should be properly understood as merely claiming that the emergence of content is unilluminated by the resources found in *Broad Naturalistic Explanation* alone. By contrast, Hutto and Satne do think that such an explanation is possible. This can be seen in the following quotation:

> "If the trick to understanding the emergence of content is to understand the emergence of a special sort of normative socio-cultural practice in the use of public symbols then, unless there is something deeply mysterious about social conformity and cultural evolution, there is nothing in the proffered explanation that introduces any inexplicable gap into nature."[226]

Here, 'social conformity and cultural evolution' signifies the developmental phase **X** which is used to explain how to get from ur-intentionality at **A**, to the reduction of contentful items to normative socio-cultural practices at **C**. According to them, there is no other synchronic reductive step involved so long as there is nothing "deeply mysterious about social conformity and cultural evolution".[227] Hence, there will be no in principle discontinuity. Having outlined the basic structure and assumptions of NOC, we can turn to how it overcomes the Zenoesque Paradox of Content.

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[225] Donald Davidson, *The Emergence of Thought (1997)*; Olivia Sultanescu, "Bridging the gap: A reply to Hutto and Satne," 639-649; David Macarthur, "Liberal Naturalism and Second-Personal Space: A Neo-Pragmatist Response to "The Natural Origins of Content," 567-578; Robert Brandom, *Making it explicit.*

[226] Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 23.

[227] The notion of social conformism that Hutto and Satne draw on comes from Haugeland. To be more accurate, Hutto & Satne are remain agnostic on whether the mechanism of social conformism will supply the entire explanation of how content involving cognition emerges; nonetheless, they maintain that it "will form at least part of the best explanation of how human cognition did, and does, come into being." Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 527. For more detail on Haugeland's notion of conformism in the context of neo-pragmatism see: John Haugeland, "The intentionality all-stars," 404-413; John Haugeland, "Heidegger on being a person," 15-26.

3.3 How NOC Overcomes the Zenoesque Paradox of Content

In the previous chapter, I suggested how Hutto and Satne's NOC programme is not susceptible to the Zenoesque Paradox of Content. This is a product of their aim to indirectly explain the emergence of content through an explanation of the emergence of a normative socio-cultural practice, which was expanded upon in this chapter. But how does it address *Davidson's Puzzle* that we lack a satisfactory vocabulary for describing the intermediate steps in the emergence of contentful items? This is to ask how NOC aims to explain the transition from pure triangulation to reflective triangulation in a nonreductive manner. In general, the NOC programme avoids the Zenoesque Paradox of Content by shifting the focus on explaining a different *location problem.* This is a significant change from Bar-On's strategy which aims to solve the *placement problem* head-on.

As discussed, since reflective triangulation gives rise to genuine error, it can then be used to explain how content emerged. To succeed, what is vital is to explain is the grasp of normative statuses; without explaining this, there can be no reflective triangulation, thus no genuine error. Basically, NOC needs to supply an explanation of how ur-intentional creatures' ability to grasp normative statuses emerged, which in turn will supply an explanation of how normative statuses emerged. In order to do this, Hutto & Satne follow Sinclair's observations, on Davidson, that what is required is:

> "[A] characterization of normative phenomena which demonstrates how they can be seen as the product of natural capacities, capacities that are explained through scientific methods. This is an important aspect of radical interpretation not often emphasized, where our interpretive abilities are depicted as the result of natural capacities, and as being the product of innate and learnt traits. Radical interpretation purports to show how it is possible for us, given such natural capacities, to accomplish our interpretive feats successfully."[228]

This shifts the focus from, directly explaining intentional items in terms of elaborations on embodied affective disagreement – displayed in Bar-On's intermediate triangulation – to directly explaining the emergence of norm-governedness in a nonreductive naturalistically respectable manner. With some adjustments to *Davidson's Puzzle*, Hutto & Satne think that they will be able to dissolve this characterization problem in a manner that does not reduce the intensional to the extensional. To start off, Hutto & Satne agree with Davidson that reflective triangulation is necessary and sufficient for objective thought; however, while they admit that mastery of language is sufficient for reflective triangulation, they deny that it should be seen as necessary.[229] Consider:

> "Mastery of natural language is one way – our way – of coming to be acquainted with the possibility of there being contentful perspectives on a shared world. Still, […] these Davidsonian considerations only succeed in showing that mastery of natural

[228] Robert Sinclair, "What is radical interpretation? Davidson, Fodor, and the naturalization of philosophy," *Inquiry* 45, no. 2 (2002): 178; quoted in Daniel D. Hutto, and Glenda Satne, "Demystifying Davidson: Radical interpretation meets radical enactivism," 9.
[229] Ibid., 11-13.

> language is sufficient, but not necessary, for understanding and developing a contentful perspective on a shared world that can be right or wrong."[230]

Nonetheless, Hutto & Satne identify a nugget of truth in Davidson's reasoning that language creates the space for reflective triangulation:

> "Contentful though can only occur for those who benefited from mastery of a particular kind of intersubjective practice – one that respects special kinds of norms."[231]

This sets their approach for explaining reflective triangulation apart from Bar-On's by focusing on the importance of norms found in intersubjective interactions. In this way, Hutto & Satne think they can dissolve Davidson's *Puzzle*.[232, 233] This involves relaxing and enriching the conditions required for giving an account of the contentful. Firstly, Hutto & Satne have their account of ur-intentionality, which means that there can be creatures exhibiting states that have intentionality without propositional content.[234] This position of ur-intentionality is meant to stand as a platform from which we can then explain how they can be scaffolded through processes enabling "the emergence of complex practices that themselves build the resources, including linguistic, that bring content into being."[235] Basically, this platform provides the infrastructure to allow creatures to triangulate. These features then allow Hutto & Satne to introduce the development of normative intersubjective practices – specifically normative claim-making practices.[236] This will allow these creatures to shift from engaging in situations of pure triangulation to reflective triangulation, without any presupposition of contentful items on the part of these creatures. Importantly, it explains how these creatures can start to have conceptions of norms in a manner that is exhibited as implicit in their practice. Finally, once there is a mastery of a special kind of normative linguistic practice, this can be used to explain contentful intentionality through neo-pragmatism.[237]

Interestingly, Hutto & Satne recognise that Bar-On makes a "similar move" in the manner that she attempts to dissolve Davidson's *Puzzle*.[238] However, they correctly point out that she aims to directly dissolve this puzzle by showing how her commonsense descriptions of EC can be seen to account for a position that lies midway between pure and reflective

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[230] Ibid., 12-13.
[231] Ibid., 13.
[232] Ibid., 15.
[233] To be accurate Hutto & Satne claim that Davidson's "characterization problem" can be dissolved. By this they are referring to, what I have termed, Davidson's *Difficulty*, i.e. that there seems to be a difficulty in describing some intermediate step that explains the transition between the final step with content and a preceding step without. See: Ibid., 14.
[234] Ibid., 18.
[235] Ibid., 20.
[236] Ibid., 20.
[237] Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 521-536; Daniel D. Hutto, and Erik Myin, *Evolving enactivism: Basic minds meet content*, Ch. 5; Daniel D. Hutto, and Erik Myin, *Radicalizing enactivism: Basic minds without content*, Ch. 4.
[238] Daniel D. Hutto, and Glenda Satne, "Demystifying Davidson: Radical interpretation meets radical enactivism," 19.

triangulation.[239] This differs from Hutto & Satne's approach, since they aim to dissolve Davidson's *Puzzle* indirectly, by supplying an appropriate platform involving intentionality, but no content.[240] Because they do not aim to supply a middle position, it allows them to rather focus on explaining the emergence of a *normative* intersubjective practice which is essential for enabling creatures to engage in reflective triangulation.

In fact, Hutto & Satne claim of Bar-On "that she fails to sufficiently disentangle the characterization problem [sic.] connection and continuity problems, and this leads her to misrepresent what needs to be done in order to deal with the latter problems."[241] The 'characterization problem' Hutto & Satne refer to is just Davidsonian *Puzzle* that we lack "a satisfactory vocabulary for describing the intermediate steps."[242] The connection problem is that there seems to be no vocabulary to describe the commonalities between human mentality and extensional terms found in biological, chemical or physical descriptions. The continuity problem is engendered by the connection problem, since if there can be no commonalities found, then this presents an explanatory difficulty in describing the transition between non-contentful animal mentality and contentful human mentality. Bar-On aims to dissolve the latter two problems by dissolving the characterization problem through providing "commonsense *descriptions* of expressive behavior" that allows "for the conceptual task of fusing the scientific image and the naïve commonsense image".[243] Though Hutto & Satne do not elaborate on how she fails to disentangle these problems, I think they would agree that this failure is due to the result shown by the Zenoesque Paradox of Content. Viz., Bar-On's 'fused' vocabulary does not show that intermediate triangulation is a synchronic middle position, since it does not include a vocabulary for describing the transition between intermediate and reflective triangulation.

By contrast, Hutto & Satne do not think that the connection and continuity problems can be dissolved by fusing the images.[244] Rather they think that these problems should be dissolved by supplying "resources for resolving mysteries by making illuminating connections between domains of discourse of the relevant kind."[245] This, as I have discussed, involves adding new ingredients that explain the emergence of our grasp of normative statuses. Hence, the NOC programme avoids the Zenoesque Paradox of Content by shifting the focus on explaining a different *location problem.* Despite this strategy for overcoming the discontinuity engendered by the Zenoesque Paradox of Content, in the next section I will show how a further *Discontinuity Argument* can be raised against the NOC programme.

[239] For Bar-On's view and Hutto & Satne's view on it see: Dorit Bar-On, "Expressive communication and continuity skepticism," 329; Daniel D. Hutto, and Glenda Satne, "Demystifying Davidson: Radical interpretation meets radical enactivism," 19.
[240] Daniel D. Hutto, and Glenda Satne, "Demystifying Davidson: Radical interpretation meets radical enactivism," 19.
[241] Ibid., 19.
[242] Donald Davidson, *The Emergence of Thought (1997)*, 127.
[243] Dorit Bar-On, "Expressive communication and continuity skepticism," 329.
[244] Daniel D. Hutto, and Glenda Satne, "Demystifying Davidson: Radical interpretation meets radical enactivism," 19.
[245] Ibid., 19-20.

3.4 Sultanescu's Discontinuity Argument

Sultanescu does not think that NOC can provide a continuous explanation, since there will be intermediate steps that cannot be supplied in the diachronic explanation between ur-intentionality and full-fledged intentionality.[246] This discontinuity, she claims, is caused by the manner Hutto and Satne attempt to solve the *Essential Tension* facing neo-pragmatists. Furthermore, Sultanescu's *Discontinuity Argument* can be extended to be seen as a different rendering of the Zenoesque Paradox of Content. However, rather than focusing on the unbridgeable differences between content-based intentionality and ur-intentionality, she focuses on the unbridgeable difference between normative socio-cultural practices and everything that came before – call this ur-socio-cultural practices. I will elaborate on this more, but for now I will start by summarising her argument.

Sultanescu begins with a valuable insight regarding how one can explain this transition between ur-intentionality and content-based intentionality. In order to explain the transition, we will have to supply an account of the conditions that will determine content; this is essentially how to make content the target of this transition.[247] One general feature of contentful items is that they have conditions of correctness, i.e. rules that specify what must be the case for the contentful items to be satisfied.[248, 249] For example, if I believe that the grass is green, then in order for the belief to be true, the grass must be green. It is the content of the belief that *the grass is green*, that supplies the conditions under which the belief is to be true. So to offer such an account of content is to offer an account of what constitutes these conditions – what she labels the *constitutive facts*.[250] Identifying what these constitutive facts are is called the *constitutive question*.[251] Answering that question involves two tasks, i.e. there are two broad categories of *constitutive facts* that need to be identified.

Godfrey-Smith provides a useful way of thinking about these two types of *constitutive facts* – horizontal factors and vertical factors. In order to identify the horizontal factor of some contentful item "we need to know how far back along the causal chain to locate the object of representation."[252] For example, this involves asking the question about what the primary cause of my mental state that "the sky is blue" is. Was it the blue sky that caused the mental state or was it a certain frequency of electromagnetic radiation that hit my retina? If the belief is false, then this would involve the object of representation being caused by anything other than the primary cause. In order to identify the vertical factor, we need "to pick the

[246] Olivia Sultanescu, "Bridging the gap: A reply to Hutto and Satne," 639.
[247] Ibid., 641.
[248] Ibid., 641.
[249] In general, contentful items are characterised by satisfaction conditions which entail extensions and intensions. Conventionally, in the case of propositional contents, the satisfaction conditions are truth conditions; for desires, the satisfaction conditions are states of affairs that satisfy the desire, viz., "states of affairs that cause the desire to cease." José Luis Bermúdez, *Thinking without words* (Oxford: Oxford University Press, 2007), 66. There are several other types of satisfaction conditions for, e.g. imperatives or interrogatives. However, my account is neutral on what these satisfaction conditions need to be. It needn't buy into the conventional ways of understanding the satisfaction conditions for the various intentional types. The contentful could be specified by non-standard semantics. However, since Hutto & Satne are anti-representationalists about content, the satisfaction-conditions of these states and sign-designs are not to be explained in terms of representational relations. Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 30.
[250] Olivia Sultanescu, "Bridging the gap: A reply to Hutto and Satne," 641.
[251] Ibid., 641.
[252] Peter Godfrey-Smith, "Misinformation," 536.

property or class … out of various other classes of things."[253] For example, this involves identifying my belief that "the sky is blue" and distinguishing it from the various other classes, such as the class of colourful skies or the class of blue skies on Tuesdays. The gist of all this is that in order to give an account of contentful items we need to determine what the contentful item is about and also determine the class or property that it is directed towards.

How are these *constitution facts* relevant to NOC? They are relevant since NOC is committed to the neo-pragmatist thesis that contentful items derive their content through agents partaking in normative socio-cultural practices. Additionally, Hutto and Satne think that "[s]uch practices are not only based on our shared biology but in social engagements and cultural devices that evolved over time."[254] This means that giving an account of content as the target of the diachronic explanation will have to involve *constitution facts* qua *social facts*. As a product of this, Sultanescu claims that:

> "the successful transition to having content from whatever stage precedes it, essentially involves facts that are irreducibly social, and which call for characterizations in intentional terms."[255]

This is not anything controversial as Hutto and Satne already hint to this when they say:

> "Only with the appearance of such claim making [practices] does it become possible to make the special kinds of semantic error unique to contentful thought and speech."[256]

Now it should be clear that ur-intentionality cannot provide a complete answer to the *constitution question*. This is because ur-intentionality is contentless, so ur-intentional states do not represent objects – there is no mode of presentation – rather they simply target objects. Nonetheless, it does contribute to answering the *constitution question* since any satisfactory account of ur-intentionality must provide an account of how the targeted object can be determined from a list of proximal and distal causes of the subject's targeted response.[257] In other words, ur-intentionality aims to provide an answer to what the horizontal factors are. This is what allows Hutto and Satne to say that ur-intentionality provides an account of increasingly sophisticated "intelligent, recognitional capacities" which provides the platform for neo-pragmatism to solve the *Essential Tension.*[258] For the purposes of this argument I will grant that ur-intentionality supplies a satisfactory account of horizontal factors, hence part of the answer to the *constitution question.*

But does solving the *Essential Tension* allow for a continuous diachronic explanation? In more detail, can the development of the social activities between these ur-intentional

[253] Ibid., 536.
[254] Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 527.
[255] Olivia Sultanescu, "Bridging the gap: A reply to Hutto and Satne," 643.
[256] Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 22.
[257] Olivia Sultanescu, "Bridging the gap: A reply to Hutto and Satne," 646.
[258] Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 529.

creatures allow for continuous diachronic explanation? I will first quote Sultanescu and then supply my elaborations on it:

> "[D]espite the fact that this investigation can be said to shed some light on the transition, the gap between the basic and the conceptual cannot be bridged for the following reason. The very idea that content is constituted through participation in a shared practice, to which the authors commit themselves, suggests that contentful states are not physical particulars, and so their emergence is not tantamount to the emergence of a physical particular."[259]

The idea is straightforward. Ur-intentionality supplies an account of the horizontal factors, hence part of the answer to the *constitution question*, but in order to give a full answer we need the vertical factors too. This is only supplied with the advent of normative socio-cultural practices, since such a practice is required for reflective triangulation. These practices involve a form of claim making which is a type of *social fact*. It is these *social facts* that will supply the answers to the vertical factors. So the *constitution question* can only be answered once normative socio-cultural practices are in place.

But now we have at least one inexplicable gap in our explanation, according to Sultanescu. On the one hand we have ur-intentional creatures at **X** that engage in ur-socio-cultural practices, i.e. naturalistic descriptions involving "concrete spatio-temporally extended patterns of dynamic interaction between organisms and their environments."[260] **(**As mentioned, this is explained in terms of social conformity and cultural evolution. But because these practices are not the normative socio-cultural practices found at **C**, and since *social facts* are only supplied with the advent of normative socio-cultural practices, then there are only horizontal factors to be found at **X**.) On the other hand, we have normative socio-cultural practices at **C** with both with both horizontal factors and vertical factors identified. This means that there is a new difference in type between ur-socio-cultural practice and normative socio-cultural practices. So how are we to explain the transition between these two? We need *social facts* to explain the emergence of content, but the current naturalistic resources utilized by RECers are not sufficient to identify the transition between regularities of behaviour and *social facts*.

What is important to note is that this inexplicable gap is the product of a tension between Hutto & Satne's synchronic *foundational semantics* and their diachronic *foundational semantics*. Sultanescu is preoccupied with the *constitution facts* because these specify how the synchronic *foundational semantics* explains content. This gives a target for their diachronic *foundational semantics* to explain, i.e. normative socio-cultural practice. What Sultanescu's *Discontinuity Argument* points out is that the NOC programme, as it stands, does not have the resources to specify the move from ur-intentional creatures that display "concrete spatio-temporally extended patterns of dynamic interaction between organisms and their environments" to creatures engaged in a normative socio-cultural practice.[261] This is

[259] Olivia Sultanescu, "Bridging the gap: A reply to Hutto and Satne," 647.
[260] Daniel D. Hutto, and Erik Myin, *Radicalizing enactivism: Basic minds without content*, 5.
[261] Daniel D. Hutto, and Erik Myin, *Radicalizing enactivism: Basic minds without content*, 5.

because the diachronic *foundational semantics* Hutto & Satne provide only aids in showing how the processes of social conformism and cultural evolution lead to creatures exhibiting more sophisticated renditions of "concrete spatio-temporally extended patterns of dynamic interaction between organisms and their environments."[262] Due to NOC's commitment to the irreducibility of the normative to the nonnormative, it does not provide an adequate explanation of the transition between the two. This is why Sultanescu states that insisting that the explanation is continuous would involve a commitment to reductionism. Cf.:

> "We cannot point to a specific stage at which the child's basic mentality, essentially consisting in "concrete spatio-temporally extended patterns of dynamic interaction" [Daniel D. Hutto, and Erik Myin, *Radicalizing enactivism: Basic minds without content*, 5] between her and her environment, becomes contentful mentality, essentially constituted through repeated interactions with others. Thinking otherwise might be the residue of a commitment to the project that seeks to provide a reductive account of representations."[263]

So there is a gap in the explanation of the emergence of content. This is where Sultanescu's argument takes on a form reminiscent of the Zenoesque Paradox of Content.[264] Assume that there is some describable intermediate step between ur-socio-cultural practices and normative socio-cultural practices. Of course, this middle position cannot be described as a normative socio-cultural practice, since this would entail that there are *social facts* already present which is what we want to explain the emergence of. So all we can say about this middle position is that it constitutes some sophisticated form of ur-socio-cultural practice. Thus, this intermediate step cannot illuminate the emergence of *social facts*. No matter, we can find another middle position between this sophisticated form of ur-socio-cultural practice and normative socio-cultural practice. Again, the problem arises when we realise that this middle position cannot involve *social facts*, so simply constitutes an increased sophistication in ur-socio-cultural practice. This process of supplying a middle position and identifying that it does not involve *social facts* can be indefinitely iterated *ad nauseam*. The result of this being that one can never supply an illuminating middle position that explains the transition between ur-socio-cultural practice and normative socio-cultural practice.

In summary, the diachronic *foundational semantics* does not appropriately explain how the essential feature of the synchronic *foundational semantics* emerged.[265] So the problem Sultanescu is trying to raise is that ur-intentional creatures cannot 'leap' into a socio-cultural practice in our explanation. They have to develop from proto-sociality which lacks the requisite vertical factors. This can be seen in the following diagram:

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[262] Ibid., 5.
[263] Olivia Sultanescu, "Bridging the gap: A reply to Hutto and Satne," 647.
[264] Hutto & Satne have already anticipated similarity between the Zenoesque Paradox of Content an Sultanescu's *Discontinuity Argument* in a footnote. This objection in Ch. 5 – *5.2 Philosophical v. Scientific Discontinuity Objection*.
[265] Hutto & Satne admit that Sultanescu has identified a discontinuity in their explanation; however, they do not think that this discontinuity is problematic; see Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 25. This response will be discussed in Ch. 5 – *5.2 Philosophical v. Scientific Discontinuity Objection*.

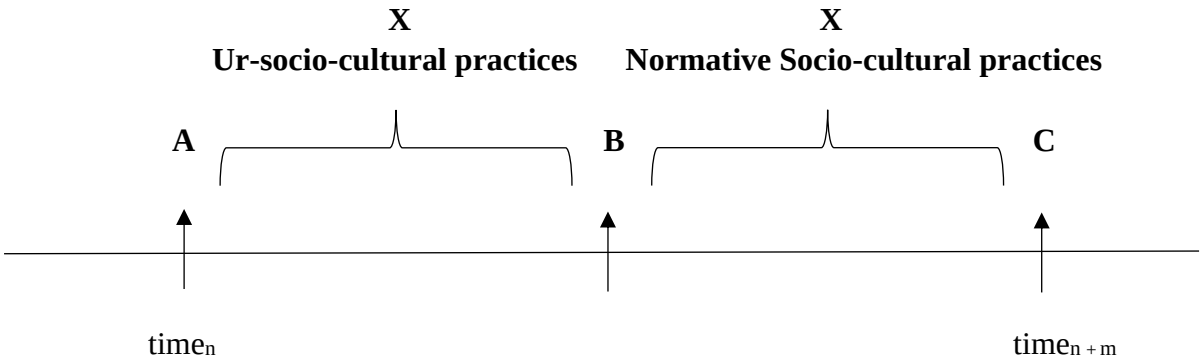

Fig. 3.2

Where **B** would be the implicit and illicit assumption in the model (as an intermediate step) that there is some reduction of socio-cultural practice to ur-socio-cultural practice. Because there is, at least, one inexplicable gap in the explanation, this means that the definition of continuity cannot be satisfied, so the diachronic explanation is discontinuous. Therefore, the central tenets of the NOC programme are inconsistent. Hutto and Satne are faced with a trilemma: Either (1) reject Relaxed Naturalism or (2) reject that content is irreducible to biological, chemical or physical facts or (3) reject that the explanation is continuous. If they wish to supply a continuous naturalistic genealogy of content, then they will have to be committed to the reduction of a normative socio-cultural practice to ur-socio-cultural practice.

This can be seen to be a consequence of the genealogy's commitment to neo-pragmatism – its synchronic *foundational semantics*. Because content is to be explained in terms of norms implicit in socio-cultural practice, these norms are taken as the explanandum in the genealogy by all parties involved. The dispute then revolves around whether a diachronic explanans can be supplied for the emergence of these norms. On the charitable reading of Sultanescu, she can be seen as denying that such an emergence story of norms is possible since such a genealogy will have to presuppose a reduction of the normative practice to mere regularities of social conformity and cultural evolution at **B**. But this is precisely what the proponent of the NOC ought to deny. So the disagreement, over the NOC programme, revolves around whether the *location problem of normativity* can be solved by reduction or not. If one thinks that the NOC story is possible, then this presupposes a residual commitment to norms being reduced to nonnormative regularities.[266]

[266] One may wonder "What of Hutto and Satne's claim that "unless there is something deeply mysterious about social conformity and cultural evolution, there is nothing in the proffered explanation that introduces any inexplicable gap into nature"? Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 23. Does this not show that there are some genealogies that do not involve commitment to **B**? This response will be addressed in Ch. 5 – *5.2 Philosophical v. Scientific Discontinuity*.

3.5 Additional Ingredients

As with Zenoesque Paradox of Content, there is a simple response to Sultanescu's (extended) *Discontinuity Argument*. This can be seen by recognising that it only works on an overly restrictive focus on what is permitted in explaining how to bridge the difference in type between ur-socio-cultural practice to normative socio-cultural practice. It is the restrictive focus on intermediate steps as only involving increased sophistication on ur-socio-cultural practice. If we are not allowed to synchronically reduce normative socio-cultural practice to ur-socio-cultural practice, but this is the only manner in which we are permitted to explain the emergence of *social facts*, then obviously there will be inexplicable gaps in explanation.

Again, the solution is to supply some new ingredients that do not presuppose *social facts*, but nonetheless allow ur-socio-cultural practice to get to normative socio-cultural practice. This can be found by observing the essential component that makes these two positions different in type – normativity. Naturally, we will need to provide some developmental process that explains how normativity can be continuously explained from ur-socio-cultural practices. In principle, as long as the development of normativity can be explained in a continuous and naturalistically respectable way, then there is no problem with explaining the emergence of *social facts* in a non-gappy way. So **B** could be avoided by recognising this additional explanatory device at **X** as upgrading what we have at **A** to **C**. What would this process (or these processes) look like?

This has been left vague, so I will use Niche Construction Theory to make it more concrete. Niche Construction Theory is the process when:

> "The organism influences its own evolution, by being both the object of natural selection and the creator of the conditions of that selection."[267]

More specifically, evolution by niche construction occurs when:

1. "An organism must significantly modify environmental conditions;"
2. "Organism-mediated environmental modifications must influence selection pressures on a recipient organism;"
3. "There must be an evolutionary response in at least one recipient population caused by the environmental modification."[268]

As an example we can consider beavers. Beavers build dams and lodges using the surrounding vegetation which significantly alters the surrounding environment. The dams and lodges reduce the flow of water, create a pond for them to inhabit, provide shelter, protect them from predation, etc... These mentioned environmental modifications will immensely increase their fitness in the environment – see points 1 & 2 – so there will be evolutionary selection for a population of beavers exerting such an influence on the environment. I.e. point

[267] R. C. Lewontin, "Organism and Environment," In *The dialectical biologist*, edited by R. Levins and R. C. 85–107 (Cambridge: Harvard University Press, 1985), 106.
[268] Kevin Laland, Blake Matthews, and Marcus W. Feldman, "An introduction to niche construction theory," *Evolutionary ecology* 30, no. 2 (2016): 193.

3 is satisfied by the increase in fitness due to 1 & 2 being satisfied. So, beaver dam and lodge building is an instance of evolutionary niche construction.[269]

Hutto & Satne claim that a similar niche occurs in the development of socio-cultural practices for ur-intentional creatures through social conformism and cultural evolution, viz., development of socio-cultural practice is a product of an evolutionary niche construction.[270] To see this, consider that these ur-intentional creatures will have the cognitive capacity to start interacting in various ways. These interactions have various socio-cultural products, which may affect their environment. If these effects on their environment are suitably adaptive for the creatures, then behaviour that conforms to these socio-cultural products will be *selected for*. Viz., there will be "mechanisms for the social inheritance of culturally evolved devices."[271] In essence, social conformity is an evolutionary niche construction. I will leave this as a how-possible story, since all that matters for my argument is that this is a possible manner for naturalistically explaining how socio-cultural practices become stabilised. But this should shed some light on what I am referring to when I mentioned 'developmental process **X**'. It can be seen as an evolutionary niche construction built on the capacities of ur-intentional creatures, or more generally, on the platform **A**. Having briefly outlined Niche Construction Theory and its relevance, we can now elaborate on the role Niche Construction Theory plays in NOC and how Sultanescu's (extended) *Discontinuity Argument* would interpret what it succeeds in showing.

First, NOC attempts to explain the emergence of content by means of socio-cultural practice. To do this, we can combine ur-intentional creatures with some evolutionary niche construction, i.e. social conformism. This provides an explanation of the emergence of socio-cultural practice, which bridged the synchronic discontinuity between ur-intentional creatures and full-fledged intentional creatures. In response to this, Sultanescu first observed that there was a difference in type between ur-socio-cultural practice and socio-cultural practice. With her *Discontinuity Argument*, she aimed to show that the niche construction could not completely explain how we get from the one to the other without implicitly presupposing some reduction between the two. The niche construction, utilised in NOC, aims to explain the emergence of a normative socio-cultural practice from interactions found in ur-intentional creatures. What Sultanescu's (extended) *Discontinuity Argument* demonstrated is that the resources of the NOC programme were too austere to describe the process that takes ur-intentional creatures to a normative socio-cultural practice. Specifically, it aims to show that NOC, as it stands, cannot address the emergence of a normative socio-cultural practice from ur-socio-cultural practice. Furthermore, since NOC is taken as supplying a naturalistically

[269] It is important to note that natural selection functions in conjunction with Niche Construction theory in its manner of affecting evolution. F. John Odling-Smee, Kevin N. Laland, Marcus William Feldman, and Marcus W. Feldman, *Niche Construction: The Neglected Process in Evolution.* Vol. 37. (New Jersey: Princeton University Press, 2003), 370. However, natural selection only affects evolution in the manner in which it selects for traits which are more fit in an environment. Niche Construction Theory, by contrast, affects evolution by altering the selectional pressures through modification of the environment. Ibid., 376. This dovetails with natural selection since a change in selectional pressures can result in natural selection selecting (for) different traits, such as those which make creatures who modify their environment more fit. This interactive process overtime results in an evolutionary response.
[270] Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 533.
[271] Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 533.

respectable continuous explanation, then it requires some reduction due to the difference in type between *social facts* and ur-social facts understood in terms of regularities.

In response to Sultanescu's (extended) *Discontinuity Argument*, I propose that we add another niche construction between ur-socio-cultural practice and socio-cultural practice. This niche construction would explain the emergence of normativity, since this is what ur-socio-cultural practice lacked. This would involve taking ur-socio-cultural practice as the platform (without normativity) and taking the explanandum to be the normativity found in socio-cultural practice. So how would we explain the emergence of the normative in a nonreductive manner? I will provide some suggestions drawing form Weiss's "From Tools to Rules".[272] In this paper, he provides a nonreductive genealogy with the aim of showing "how genuinely normative practice might have emerged from practices involving only peer pressure."[273] Before I explain what the terms in this quotation mean and the broad details of the genealogy, I would like to motivate why this genealogy can be seen as, not only consistent with, but also in the spirit of the central tenets and other vital commitments of the NOC programme.

First, Weiss provides a diachronic explanation of the emergence of normative practices from nonnormative practices, i.e. practices involving peer-pressure.[274] Second, this explanation is not meant to be pursued by reducing normative practice to other nonnormative terms, specifically, the reduction of "what constitutes accord with a rule" to other terms.[275] It only attempts to explain how it is possible for a normative practice to emerge from preceding nonnormative practices of peer-pressure.[276] Third and relatedly, the normative practices are to be seen as different in type from the preceding nonnormative practices.[277] Fourth, the nonnormative practices of peer-pressure are meant to provide a platform upon which to explain the emergence of a normative practice.[278] Fifth, the focus of the genealogy is motivated by "interest in the evolution of language."[279] Specifically, it is motivated by a prior commitment to neo-pragmatism.[280] Sixth and related to the commitment to neo-pragmatism, the creatures that engage in these nonnormative practices of peer-pressure cannot have "conceptual expertise", i.e. contentful cognition; otherwise, there would be no non-question begging way to explain how contentful cognition emerged from normative practices which are instituted by contentful creatures.[281] This is important for avoiding the *Essential Tension*; furthermore, there is no bar in Weiss's account that contentless cognition could be understood in terms of Hutto & Satne's notion of ur-intentionality.

Seventh, though Weiss denies that he is a philosophical naturalist of any ilk – hence needn't be obliged to solve the *placement problem* nor locate norms in a naturalistic conception of the

[272] Bernhard Weiss, "From Tools to Rules: The Evolution of Rule Following," *Philosophical Topics* 50, no. 1 (2022): 55-82.
[273] Ibid., 61.
[274] Ibid., 56.
[275] Ibid., 62.
[276] Ibid., 62.
[277] Ibid., 58-59.
[278] Ibid., 58.
[279] Ibid., 55.
[280] Ibid., 55-56.
[281] Ibid., 61.

world – I see no reason why the genealogy itself cannot be utilized by naturalists.[282] To be clear, I think it perfectly consistent with the genealogy Weiss provides, that it can be given an entirely naturalistic interpretation – in line with Hutto & Satne's commitment to *Relaxed Naturalism*. This would be to solve the location problem of normativity by giving "a *naturalistic nonreductive account of normativity in general*."[283] Of course, giving an entirely naturalistic gloss to Weiss's genealogy would be to significantly restrict the explanatory resources available by his standpoint; but I hope to indicate, at least, why taking this more austere approach to explanation does not conflict with the proposal supplied in "From Rules to Tools". Lastly, Weiss suggests that the emergence of normative practice could be understood, partly, in terms of niche construction theory.[284]

The consilience between Weiss's account and the NOC programme suggests that this would be a welcome approach for Hutto & Satne to incorporate in order to avoid the Sultanescu's (extended) *Discontinuity Argument* without appeal to reductionism. To see the consilience, consider the following similarities:

(1) The explanation is consistent with *Broad Scientific Naturalism*;
(2) The explanation of norms is diachronic;
(3) Not all practices are normative nor does all cognition involve content, where normative practice is meant to be understood as irreducible to nonnormative practices;
(4) (CDN) Content is determined by norms. This is because the genealogy is committed to neo-pragmatism;
(5) It is possible, in principle, to nonreductively explain the transition from a world with nonnormative practices to normative practices;
(6) The explanation should be continuous, i.e. it should not involve explanatory gaps.

I will now move to outlining the skeleton of the nonreductive diachronic explanation of the emergence of normative practices. As mentioned, the aim is to provide a genealogy from practices of peer-pressure to normative practices. I will refrain from supplying the motivations for the transition between the two, and simply refer to the Technological Pedagogical Hypothesis and the processes involved as providing the relevant motivation.[285]

The explanandum is a policing practice, which is to be understood as indispensable to normative practice.[286] A policing practice involves practitioners monitoring other practitioners' performances – generally 'moves' – in terms of moves commendation,

[282] Ibid., 56.
[283] Mason Cash, "The normativity problem: Evolution and naturalized semantics," 127.
[284] See the following for evidence of this: Bernhard Weiss, "From Tools to Rules: The Evolution of Rule Following," 61.
[285] The Technological Pedagogical Hypothesis involves a collection of theories about the social transmission of technology, such as tool construction, and their effect on the evolution of language. See Bernhard Weiss, "From Tools to Rules: The Evolution of Rule Following," 62; Dietrich Stout, "Archaeology and the evolutionary neuroscience of language: The technological pedagogy hypothesis," *Interaction Studies* 19, no. 1 (2018): 256-257. Weiss mentions that the 'Technological Pedagogical Hypothesis' is a theory about the evolution of language. However, he suggests that it can be better utilised as a theory about the evolution of normative practices, since he thinks the transmission of technology is not "immediately involved in the evolution of language, but in the evolution of a policing practice and thus in the evolution of norms." Bernhard Weiss, "From Tools to Rules: The Evolution of Rule Following," 62.
[286] Bernhard Weiss, "From Tools to Rules: The Evolution of Rule Following," 58.

condemnation and retraction.[287, 288] More generally, a policing practice is reflexive, i.e. it is a practice that is itself policed.[289] Viz., the moves of commendation, condemnation and retraction, monitor these very moves. By contrast, "[p]ractices involving peer pressure involve moves of encouragement, of discouragement, and of placation."[290] These moves are analogues of the respective moves found a policing practice, except that the former's moves are entirely nonnormative. That the moves in practices of peer pressure are entirely nonnormative is due to the fact that they only traffic in *forward-looking* moves.[291] These moves are reactions to the performances of others in order to affect future changes, i.e., "to reinforce certain patterns of behaviour and to deter the development of others."[292]

In a policing practice, the moves are both *forward-looking* and *backward-looking*.[293] In addition to the *forward-looking* aspect, these moves need to be historically consistent in how they are normatively assessed.[294] This means that the normative assessments of moves should be understood as (1) possibly changing the normative statuses ascribed to past moves, and as a result, (2) affecting the way moves are assessed in the future in the practice. This is the *backward-looking* aspect involved in fully normative move. Weiss mentions that "[t]his matters because a correct move by one will warrant the 'same' correct move by another; rules possess a kind of consistency, which is substantive, provided only that moves are conceived as repeatables."[295] The fact that practices of peer pressure lack a *backward-looking* aspect, show how they can be understood as different in type from a policing practice, since these practices aren't issuing moves that can be properly understood as correct or incorrect. With the difference between the platform and the explanandum outlined, we can move to the genealogy.

The genealogy begins with a particular variety of practices involving peer pressure – rank hierarchies. Think of chickens and their pecking orders. These involve approvals, threats and submissions in behaviour, which correspond moves of encouragement, discouragement and placation, respectively.[296] Broadly speaking, rank hierarchies can be understood in terms of:

(1) a collection of behaviours that establish a participant's "relative position in the hierarchy" and,
(2) differential use of behaviours dependent on the "relative position" of a participant in the hierarchy in order to reinforce relations of superiority and inferiority.[297]

[287] Ibid., 56 & 58.
[288] Moves of commendation and condemnation are moves of correction which correspond to Wittgenstein's notions of "obeying the rule" and "going against it" Ludwig Wittgenstein, *Philosophical investigations,* 4th edition, edited by P.M.S. Hacker and Joachim Schulte (eds. and trans.). (Oxford: Wiley-Blackwell, 2009), §201. Moves of retraction change the normative status of an individual practitioner's past performances, i.e. "it alters what a practitioner can be held responsible for." Bernhard Weiss, "From Tools to Rules: The Evolution of Rule Following," 59.
[289] Bernhard Weiss, "From Tools to Rules: The Evolution of Rule Following," 77.
[290] Ibid., 58.
[291] Ibid., 58.
[292] Ibid., 59.
[293] Ibid., 58.
[294] Ibid., 58-59.
[295] Ibid., 58-59.
[296] Ibid., 63.
[297] Ibid., 63.

Importantly, these are monitoring behaviours that are directed towards individuals, and not shared patterns of behaviours, since they merely aim to reinforce a participant as superior over another in the rank hierarchy.[298]

Through the Technological Pedagogical Hypothesis, Weiss argues that the advent of some technology, e.g. toolmaking, enabled rank hierarchies to develop into practices where participants promote "particular patterns of behaviour" which are shared between the learner and teacher, where both have a "pro-attitude toward" the learner acquiring the pattern of behaviour.[299] As Weiss puts it, "[p]edagogical relations replace power relations."[300] These behaviours of encouragement, discouragement and placation are now directed towards the preservation of the practice, such as patterns of behaviour for making tools, rather than the preservation of one's position in a hierarchy. This involves the transmission of patterns of behaviour where 'learners' imitate their 'teachers', but are also monitored by their teachers through encouragement, discouragement and placation. This allows for a notion of functional correctness to emerge: a behaviour is 'correct' if it satisfies the particular function(s) which that behaviour is meant to purpose within the practice. With reference to toolmaking: a manufacturing of x is 'correct' if the construction of x satisfies the function(s) that the tool is meant to purpose within the practice. Functional correctness can now be understood in terms of hypothetical imperatives, i.e. if one desires x, then one ought to do π (where it is known that doing π, gets one x.[301] A toolmaking example of this would be, if a chimpanzee wants to construct a 'leaf sponge' or 'moss sponge' to collect water, then the chimpanzee should construct the 'sponge' by collecting leaves and/or moss and chew them so that they become compact and absorbent (provided the 'sponge' has the function of collecting water).[302, 303] If the 'sponge' is constructed in this manner, then chimpanzee's behaviour would be 'correct' insofar as it allows for the function of the 'sponge' to be satisfied. i.e., absorbing water in a narrow crack.

Again, through the Technological Pedagogical Hypothesis, as more complex toolmaking practices arose, these monitoring practices can be seen to develop into practices where the moves of encouragement, discouragement and placation start exhibiting a *proto-backward-looking* aspect. This is because the complex toolmaking would require not just imitation and emulation, but more active monitoring process.[304] Patterns of behaviours will emerge in the construction of technology that are not only a product enabling a function. Viz., toolmaking would start to exhibit particular features that do not have any relation to enabling the proper functioning of the tool, e.g. aesthetic features.[305] This requires monitoring that does not only

[298] Ibid., 64.
[299] Ibid., 65.
[300] Ibid., 65.
[301] Ibid., 65-66.
[302] Catherine Hobaiter, Timothée Poisot, Klaus Zuberbühler, William Hoppitt, and Thibaud Gruber, "Social network analysis shows direct evidence for social transmission of tool use in wild chimpanzees," *PLoS biology* 12, no. 9 (2014): 1-2.
[303] Kimberley J. Hockings, Nicola Bryson-Morrison, Susana Carvalho, Michiko Fujisawa, Tatyana Humle, William C. McGrew, Miho Nakamura et al., "Tools to tipple: ethanol ingestion by wild chimpanzees using leaf-sponges," *Royal Society open science* 2, no. 6 (2015): 3.
[304] See the following for evidence and motivation of the move to a more active monitoring practice: Bernhard Weiss, "From Tools to Rules: The Evolution of Rule Following," 66-69.
[305] Ibid., 67.

track functional success. Weiss argues that this requires monitoring moves develop in the following ways:

(a) encouragement could be seen as exhibiting a novel function, not only encouraging a move, but also promoting its saliency as an exemplar;
(b) discouragement could be seen as exhibiting a novel function, not only discouraging a move, but also "erasing its saliency as an exemplar.";
(c) placation could be seen as exhibiting a novel function, not only placating a move, but also changing the status of a move from one to be copied, as an exemplar, to something to be ignored.[306]

While still nonnormative behaviours, they are very similar in function to moves of commendation, condemnation and retraction with regards to the *backward-looking* aspect. They are also, as Weiss calls it, "thoroughly free floating" as they can now be recursively applied to each other.[307] E.g. we might encourage an encouragement, in the sense that, we promote the saliency of a move, as an exemplar, which itself promotes the saliency of another move as an exemplar. I would characterise this position as a monitoring practice that monitors itself. To be more precise, the monitoring moves of encouragement, discouragement and placation become conventionalised, and so capable of being used to monitor those very moves.

This monitoring of the monitoring practice is a form of policing, but this does not make it a policing practice yet. This is because the monitoring practice is still constrained by pedagogical conventions, hence the moves are still to be understood in term of how they satisfy certain pedagogical functions of tool construction.[308] At this point the nonnormative policing practice is nearly normative practice, it just needs to be released from standards of functional correctness.[309] Weiss suggests that this final step could involve Lewisian coordination problems and the creatures' solutions to these.[310] I will discuss this possibility under the perspective of naturalism in the following chapter. With the skeleton of the genealogy outlined, I can now chart the vital stages:

(1) The platform is that of creatures in Rank Hierarchies;
(2) This transitions into a monitoring practice where functional correctness is the standard upon which moves of encouragement, discouragement and placation are issued;
(3) This transitions into a reflexive monitoring practice where patterns of behaviours are encouraged, discouraged and placated, not only as a result of their functional correctness.

[306] Ibid., 72-73.
[307] Ibid., 77.
[308] Ibid., 77-78.
[309] Ibid., 77-78.
[310] His suggestion is as follows:

> "I don't have a detailed suggestion here, but it is plausible to suppose that social creatures will face Lewisian coordination problems. Any solution to these might well be cemented by application of a recursive policing practice, one of whose virtues is that, once developed in one setting, it easily transfers. Applying it to such a situation frees it from functional correctness and now a fully normative practice will, with time, come into being." Ibid., 78.

(4) Lastly, this reflexive monitoring practice transitions into a policing practice once the monitoring practice at (3) does not rely on standards of functional correctness for issuing move of encouragement, discouragement and placation.

This supplies a model which Hutto & Satne's can incorporate in their NOC programme to explain the emergence of the normative aspect in their broader explanation of the development of a socio-cultural practice.

Chapter Four:

4. The Continuity-Discontinuity Regress Argument

4.1 Taking Stock – the stage of the dialectic

The previous chapter began by suppling an outline of Hutto & Satne's NOC programme. Following this, it was demonstrated how the NOC programme's additional ingredients allowed it to overcome the Zenoesque Paradox of Content. This was discussed with reference to the manner in which Hutto & Satne's utilised the additional resources of their genealogy to overcome Davidson's *Puzzle*. The additional resources of neo-pragmatism and the development of a normative socio-cultural practice allowed them to shift focus, from tyring to directly solve the *placement problem*, to solving the *location problem of normativity*. This would be to indirectly solve the *placement problem* if the emergence of the normative socio-cultural practice was in principle continuous.

However, a further *Discontinuity Argument* was raised against their NOC programme. This was Sultanescu's (extended) *Discontinuity Argument*. It aimed to show that there was still an inexplicable gap in the explanation provided by NOC, since it did not have the resources to explain the emergence of the normative aspect from the nonnormative interactions of ur-intentional creatures. Therefore, the genealogy was discontinuous. Given this discontinuity, it demonstrated that the central tenets of the NOC programme were inconsistent. Furthermore, if Hutto & Satne wished to maintain that their genealogy did supply an, in principle, continuous *Relaxed Naturalistic* explanation of the emergence of content, then their genealogy implicitly and illicitly involved the reduction of the normative to nonnormative regularities.

Nonetheless, as with the first *Discontinuity Argument*, it is important to recognise that Sultanescu's (extended) *Discontinuity Argument* was not a serious objection to this genealogy. It is merely aimed at showing how, given the central tenets, there was something missing from the NOC programme's genealogy. The objection could be seen as illustrative in indicating a possible avenue of response for Hutto & Satne that involves adding additional ingredients to their genealogy of content in order to resolve the discontinuity identified. Here I provided a charitable option for how they could add additional ingredients to their genealogy in order to explain the emergence of the normative in a nonreductive manner. This involved a brief excursion into Weiss's "From Tools to Rules". The ingredients they would have to add would be those found in the following model:

Central Tenets of the Genealogy of Norms:

1. The explanation is consistent with *Broad Scientific Naturalism*;
2. The explanation of norms is diachronic;
3. Not all practices are normative nor does all cognition involve content, where normative practice is meant to be understood as irreducible to nonnormative practices;

4. A normative practice is determined by a *backward-looking* policing practice
5. It is possible, in principle, to nonreductively explain the transition from a world with nonnormative practices to *backward-looking* policing practices through the Technological Pedagogical Hypothesis.
6. The explanation should be continuous, i.e. it should not involve explanatory gaps.

Specifically, the additional ingredients would be '4' & '5'. Adding this as a sub-continuity model to their NOC programme would aid them in finally explaining the emergence of content in an, in principle, continuous manner.

In this chapter I will begin by consolidating the comments made in the previous two chapters regarding the structural similarities between the two genealogies, i.e. Bar-On's EC and the NOC programme. It will be demonstrated that both genealogies share central tenets which class them as, what I will call, naturalistic saltation genealogies of content. Following this, similarities between the Zenoesque Paradox of Content and Sultanescu's (extended) *Discontinuity Argument* will be elaborated on. This will indicate to us how to construct a further *Discontinuity Argument* against the response to Sultanescu's (extended) *Discontinuity Argument*. Furthermore, I will discuss how these structural similarities can be extricated and used to construct a recipe that entails an infinite regress of continuity explanations and *Discontinuity Arguments* – the *Continuity-Discontinuity Regress Argument* (CDRA). In general, it will be demonstrated that for each continuous explanation, there is an argument that shows how it is structurally discontinuous. And for each *Discontinuity Argument* there is a theoretical obligation to regiment a further continuous saltation genealogy that effectively responds to it. This will be shown to be a product of the structure and central tenets of naturalistic saltation genealogies of content.

As a product of the regress, it finally demonstrates that the central tenets of all naturalistic saltation genealogies of content are inconsistent. This will enable me to show why naturalistic saltation genealogies of content are either (1) discontinuous or (2) entail the reduction of the normative to the nonnormative or (3) reject naturalism. In other words, these genealogical explanations cannot succeed in answering the *placement problem*. *A fortiori*, the continuity explanations considered in Ch. 2 & 3 are discontinuous or involve the reduction of the normative to the nonnormative or a rejection of naturalism.

4.2 Structural Similarities: The Two Genealogies of Content

To elucidate the structural similarities, I will begin by explaining what naturalistic genealogies of content are; this involves consolidating my remarks on the following four questions:

1. What are genealogies of content?
2. How is continuity & discontinuity defined?
3. What form of naturalism are they committed to?
4. What is the role of normativity in the explanation?

I will demonstrate how these genealogies can be segregated into either genealogies of content that entail the reduction of the normative to the nonnormative and those that do not. To elucidate the latter genealogy, I will clarify my thoughts on the last two questions:

1. What is saltationism?
2. What is the role of reductionism and how is it rejected?

This will result in a clearly defined target for my *Continuity-Discontinuity Regress Argument* – naturalistic saltation genealogies of content. I will establish this by showing how the genealogies in Ch. 2 & Ch. 3 are instances fitting the following central tenets:

Central Tenets of Naturalistic Saltation Genealogies of Content

1. The explanation should only appeal to *Broad Scientific Naturalism*;
2. The explanation should be diachronic;
3. (CDN) Content is determined by norms;
4. Norms are to be understood as irreducible to the nonnormative;
5. It is possible, in principle, to supply a nonreductive explanation of the transition from nonnormative states-of-affairs to content determining norms.
6. The explanations should be, in principle, continuous.

4.2.1 What are Naturalistic Genealogies of Content?

Naturalistic genealogies of content are the same as diachronic explanations that aim to solve the *placement problem*. In other words, they are historical stories that aim to locate intentional content in the natural world. There were three general aspects for a naturalistic genealogy of content discussed: (1) the aim to solve the *placement problem*, (2) diachronism & (3) explanation. Importantly, naturalistic accounts succeed as possible explanations for the existence of content in the natural world so long as the following conditions are met:

> **Conditions on Naturalistic Explanation:** (1) the explanations supplied do not presuppose content and (2) they "have recognized scientific credentials"[311].

In general, these genealogies of content will have the following tripartite structure:

[311] Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 521.

The Structure of a Naturalistic Genealogy of Content

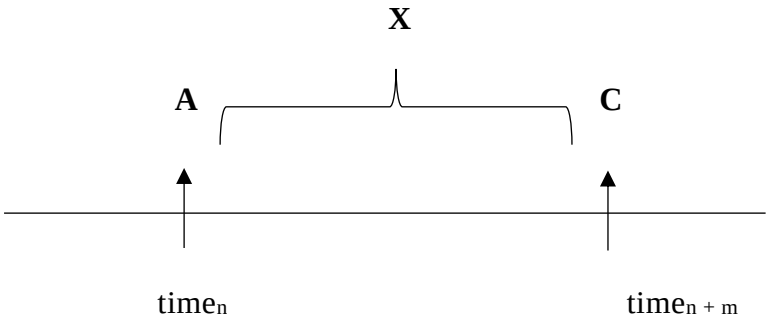

Fig. 4.1

Details may vary, but **A** will generally be something that provides a platform[312] for creatures to begin developing contentful items, **X** provides processes that diachronically explain the development of these proto-contentful items, and finally, **C** is the point at which the *placement problem* is solved.

4.2.2 Continuity & Discontinuity

The two conditions on naturalistic explanation need to be extended when we are considering diachronic explanations, as opposed to exclusively synchronic explanations. In Ch. 2, I proposed that the following definition of continuity needs to be satisfied:

> **Continuous Diachronic Explanation**: (1) it is possible for there to be describable intermediate steps that do not beg the question by assuming intentional items, (2) that for any describable intermediate step, there will be a subsequent describable step explicable in relation to the former.

With the addition of this definition, the conditions for diachronic naturalistic explanations of content are:

> **<u>Conditions on Diachronic Naturalistic Explanation:</u>** (1) the explanations supplied do not presuppose content, (2) they "have recognized scientific credentials"[313] and (3) the diachronic explanations should be continuous.

[312] It is used to denote creatures that do not possess intentional items hence are synchronically discontinuous with creatures with intentional items, but nonetheless, have the necessary constitution for us to begin explaining how intentional items arose from them over time.
[313] Ibid., 521.

4.2.3 Naturalism

But what is it for the explanation to have "have recognized scientific credentials"?[314] The type of explanations that the former two genealogies accept is the variety of naturalism named *Broad Scientific Naturalism*.[315, 316] In Ch. 2 & 3 I motivated why both Bar-On and Hutto & Satne were committed to *Broad Scientific Naturalism.* What *Broad Scientific Naturalism* adds to the **'**Conditions on Diachronic Naturalistic Explanation' is a caveat on how continuous genealogies ought to be understood – in a naturalistically respectable way. With reference to the definition of continuity, the commitment to *Broad Scientific Naturalism* adds a third condition:

> (3) Each intermediate step leading up to the emergence of content should be describable in a naturalistically respectable way.

So, a naturalistic genealogy of content is continuous if it satisfies all three conditions. This allows one to define a diachronic discontinuity in explanation in terms of any of the three conditions in the definition of continuity not being met. In summary, the conditions for naturalistic genealogies of content are:

> **Conditions on Naturalistic Genealogies of Content:** (1) the explanations supplied do not presuppose content, (2) they should be committed to *Broad Scientific Naturalism* and (3) the diachronic explanations should be continuous, viz., it should satisfy the three conditions of continuity.

4.2.4 Normativity

Finally, this paper assumes what I will call Content Normativism:

> **(CN)** *S* has the content *p* only if there is a norm, or system of norms, *N* in force for *S;*[317, 318]

Where '*S*' is some item, linguistic or mental, that has this content. The basic presupposition is that content is essentially normative. How is 'essentially' meant to be understood though? There are two broad interpretations of what this means: (CEN) Content 'Engendered' Normativism & (CDN) Content 'Determined' Normativism.[319] (CEN) is a modest claim that content has normative consequences, while (CDN) is a

[314] Ibid., 521.
[315] D. Macarthur, "Taking the human sciences seriously," 125-127.
[316] Harold Kincaid, "Introduction: Pursuing a naturalist metaphysics," In *Scientific metaphysics*, edited by Don, James Ladyman, and Harold Kincaid Ross, 1-26 (Oxford: Oxford University Press, 2013), 4.
[317] Kathrin Glüer, and Åsa Wikforss, "The Normativity of Meaning and Content," *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta, Fall 2020 Edition, https://plato.stanford.edu/archives/fall2020/entries/meaning-normativity/.
[318] There are other indexicals that could be specified, such as the agent and time, but these have been left out for simplicity and generality.
[319] Ibid.

stronger claim stating that content is dependent, determined, or constituted, in some sense, by norms.[320]

An example will be instructive. Consider the statement "the balloon is red". According to (CN), this statement's content is normative since the normativity of the content is derivable from the correctness conditions of the statement. The idea is basically, that:

> **(C)** If "the balloon is red" has the content that *the balloon is red* (for a speaker S at time t_1), then it is correct for S to utter "the balloon is red" at time t_1 of the object *x* iff *x* is a red balloon at t_1;

Therefore,

> **(CN)** If "the balloon is red" has the content that *the balloon is red* (for a speaker S at time t_1), then "the balloon is red" ought only to be uttered by S at time t_1 of the object *x* iff *x* is a red balloon at t_1.

One may dispute this particular argument, but the point assumed is that in some direct or indirect manner, the normativity of content is derivable from the correctness conditions of contentful items.[321] Both (CEN) & (CDN) agree with (CN), however, they differ on the question about how the normativity of content is determined.[322] (CEN) remains agnostic on this question, while (CDN) aims to answer this.

Importantly, since these genealogies of content aim to supply a continuous explanation, given (CN), then (CEN) cannot be a satisfactory interpretation to hold in conjunction with this aim. The reason for this involves two facets: firstly, the genealogies of content I am interested in aim to supply a synchronic *foundational semantics* answering the question 'in virtue of what facts do linguistic or mental items have content?' And secondly, these synchronic *foundational semantics* are not only committed to (CN), but also to hold that content is dependent, determined or (partly) constituted by the normative. So to supply an adequate diachronic *foundational semantics* this would involve specifying the provenance of the normative facts that determine content prior to any conceptual understanding of content. Therefore, if we are trying to supply a genealogy of content, where content is assumed to be constitutively essentially normative, then this must involve commitment to (CDN).

But how are these norms meant to be understood? Is there any particular metaphysical and/or semantic account that the saltation genealogy of content requires? These questions are essentially asking how the clause "… in force" should be understood when applied to

[320] Ibid.
[321] In this paper I am assuming (CN) follows from the correctness conditions of contentful items, even if it is disputed that the above argument is correct. This is in contrast with anti-normativists who deny that correctness conditions make normative prescriptions for the application of certain terms. Ibid. These anti-normativists would claim that correctness conditions merely classify the application of particular contentful terms into those that are true or false; furthermore, because the terms are classified as being either true or false applications, this would not oblige the speaker to apply the terms in a certain way. I am expressly not considering any such accounts.
[322] Ibid.

norms or systems of norms. There are two ways to understand this clause – cognitivism and non-cognitivism. In general, cognitivism about norms involves two conditions:

(1) Normative statements are truth-conditional claims;
(2) Objective and mind-independent normative facts exist.[323]

By contrast, non-cognitivism about norms rejects either condition one or two.[324] Now, it is essential to the naturalistic genealogy of content that the statements it makes about norms are (*prima facie*) factual, i.e. truth-conditional claims. This can be seen by observing that the genealogy aims to solve the *placement problem* which means that it needs to explain the emergence of content as some natural fact. And due to the determination relation between content and the normative system, the norms comprising the normative system need to be natural facts as well.[325] However, there is no need, in principle, for the genealogy to be committed to objective mind-independent normative facts existing. The normative could very well exist as certain subjective psychological attitudes or affects and the CDRA would still apply in a slightly adapted form to the saltation genealogy. This displays that the norms can be understood in either a cognitivist or restricted non-cognitivist fashion for my thesis. The only important condition that needs to be upheld is (1).

4.3 Naturalistic Genealogies and Location Problems

This section addresses and adds the following two key notions to naturalistic genealogies of content:

1. Saltationism;
2. The Role & Rejection of Reduction.

I will start with some reflections on the *placement problem* which these genealogies aim to solve. Following this, I will delineate two of these strategies – reductive and saltation strategies. The former will be used as a foil to introduce what saltation genealogies of content are. In doing so, the role & rejection of reductionism for naturalistic saltation genealogies of content will be explicated.

4.3.1 Location Problems

Naturalistic genealogies of content, strictly speaking, do not directly solve the *placement problem*. Rather, they directly aim to explain in virtue of what facts, over time, a

[323] Ibid.
[324] Simon Blackburn's Quasi-Realism would be an example of a non-cognitivist accepting condition one, but rejecting condition two. See Simon Blackburn, *Essays in Quasi-Realism* (New York: Oxford University Press, 1993). On the other hand, certain forms of expressivism about norms could be understood as rejecting that our statements about norms should be understood truth-conditionally; rather these norms function more like imperatives than indicatives. If these imperatives are taken to be mind-dependent, then this would involve a rejection of conditions one and two.
[325] I have assumed here that supervenience relations are broadly modal relations between facts or statements about facts.

synchronic *foundational semantics* can be established. It is only a product of successfully doing so, that the *placement problem* is solved. This is because these genealogies include diachronic *foundational semantics*. They aim to explain in virtue of what facts, content emerged over time, i.e. they ground a synchronic *foundational semantics.* In other words, these genealogies already contain a synchronic answer for how the *placement problem* is solved. It does so in virtue of some implicit or explicit synchronic *foundational semantics* and *formal semantics* being assumed as a successful way to locate content in the order of natural facts.[326] So primary focus on the *placement problem* is a red herring in relation to naturalistic genealogies of content.

There is a *location problem* that our genealogies of content try to solve as a product of their commitment to (CDN). These genealogies aim to locate norms in a world exhaustively characterised in naturalistic terms. I will call this particular *location problem* the *problem of normativity*. So, loosely speaking, one way to understand the aim of a genealogies of content is to supply an explanation of the transition from a world devoid of content to one with it. However, more accurately, these genealogies should be understood as aiming to seek a solution to the *problem of normativity.* As long as the emergence of the relevant system of norms is tantamount to explaining the emergence of content, these aims can be used interchangeably.

4.3.2 Naturalisation Projects of Content

Diachronic naturalisation projects are reductive genealogies of content. By this, I mean these are genealogies that aim to solve the *placement problem* by some reduction of content at time t_n to certain biological facts at t_n. A good example is Millikan's biological reduction of content in terms of the proper functions of representational devices – a synchronic *foundational semantics*. What is important is that this reduction be hedged within a diachronic story of how the proper functions of representational devices emerged, viz., she can (and does) supply a diachronic *foundational semantics*. So by explaining how these proper functions emerged over time and how content can be reduced to these proper functions, we are able to solve the *placement problem.*

But what is being reduced? The answer here varies between reductive genealogies of content, but they all share a single form of reduction in common – they entail the reduction of the normative to the nonnormative, provided they assume (CDN). To see this, consider Millikan's account again. It starts off with quasi-normative items – proper biological functions. These are quasi-normative since a biological device can fail to perform its biological function, which seems to partially capture the notion of getting things wrong. Since content is reducible to these biological facts and given our acceptance of (CDN), then the normativity of content is reducible to biological facts, specifically, proper functions. More generally, we want to give an explanation of the transition from a world devoid of content to one where there are creatures with content.

[326] If there was no implicit or explicit synchronic *foundational semantics* and *formal semantics* assumed, then there would be no defined aim for the diachronic *foundational semantics* to pursue.

Since content is determined by norms, if there was no content, then the relevant norms[327] would not be in force. So, what is required by the genealogy of content is that it explain the emergence of those norms that need to be in force. The reductionist's strategy for doing this is to reduce those norms to certain natural facts, typically, biological facts. If these natural facts are to be understood as quasi-normative, then then the reduction is from the normative to the nonnormative.[328]

There are two broad forms of reductive genealogies of content that can be seen, when we consider the question "How are these norms reduced?" These are Representationalist and Regularist[329] accounts of the reduction of content. The Representationalist wishes to reduce the content of representational states to that of naturalistically respectable non-contentful states such as neuronal states. In doing so, they need to explain how normative aspects of content, can be specified by nonnormative neuronal states or quasi-normative biological functions. In contrast, the Regularist wishes to reduce content to normative socio-cultural practices, where these practices are to be interpreted in terms of some (elaborate) set of behavioural regularities.[330] More specifically, one begins with a scientific description of some regularity in behaviour and then proceeds to explain the normative significance, i.e. what is correct and incorrect, in terms of behaviour that is regular or irregular (or positively or negatively reinforceable), respectively. So these accounts are reductive about normativity in virtue of the identification of norms implicit in practice with regularities implicit in practices.

The takeaway from the discussion above is that reductive genealogies of content entail the explicit reduction of the normative to the nonnormative. This feature comes with a neat dilemma that any such strategy accepting (CDN) will have to face – though by no means the only challenges. The Representationalist must face the *disjunction problem* and the Regularist must face the *gerrymandering objection*. Since these arguments are not directly relevant to my paper, I will not discuss them any further.

4.3.3 Saltation Genealogies of Content

It seems that these difficulties in relation to normativity, such as the *disjunction problem* and *gerrymandering objection inter alia* are endemic to naturalisation projects of content. As a prophylactic measure to these difficulties, another strategy has recently come into vogue which forgoes attempts to provide purely reductive explanations of content; rather, it aims to explain how it is possible for content to nonreductively emerge in the natural world. In other words, it aims to explain the natural origins of content, rather than naturalise content. There are not a lot of words spent on characterising this alternative strategy abstractly, hence my focus on two such accounts in Ch. 2 & 3.

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[327] I am using 'norms' here as a shorthand for a *system of norms N being in force.*

[328] For more information on how I am understanding reductionism, and related terms such as supervenience and reductive accounts, in the context of my dissertation, see *4.3.4 Saltation Genealogies Abstracted.*

[329] This term is introduced by Brandom in ch. 1 of "Making it Explicit". Specifically, see Robert Brandom, *Making it explicit*, 26-30 & 34-36.

[330] Ibid., 26-30.

Bar-On's genealogy was directly about content, while Hutto & Satne's was directed towards the socially enacted dimension of content. What was common with these genealogies was: (1) content or normativity is to be understood as irreducible to nonnormative biological, chemical or physical facts and that (2) a nonreductive account of content or normativity's emergence can be supplied. These two central assumptions are what I take to be the distinguishing factors between naturalisation projects and saltation genealogies of content.

However, this does not mean that saltation genealogies do not permit any forms of reduction. In fact, Hutto & Satne's NOC programme does provide a reductive step in their genealogy. They assume that content is reducible to socio-cultural practices as opposed to biological facts. Since socio-cultural practices can be studied by the social sciences, and given *Broad Scientific Naturalism,* they have to concede that the socio-cultural practices are natural facts. Therefore, NOC involves the reduction of content to natural facts. More generally, saltation genealogies are committed to (CDN).[331] This is usually understood as expressing some commitment to a supervenience relation between norms and contentful items, where the normative system constitutes a supervenient base and contentful items the supervenient properties. So, at first glance, it seems that there is no significant difference between reductive genealogies and, so called, saltation genealogies. They both involve reductive steps; they just disagree over what content is directly reducible to.[332]

But saltation genealogies have a more ambitious aim. As I see it, these genealogies attempt to explain the emergence of content without presupposing the reduction of the normative to the nonnormative. Content is reducible to normative socio-cultural practices, or norms in general, but norms are taken to be irreducible. The difference between the two genealogies is that one involves the reduction of the normative to the nonnormative, while the other does not. Therefore, if one endorses a saltation genealogy, then one has to accept that there is a difference in type between creatures that possess contentful states and those that do not.[333] What should be clear now is that this genealogy differs from other genealogies in that it attempts to provide a nonreductive diachronic *foundational semantics* of the normative. This aim is best caught by Cash's suggestions that "we can give a *naturalistic nonreductive account of normativity in general.*"[334]

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[331] Kathrin Glüer, and Åsa Wikforss, "The Normativity of Meaning and Content."

[332] Some may claim that the reduction of the normative to natural facts does not mean that the norms are being reduced to the nonnormative. This is how I understand Macarther and his Liberal Naturalism. See D. Macarthur, "Pragmatism, metaphysical quietism and the problem of normativity," *Philosophical Topics* 36 no. 1 (2008): 204-205. On this account, norms are reduced to socio-cultural practices, which are natural facts according to Liberal Naturalism. But these are natural facts *qua* non-supernatural facts which can only be understood within the second personal space, where the second personal space is ineliminably normative. So, the view here simply endorses norms all the way down, i.e. norms are irreducible to the nonnormative. Nonetheless, these norms can be seen as naturalistically respectable. This sort of account, however, is still susceptible to my argument since the emergence of the second personal space needs to be explained. Furthermore, since the second personal space is ineliminably normative, then the emergence of norms still needs to be explained. See: David Macarthur, "Liberal naturalism and the scientific image of the world," 565-585; David Macarthur, "Liberal Naturalism and Second-Personal Space: A Neo-Pragmatist Response to "The Natural Origins of Content," 567-578.

[333] Since norms are irreducible to nonnormative facts, there can be no way to explain the emergence of content in terms of the states or abilities that contentless creatures possess alone. The latter creatures do not have the relevant irreducible norms in force to possess content, so their proto-contentful states would be insufficient to help explain the emergence of full-fledge content.

[334] Mason Cash, "The normativity problem: Evolution and naturalized semantics," 128.

His suggestions were firstly, that norms be viewed as irreducible to physical or biological facts, secondly, that these norms be seen as natural facts *simpliciter* since their emergence can be explained in a naturalistically respectable manner from a world that involved no normative practices. And lastly, the focus is to be shifted away from trying to explain how particular norms can be explicated in terms of other natural facts and the methods employed in the sciences; rather, the aim is to explain how normativity, or a system of norms, emerged as a basic, fundamental or *sui generis* sort of natural fact. So why even talk of content? The reason is simple. Saltation genealogies broadly involve two aspects – (1) an explanation of the emergence of normative systems and (2) the supervenience relation between a normative system and contentful items. These two aspects are both required to explain the emergence of content, since merely solving the *location problem of normativity* does not guarantee that there is an explanation of the emergence of content. It could very well be the case that there is no plausible supervenience relation between the normative system and contentful items. For this reason, the target of saltation genealogy is an explanation of the emergence of content, i.e. it aims to answer the question 'in virtue of what facts do linguistic or mental items have content?' However, because of the commitment to (CDN), we can shift our focus entirely on the explicating the emergence of normative systems.

This is why I have named this form of genealogy "saltation genealogy". First, there is a very stark synchronic discontinuity between creatures with ur-intentionality and creatures with full-fledged intentionality, and this is not only due to a difference in sophistication; it is due to a difference in type between ur-intentionality and full-fledged intentionality and the fact the latter is irreducible to the former. Second, content is to be explained by adding some additional ingredients to the capacities that the contentless creatures possess in order 'to leap' to fully fledged content. This does not require the 'leap' to be temporally sudden, as in the evolutionary case which involves a sudden mutation leading to large phenotypical variation. All I am using "saltation" to denote is a synchronic discontinuity that would require some illuminating explanation involving a constructive jump. In other words, saltation involves nonreductive emergence.[335]

Now as with reductionist genealogies, saltation genealogies also come in two forms – *Representationalist* and *Normative Practice* saltations. I have already discussed an example of the latter when I brought up the NOC programme. The general idea is that contentless creatures and contentful creatures are different in type, the difference lying in the absence of a system of norms being in force. Then some developmental process is added which allows such creatures to engage in a normative socio-cultural practice. This practice is then used to explain some notion of representation and thus how content can be conferred on such creatures. So for this sort of saltation genealogy, the target of the developmental process is the normative socio-cultural practice.

[335] Since this talk of 'nonreductive' genealogies can lead to confusion, I have chosen to use the phrase 'saltation genealogy'. This phrase denotes genealogies that do permit particular forms of reduction, but also claim that there is some constitutive fact about content that is irreducible to facts found in contentless states. This is the irreducibility of the normative to the nonnormative.

On the other hand, *Representationalist* saltation genealogies start with some notion of representation. This effectively gives us language-world or mental state-world relations which allows us to set up truth-conditions for these intentional items. Using this, one can then aim to explain the normative statuses of this representation. However, rather than reducing normative statuses, such as correct and incorrect, to true and false representations, *Representationalist* saltation genealogies would call for these normative statuses to be irreducible to the nonnormative. So some developmental step needs to be incorporated so that something new is added to the ability to represent. This new ingredient coupled with representation would allow for normative statuses to emerge.

For brevity, I will only concern myself with the former sort of saltation genealogy – *Normative Practice* saltation genealogies. The reason is merely because the argument I will supply has nothing to do with the particular commitment of taking representation as first in the order of explanation when it comes to explaining content. It works purely on the idea of norms being irreducible and the attempt to explain this in a naturalistically respectable way. This closes the discussion on what saltation genealogies of content are. Importantly, it adds the final two conditions to naturalistic genealogies of content that make them saltationist:

(a) Norms are to be understood as (synchronically) irreducible to the nonnormative;
(b) It is possible to supply a nonreductive explanation of the transition from nonnormative states-of-affairs to content determining norms.

4.3.4 Saltation Genealogies Abstracted

For a genealogy to be classified as a naturalistic saltation genealogy of content it must, at base, satisfy the following criteria:

1. The explanation should only appeal to *Broad Scientific Naturalism*;
2. The explanation should be diachronic;
3. (CDN) Content is determined by norms;
4. Norms are to be understood as irreducible to the nonnormative;
5. It is possible to supply a nonreductive explanation of the transition from nonnormative states-of-affairs to content determining norms;
6. The explanation should be, in principle, continuous.

The genealogies should also have the tripartite structure, with **A** the platform, **X** the diachronic developmental stage and **C** the reductive stage. Importantly**, X** signifies the nonreductive development of social engagements by creatures, such as learning, positive and negative reinforcement,[336] etc., which eventually leads to the emergence of the relevant system of norms. **C** signifies a reductive relation – such as supervenience between the system of norms and contentful items – which is used to explain how, if the relevant system of norms is in force, then content has emerged.

[336] Though a lot could be said about 'positive and negative reinforcement', I am assuming here that these notions can be understood in purely nonnormative terms.

What needs an emergence explanation is the existence of the relevant norms required for the normative system; only if the emergence of the relevant norms is explained can we begin to configure them into the relevant system of norms – provided the relevant norms did not emerge as the relevant system of norms. It is important to note that there is a distinction between an account which *explains the emergence of norms* and an account which *explains how norms deliver content*. The account that *explains how norms deliver content* already requires that the *relevant system of norms is in force*. Step **C** only *explains how norms deliver content*; the account that *explains the emergence of norms* is subsumed under diachronic stage **X**:

Saltation (Emergentist) Genealogy Structure of Content

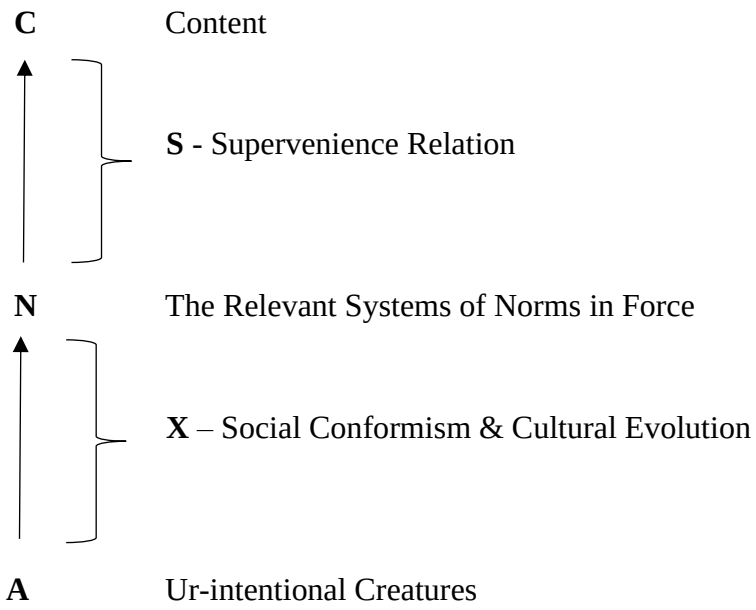

Fig. 4.2

In fact, saltation genealogy can be generalised by adapting three tenets:

Central Tenets of the Abstract Saltation Genealogy

1. The explanation should only appeal to *Broad Scientific Naturalism*;
2. The explanation should be diachronic;
3. P is determined by Q, where P and Q are facts or entities, and P is the target of a *location problem*;
4. Qs are to be understood as irreducible to the non-Qs;[337]

[337] P's would be irreducible to non-P's in virtue of the fact that P's are determined by Q's (which are irreducible to non-Q's).

5. It is possible to supply a nonreductive explanation of the transition from non-P's to Q's.
6. The explanation should be, in principle, continuous.

For saltation genealogies of content, norms occupy the variable "**Q**". But there is no requirement that this be norms in general. As a result, the CDRA does not 'play' on something that is unique to norms, normativity or normative systems. It will apply to any genealogy with the conditions listed above. This is because saltation genealogies are part of a broader strategy of explanation – Emergentism. Following C. D. Broad, I will characterise Emergentism as involving:

(1) "There are certain wholes, composed (say) of constituents A, B, and C in a relation R to each other";
(2) "That all wholes composed of constituents of the same kind as A, B, and C in relations of the same kind as R have certain characteristic properties";
(3) "That A, B, and C are capable of occurring in other kinds of complex where the relation is not of the same kind as R"
(4) "That the characteristic properties of the whole R(A, B, C) cannot, even in theory, be deduced from the most complete knowledge of the properties of A, B, and C in isolation or in other wholes which are not of the form R(A, B, C)."[338]

Condition one and two specify that an emergent property P should be dependent on other constituents through some relation R, i.e. P is a property of the whole R(A, B, C).[339] The third condition merely specifies that the relation R holding between "A, B and C" is contingent, since these properties can exist together without being related through R. The last condition specifies that the emergent property P of R(A, B, C) ought not to be deducible from complete knowledge of the individual properties A, B, C and the relation R. Viz., knowledge of A, B, C and the relation R taken in isolation of knowledge of R(A, B, C) should not entail knowledge of the emergent property P.

The first three conditions correspond to the *Dependency Criterion* of Emergentism – objects or systems which manifest emergent properties must depend on the particular configuration of these objects or systems.[340] The last condition corresponds to the *Autonomy Criterion* of Emergentism – the emergent property should be distinct from the properties it depends on, where 'distinct' can be understood as meaning that the emergent property should not be identical in type to the properties it depends on.[341] In summary, Emergentism can be understood as an account that maintains:

[338] Charlie Dunbar Broad, *The mind and its place in nature* (New York: Routledge, 2014), 61.
[339] The first and second conditions do not commit one to some variety of constitutivism, since the emergent property could be different in type and token from properties exhibited by the constituents "A, B and C" while nonetheless related to them through some modal relation. For example, theorists committed to the existence of qualia do not think that these are constituted by neuronal states; however, they may claim that there is some supervenience relation between properties of neuronal states and the properties of qualia.
[340] Timothy O'Connor, *Emergent Properties*, edited by Edward N. Zalta, Fall 2020 Edition, <https://plato.stanford.edu/archives/fall2020/entries/properties-emergent/>.
[341] Ibid.

> A property P is emergent if and only if it satisfies the (1) *Dependency Criterion* & (2) *Autonomy Criterion*.[342]

It should be easy to see how the saltation genealogy of content is a type of Emergentism. Since content is determined by the nonreductive development of the relevant system of norms being in force, we immediately satisfy the *Dependency Criterion.* And because norms are irreducible to the nonnormative, they must be different, at least, in type from the nonnormative biological chemical or physical facts. This means that the normative is distinct from the nonnormative, and as a result of the prior dependency relation, content is distinct from the nonnormative too. Thus it also satisfies the *Autonomy Criterion*. Therefore, saltation genealogy is a type of Emergentism.

Now, in my characterisation of the saltation genealogy of content as an instance of Emergentism, I may be accused of conflating conditions for the emergence of the normative and conditions for the emergence of content. However, saltation genealogy is a unique form of Emergentism in that it supplies a diachronic explanation rather than a synchronic explanation for an emergent property. This is because it aims to solve the *placement problem* through two steps – (1) an explanation of the emergence of an appropriate normative system through some diachronic nonreductive process and (2) the supervenience relation between a normative system and contentful items.[343, 344] These two aspects are both required to explain the emergence of content, since merely solving the *location problem of normativity* does not guarantee that there is an explanation of the emergence of content. It could very well be the case that there is no plausible supervenience relation between the normative system and contentful items. The difference between synchronic and diachronic Emergentism is represented pictorially below:

[342] C. D. Broad would argue that, for example, the unique properties of sodium chloride satisfy all four conditions required for emergence. Hence, they satisfy the *Dependency and Autonomy Criteria* and are emergent properties. For more details see C. D. Broad's example and explanation: Charlie Dunbar Broad, *The mind and its place in nature*. However, this example could be denied by pointing out that the properties of sodium chloride could be given a complete quantum physical description in terms of the molecule's particular quantum constituents and their arrangements. This would be to undermine the claim that sodium chloride is an emergent property of its molecular constituents and arrangement because they are reducible to our knowledge of quantum terms. For mor details see: Brian McLaughlin, "The rise and fall of British emergentism (1992)." In *Emergence or reduction?: Essays on the prospects of nonreductive physicalism*, edited by Ansgar, Hans Flohr, and Jaegwon Kim Beckermann, 49-93 (Berlin: Walter de Gruyter, 2011). Notwithstanding this type of objection, my example is merely meant to illustrate what Emergentism would look like, not that chemical elements should be given an Emergentist treatment.

[343] The two-step strategy is important in the case of explaining the emergence of content, since it aids in avoiding the problem of normativity. If we simply started with a normative system and supervenience relation between the normative system and content, then there would be concerns about begging the question, as the normative system seems to require contentful items to be in force. What needs to be done, first, is vindicate the emergence of the normative system from any suspicion that it presupposes contentful items to be in force.

[344] For simplicity, I have excluded a further condition that specifies that once we have the emergence of norms then we will need to have an explanation of how these norms are appropriately structured in order to give rise to the sort of normative practice that neo-pragmatism can use to explain content. The additional condition would have to explain how we transitioned from an account that *explains the emergence of norms* to an account which *explains how norms deliver content*. I have subsumed this additional condition under the first condition by my mentioning that the 'appropriate normative system' ought to emerge.

Standard (Synchronic) Emergentist Account Structure

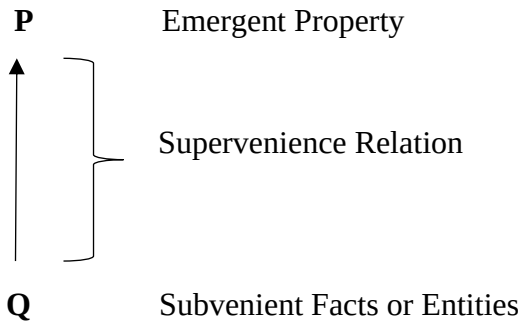

Fig. 4.3

Where the **P** and **Q** are distinct, i.e., not analytically reducible. Saltation genealogy has the following iconographic structure:

Saltation (Emergentist) Genealogy Structure

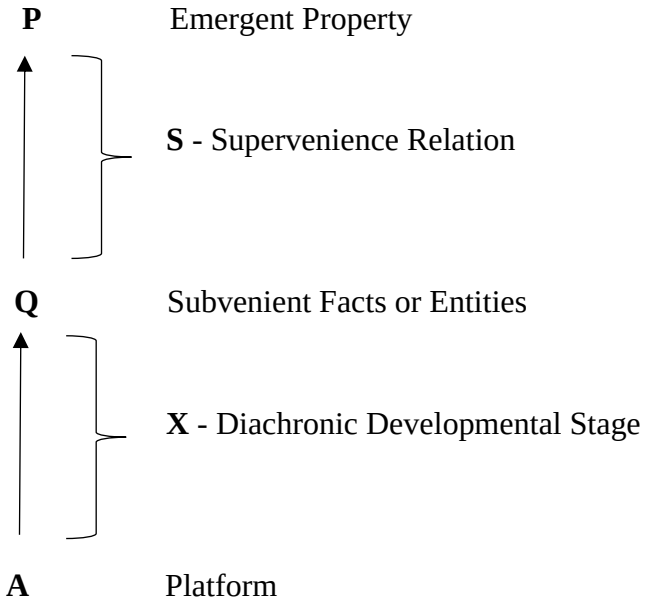

Fig. 4.4

It is important to note that the diachronic developmental stage is not a supervenience relation and that things at **Q** are irreducible to things at **A**. For example, in Hutto and Satne's NOC programme, **A** is occupied by ur-intentional creatures. This provides a platform for creatures to learn and transmit learnt behaviour through "social inheritance of culturally evolved

devices."[345] I have labelled this diachronic development stage as **X**. This stage leads to the emergence and stabilisation of an appropriate normative socio-cultural practice without appeal to any supervenience relation. The emergent property would be found at **Q**. Given this normative socio-cultural practice, then neo-pragmatism can begin to explain how contentful items derive from this practice – involving the supervenience relation at **S** which results in the emergent property of content at **P**.

From this example we can see that saltation genealogy differs from other forms of Emergentism in that it involves two emergent properties – one at **Q** and one at **P**. Furthermore, the former emergent property, **Q**, is not related to **A** through some supervenience relation as **Q** is to **P**. I.e., the emergence of **Q** is to be explained in a nonreductive manner. Notwithstanding these differences, saltation genealogy is still a form of Emergentism since it satisfies both the *Dependency and Autonomy Criteria*. It just happens to satisfy them in a bipartite manner – the supervenience relation between **P** & **Q**, and then, the nonreductive explanation between **Q** & **A** satisfies the *Dependency Criterion*, while the irreducibility of **Q** to **A** and that **Q** should be seen as a basic/fundamental natural fact satisfies the *Autonomy Criterion*.[346]

But what broadly distinguishes saltation genealogy from other forms of Emergentism? Firstly, it is a naturalistic genealogy that, in the context of content, aims to answer the *placement problem*. More generally, any naturalistic emergentist genealogy will aim to solve a *location problem*, since it must explain how its target fact(s) can be located in a naturalistic ontology of the world.[347] This excludes any form of Emergentism that involves non-naturalistic facts and methodologies in its explanation of some emergent property, e.g. Intelligent Design theorists will explain the emergence of the flagellum as created *sui generis* by an intelligent designer because it is an irreducibly complex biological system.[348] This appeal to irreducible complexity and an intelligent designer immediately deviates from the methodologies and *prima facie* ontology generally accepted in the sciences; thus it would not be considered an example of naturalistic Emergentism. Another difference between saltation genealogy and other forms of Emergentism can be found by observing how Emergentist accounts vary depending on how the *Dependency and Autonomy Criteria* are interpreted together. There are two general interpretations: Weak Emergence and Strong Emergence.[349] First, Naturalistic Emergence involves three claims:

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[345] Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 533.

[346] To clarify, in order to satisfy the *Dependency Criterion*, **P** can be seen to depend on **A** through the supervenience relation between **P** and **Q**, and then, the nonreductive diachronic explanation between **Q** & **A**. In order to satisfy the *Autonomy Criterion*, **P** should be distinct from those things used to explain its emergence. The requirement that **P** should only be distinct from the subvenient properties is too stringent. With this a more general understanding of distinctness we can see that **Q** being distinct from **A** is not irrelevant to the *Autonomy Criterion*. If **Q** is irreducible to **A**, hence distinct from **A**, then by the supervenience relation between **P** and **Q**, **P** will also be distinct from **A**. In the context of the NOC programme, since norms are irreducible to the nonnormative, hence distinct from the nonnormative, then by neo-pragmatism, content will also be distinct from the nonnormative.

[347] This would be the case for saltation genealogies that are not targeted at content.

[348] A biological system that exhibits irreducible complexity can be defined as: "a single system composed of several well-matched, interacting parts that contribute to the basic function, wherein the removal of any one of the parts causes the system to effectively cease functioning." Michael J. Behe, *Darwin's black box: The biochemical challenge to evolution* (New York: Simon and Schuster, 1996), 39.

[349] These interpretations are usually used in reference to disputes over physicalism and anti-physicalism, so I will tailor them here to *Broad Scientific Naturalism*. Timothy O'Connor, *Emergent Properties*.

2. *Supervenient Dependency* – Emergent properties synchronically depend on their subvenient properties;[350]
3. *Natural Fact* – Emergent properties are natural facts;
4. *Distinctness* – Emergent properties are distinct from their subvenient properties.[351]

But what separates Weak Naturalistic Emergence from other forms of naturalistic reductionism, especially since any analytic reduction can be written as a supervenience relation? The difference lies in *Distinctness*. Weak Naturalistic Emergentism solves *location problems* for natural facts or entities such as viruses, electrons, intentional states, etc. that are not considered identical in type to the subvenient facts or entities. So there is no possibility of translation between statements about the supervenient properties and statements about the subvenient properties. Strong Naturalistic Emergence differs from the former with regards to the strength of the interpretation of the *Dependency and Autonomy Criteria*. It can involve a more stringent requirements on the supervenience relation and/or a stronger commitment to the distinctness of the supervenient properties from the subvenient properties. For example, Strong Naturalistic Emergentism could be committed to a difference in type and token between the supervenient and base properties which would involve a stronger commitment to the *Distinctness*.[352]

As I see it, saltation genealogy is an example of Strong Naturalistic Emergentism. The commitment to Naturalistic Emergentism can be seen by considering the following quotation Hutto & Satne take as central to their Natural Origins of Content programme:

> "[A] naturalistic account of mental content must provide illuminating explanatory connections between representational content and properties that are non-semantic, non-mental and non-normative. Furthermore, it must show that content properties supervene on the physical, or at least must be compatible with such supervenience"[353]

Here we see that saltation genealogy must involve some supervenience relation (or relation consistent with supervenience) between content and non-contentful natural facts, notably the nonnormative. This satisfies the first claim for Strong Naturalistic Emergentism. The outstanding two claims of Strong Naturalistic Emergentism are satisfied by Cash's thoughts about the nonreductive development of normative practices discussed above. But why is this a form of Strong Naturalistic Emergentism rather than the weaker variety? The clue is in the strength of the distinctness of the emergent normative facts. These normative facts are entirely new sorts of natural facts, since the normative is entirely irreducible to the nonnormative. Furthermore, these normative facts should not be explicated in terms of other natural facts through some supervenience relation, as this would be to supply a "*naturalistic*

[350] Ibid.
[351] These ideas are inspired by Timothy O'Connor, *Emergent Properties*. However, the ideas are significantly adapted since he discusses physicalism, while I am addressing *Broad Scientific Naturalism*.
[352] Furthermore, such an account could claim that the necessity operator(s) for supervenience should be interpreted as nomic necessity, not metaphysical necessity which supplies more stringent requirement for how the supervenient properties can be related to the subvenient properties.
[353] N. Shea, "Naturalising representational content," *Philosophy Compass* 8, no. 5 (2013): 497.

justification for particular norms".[354] Rather, their existence should be accounted for by nonreductive processes, e.g. evolution by natural selection. In other words, the normative should be viewed as a basic or fundamental sort of natural fact that is different in type and token from nonnormative facts. This last claim of "basic or fundamental" is what sets this type of Emergentism apart from Weak Naturalistic Emergentism.[355]

With the abstract structure of saltation genealogies outlined and the discussion of why they should be seen as Strong Emergentist explanations, we can turn to the question regarding what reductive accounts do saltation genealogies of content reject. This can be separated into two questions:

(a) What sort of reductive accounts do saltation genealogies of content reject?
(b) Where is the reductive account rejected with regards to the structure of saltation genealogy?

On the first question, we need to supply an interpretation of the central tenet 'norms are to be understood as irreducible to the nonnormative'. From Cash, we know that normative should be seen as a basic, fundamental, or *sui generis* sort of natural fact. So norms should have their existence explained by the developmental process without explication in terms of other natural facts through some supervenience relation.[356] To clarify, I have been referring to the terms 'reductionism', 'reductivism' and 'supervenience' as forms of explanation. The manner I will be ordering these terms starts with reductivism as the most general form of explanation; supervenience will be seen to be a subset of reductivism; and finally, reductionism will be seen to be a further subset of supervenience. I will define reductivism as follows:

> **General Reductivism**: For any property **P** in ξ, and for any object **y**, if **y** has **P,** then there exists some property **Q** in **ϑ** s.t. **y** has **Q**, and if any **z** has **Q** it has **P**.

Formally.

$$(\forall \mathbf{P} \in \boldsymbol{\xi})((\forall \mathbf{y})(\mathbf{Py} \rightarrow (\exists \mathbf{Q} \in \boldsymbol{\vartheta})(\mathbf{Qy} \,\&\, (\forall \mathbf{z})(\mathbf{Qz} \rightarrow \mathbf{Pz}))$$

This could be given a semantic reading where statements about properties in the supervenient class ξ cannot be true unless statements in the subvenient class ϑ are true, and conversely, statements in the subvenient class ϑ entail the truth of statements in the supervenient class ξ.[357] We can see that supervenience – strong and weak – are both compatible with reductivism:

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[354] Mason Cash, "The normativity problem: Evolution and naturalized semantics," 127.
[355] Weak Naturalistic Emergentism would still want to explain the normative as explicable in terms of other natural facts, though not through reduction. For example, such an account could claim that, while normative facts are different in type from nonnormative naturalistic facts, the normative fact tokens are constituted by, and so related to, nonnormative naturalistic fact tokens.
[356] Mason Cash, "The normativity problem: Evolution and naturalized semantics," 127.
[357] Alternatively, it could also be formulated in a metaphysical manner. Just like the semantic thesis, this metaphysical definition involves two classes – ξ and **ϑ** – where the properties of the supervenient class ontologically depend on the properties of the subvenient class and, conversely, the properties of the subvenient class cause/ground/ontologically

> **<u>Strong Supervenience</u>**: Necessarily, for any property **P** in ξ, and for any object **y**, if **y** has **P,** then there exists some property **Q** in ϑ s.t. **y** has **Q**, and necessarily if any **z** has **Q** it has **P**.[358]

> **<u>Weak Supervenience</u>**: Necessarily, for any property **P** in ξ, and for any object **y**, if **y** has **P,** then there exists some property **Q** in ϑ s.t. **y** has **Q**, and if any **z** has **Q** it has **P**.[359]

This is because, in both cases, none our statements about supervenient properties can be true unless our statements about the subvenient properties are true; furthermore, the truth of the statements about the subvenient properties entail the truth of the statements about the supervenient properties. However, not all reductive accounts are supervenience accounts. This is because the reductive thesis does not require a necessity operator with wide scope. It could very well be the case that statements in the supervenient class ξ cannot be true unless statements in the subvenient class ϑ are true, and the converse of this, while the statements of the supervenient class only apply in this world, not other possible worlds.[360] A subset of supervenience relations are reductions. Following Dummett, I will define reductionism as:

> **General Reductionist Thesis**: Statements in the given class involve the existence of a possible *translation* to statements in the reductive class.[361, 362]

The relations of these accounts are represented in the diagram below:

determine the properties of the supervenient class. My thesis does not pivot on either distinction, so I will use a semantic definition of reductivism.

[358] Jaegwon Kim, *Supervenience and mind: Selected philosophical essays* (Cambridge: Cambridge University Press, 1993), 65.

[359] Ibid., 64.

[360] For example, some traits that result from evolution by natural selection can be seen to satisfy the reductive thesis, but not a supervenience relation. To make this clear, consider a variety of evolved traits typical of hominids, e.g. bipedalism, large brains, mobile limb joints, strong grasping ability, stiff backs, etc… That this set of statements is true can be seen to depend on another set of evolutionary statements being true. E.g. bipedalism was adaptive because it reduced the surface of skin exposed to sunlight in arid climates, freed the hands for tool use, carrying collecting, greater ease in gesturing, etc.. However, in other possible worlds, it is conceivable that bipedalism could have evolved for entirely different reasons - maybe for dancing - or did not even arise as a product of evolutionary forces. If this is possible for bipedalism, then the set of statements it is apart are not necessarily determined as true by the set of evolutionary statements supplied in this world.

[361] Michael Dummett, "Realism," 242.

[362] This definition of reductionism is the same as Analytic Reductionism: X-statements are *synonymous* with (complex) Y-statements. See: Matthew Lutz, and James Lenman, *Moral Naturalism*, edited by Edward N. Zalta, Fall 2018 Edition, <https://plato.stanford.edu/archives/fall2018/entries/naturalism-moral/>.

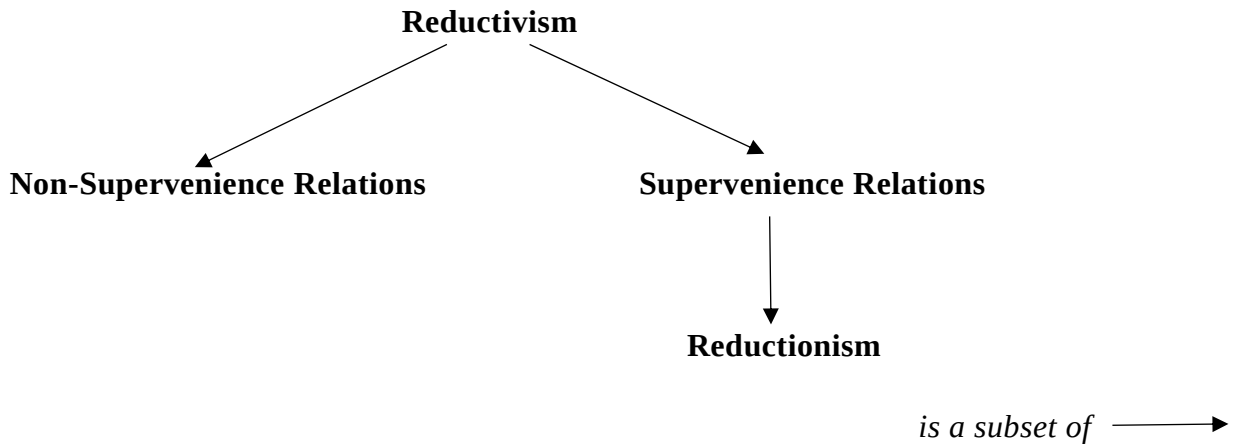

Fig. 4.5

So with reference to this taxonomy, saltation genealogies of content reject supervenience (and reductionism) with reference to norms. However, norms can be seen to susceptible to reductive explanation that does not fall under supervenience.

But where is the reductive account rejected with regards to the structure of saltation genealogy? Firstly, the irreducibility of the normative to the nonnormative does not apply to stage **S**, which admits some functionalist supervenience relation; rather it applies to stage **X**, i.e. the diachronic developmental stage (see Fig. 4.4). This stage **X** aims to explain two things: (1) *how the relevant system of norms came into force,* and (2) *how the relevant norms came into existence*. The intermediate step corresponding to where *the relevant norms came into existence* is where norms are not permitted treatment by supervenience to other natural facts. This closes my discussion of what naturalistic saltation genealogies of content are and what I aim to argue for with reference to this. In the following sections, I will setup and explore how naturalistic saltation genealogies of content are susceptible to the *Continuity-Discontinuity Regress Argument*.

4.4 The Continuity-Discontinuity Regress Argument

With the target genealogy of my dissertation outlined, we can now move to setting up and expounding on my dissertation's central argument – the CDRA. There are two key elements to the CDRA:

(1) The *Discontinuity Argument* and,
(2) The regress of *Discontinuity Arguments*.

I will explain each in turn, starting by extricating the structural similarities between the Zenoesque Paradox of Content and Sultanescu's (extended) *Discontinuity Argument*.

4.4.1 Structural Similarities: the two Discontinuity Arguments

In order to consider the structural similarities between these two arguments, let us revisit and summarise the two *Discontinuity Arguments*. The Zenoesque Paradox of Content aimed to

show Bar-On still fails to establish a middle position between (simple) animal communicative systems and meaningful linguistic communication in the *order of explanation*. Specifically, the argument targeted the claim that the explanation is, in principle, continuous. It aimed to undermine this by, first, pointing out that there is a difference in type between proto-intentionality and content-based intentionality and no reduction permitted between the two. This allowed us to ask, of every relevant intermediate step, whether it involved content. If it did, then this wouldn't be an explanation of the transition between the two; if it didn't, then it would just count as a sophisticated form of proto-intentionality. The result of this being that there is a *prima facie* discontinuity in the explanation between proto-intentionality and content-based intentionality.

Having demonstrated that Bar-On's genealogy was discontinuous, this meant that her central tenets were inconsistent. This presented the genealogy with a trilemma. What I suggested, to avoid this paradox, was the introduction of some new ingredients that did not presuppose content, but nonetheless allowed proto-intentionality to get to content-based intentionality. These ingredients added the following conditions, over and above, Bar-On's central tenets:

(a) Some thoughts and linguistic utterances have content, through neo-pragmatism;
(b) It is possible, in principle, nonreductively to explain the transition from a world with ur-intentionality to contentful intentionality, through the development of a normative socio-cultural practice.

Adding these to Bar-On's central tenets made it coincide with Hutto & Satne's central tenets. Sultanescu's (extended) *Discontinuity Argument* aimed to undermine that this genealogy was continuous by pointing out that there is a new difference in type between ur-socio-cultural practices with only horizontal factors and normative socio-cultural practices at **C** with both horizontal factors and vertical factors identified. This allowed us to ask of every relevant intermediate step whether it involved a normative socio-cultural practice. If it did, then this wouldn't be an explanation of the transition between the two; if it didn't, then it would just count as a sophisticated form of ur-socio-cultural practice described in terms of nonnormative regularities. *Prima facie*, it suggested that we could never supply an illuminating middle position explaining the transition between ur-socio-cultural practice and normative socio-cultural practice.

Having demonstrated that Hutto & Satne's genealogy was discontinuous, this meant that their central tenets were inconsistent and faced the same trilemma. As with Zenoesque Paradox of Content, there is a simple response to Sultanescu's (extended) *Discontinuity Argument* due to the restrictions it put on explaining how to bridge the difference in type between ur-socio-cultural practice to normative socio-cultural practice. The solution was to supply some new ingredients that do not presuppose social facts, but nonetheless allow ur-socio-cultural practice to get to normative socio-cultural practice – normativity. To this end, I raised a slightly adapted naturalistic version of Weiss's nonreductive genealogy of normative practices from nonnormative practices involving only peer-pressure. Incorporating this into the NOC programme would allow Hutto & Satne to patch up Sultanescu's (extended) *Discontinuity Argument*.

In summary, both *Discontinuity Arguments* have the following structural features in common:

(1) They target continuity explanations that assume content is different in type and irreducible to nonnormative biological facts.[363]
(2) They target continuity explanations with the tripartite structure, viz., where **A** is a platform, **X** is the nonreductive developmental process and **C** is the step where the explanandum emerges.
(3) They both identify a gap in the explanation of their respective nonreductive continuity explanations, due to the irreducibility of their respective *location problems* to nonnormative biological facts.
(4) They both admit an easy response by expanding the resources through which content can be explained overtime.[364]

4.4.2 The Discontinuity Argument

Given these structural similarities, we can finally move to the first element of the CDRA – the *Discontinuity Argument*. This argument has its roots in Davidson's *Puzzle.* To briefly recap, Davidson was not denying that there are intermediate steps in the *order of being* or *causal order*, just that there seemingly is no illuminating manner to supply all intermediate steps in order to explain the emergence of thought or content more generally. Either one illicitly uses contentful vocabulary to describe some pre-mentalistic stage, thus begging the question; or there will be a stage where there is no content followed by a stage with content.

This challenge can be further generalised so that it applies to any irreducible property that is essential to content, but not found in proto-contentful states-of-affairs that are partly constitutive of content – in our case normativity. The generalised puzzle, i.e. *Discontinuity Argument*, aims to show that given central tenets (1) – (5) of any naturalistic saltation genealogy of content, this entails the falsity of central tenet (6). For example, Bar-On's genealogy of content aimed to meet these criteria. Critically, **(CDN)** was satisfied by content being determined by reflective triangulation, which presupposes creatures capable of grasping norms; and the irreducibility of the normative to the nonnormative was satisfied by reflective triangulation being irreducible to intermediate or pure triangulation – both of which are entirely described in terms of nonnormative biological facts. Because of this, a *Discontinuity Argument* for content can be presented as a procedure for generating a discontinuity:

Zenoesque Paradox of Content

1. Assume central assumptions (1) – (5) are true and the structure of Bar-On's genealogy.

[363] Specifically, they both target renditions of naturalistic saltation genealogies of content. The only difference between these continuity explanations is that they aim to directly explain different *location problems*.
[364] This is done by adding a further process that explains, in a nonreductive manner, the very thing that gave rise to the discontinuity – the irreducibility of the *location problem* to nonnormative biological facts.

2. Ask of any step in the diachronic developmental stage **X**: Must this step be described in terms of contentful items, i.e. as having reflective triangulation in place?
3. **If so**, then this step would provide no illumination on how content emerged since we are already assuming contentful items to explain the emergence of content. (The presence of these contentful items already assumes that reflective triangulation is in place.)
4. **If not**, then this step would provide no illumination on how content emerged since it would simply amount to some proto-contentful state. (The absence of these contentful items already assumes that the reflective triangulation isn't present; at most, these creatures can be described as engaging in some form of pure or intermediate triangulation.
5. Iterate steps (1) – (4) until all intermediate steps between **A** & **C** are exhausted.

The outcome of this procedure is that there are two classes formed – one where there are creatures with contentful items, the other where there are none. Because these two classes are assumed to be irreducible to the other, due to the irreducibility of reflective triangulation to intermediate or pure triangulation, then there can be no intermediate step(s) found in the diachronic developmental stage **X** that explains the transition from proto-contentful items to contentful items. This can be iconographically represented as:

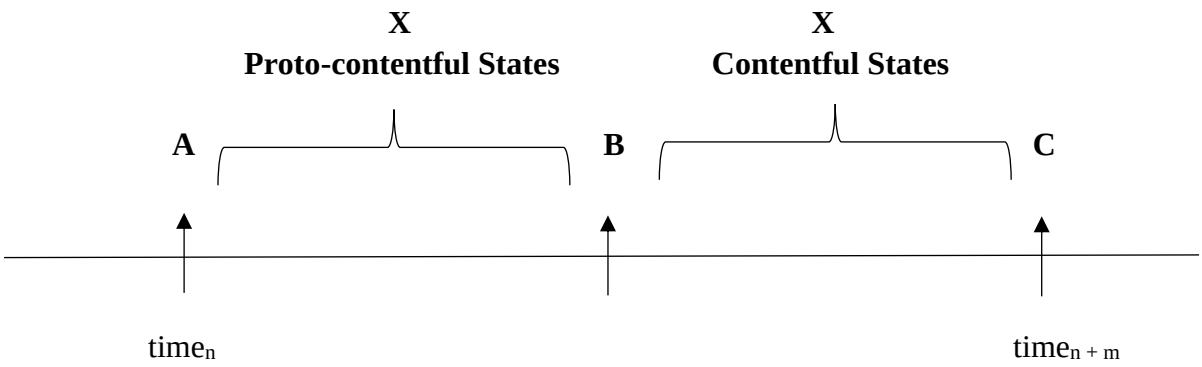

Fig. 4.5

Where '**B**' signifies the lack of an explanatory step between the two classes **AB** & **BC**. For NOC, **(CDN)** was satisfied by content being determined by a normative socio-cultural practice; and that the normative should be irreducible to the nonnormative was satisfied by contentful cognition being irreducible to contentless cognition, understood in terms of nonnormative biological, chemical or physical facts. However, because NOC shifts the focus to explaining the emergence of a normative socio-cultural practice, the *Discontinuity Argument* can be adjusted:

Sultanescu's Extended Discontinuity Argument

1. Assume the central assumptions are true and the structure of the NOC programme.

2. Ask of any step in the processes **X** of social conformism and cultural evolution acting on ur-intentional creatures: Must this step be describable as having the relevant normative socio-cultural practice in place?
3. **If so**, then this step would provide no illumination on how the relevant normative socio-cultural practice emerged, since it must be described in terms of the vertical factors *qua* social facts which are irreducible to the nonnormative and only present in the advent of a normative socio-cultural practice.
4. **If not**, then this step would provide no illumination on how the relevant normative socio-cultural practice emerged, since this step is only describable in terms of horizontal factors *qua* biological dispositions to act differentially to stimuli; this step amounts to a sophisticated rendition of a proto-socio-cultural practice where ur-intentional creatures interact with each other – there are no vertical factors *qua* social facts present.
5. Iterate steps (1) – (4) until all intermediate steps between our platform **A** of ur-intentional creatures and contentful creatures **C** are exhausted.

This results, in two classes – one with some normative socio-cultural practice with vertical and horizontal factors and the other with only proto-socio-cultural practice and horizontal factors. This introduces a discontinuity at **B**, due to the absence of a transitionary step between these two classes – one with vertical and horizontal factors and the other with only horizontal factors:

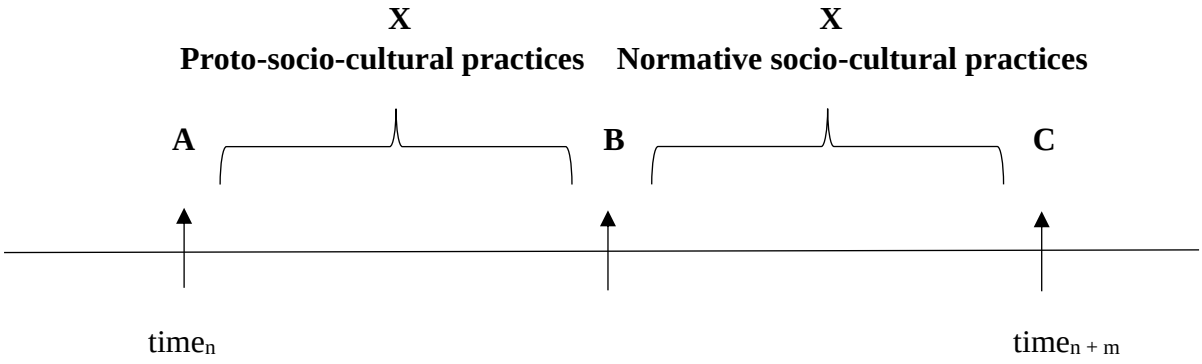

Fig. 4.6

In fact, a *Discontinuity Argument* can be constructed for the naturalistically adapted version of Weiss's genealogy of normative practice. This genealogy shifts the focus to explaining the development of a normative policing practice from practices only involving peer pressure. Resultantly, the discontinuity proponent can point out that there is a new difference in type between the nonnormative policing practices and normative policing practices. This difference in type could be identified with the *backward-looking* aspect which nonnormative monitoring practices lack. Furthermore, such a proponent could admit that the genealogy of norms gets us to a policing practice that exhibits moves that ape the *backward-looking* aspect. But for these to be considered fully *backward-looking*, the nonnormative policing practice would have to be released from being constrained by pedagogical standards of functional correctness.

This is because the *proto-backward-looking* aspect is meant to be understood in terms of functional correctness, while the *backward-looking* aspect should be free from this. (For a practice to be considered fully normative, the value of encouraging or expunging salience should not be determined by their instrumental value in perpetuating or precluding certain moves.) Pre-emptively to avoid this rejoinder, Weiss suggests that these creatures engaged in nonnormative policing practice could be released from functional correctness by their solutions to Lewisian coordination problems.[365] Though he doesn't elaborate much on what these solutions would look like, I think it fair to say that, under the purview of *Broad Scientific Naturalism*, these would have to be natural conventions, i.e. conventions which are given a naturalistically respectable understanding.

However, given this naturalistic understanding, I don't think that the mere solving of Lewisian coordination problems by these creatures would allow for these nonnormative policing practices to be released from functional correctness in general. This is because, following Millikan, solving coordination problems would result in coordination conventions which "are conventional patterns of activity that proliferate, in part, (causally) because they achieve coordinations."[366] That is to say, what results from these coordination problems are natural conventions that can be understood in terms of their function for solving coordination problems. Without going into too much detail, Millikan would claim the natural conventions can be understood as patterns of behaviour that are (1) reproducible and (2) proliferated by the weight of precedent of their function for solving those coordinations.[367] These natural conventions would supply solutions to coordinations problems that could be, following Weiss, "cemented by application of a recursive policing practice, one of whose virtues is that, once developed in one setting, it easily transfers."[368] This would certainly release nonnormative policing practices from pedagogical standards functional correctness, in the sense that they no longer depend on hypothetical imperatives for teaching. The reasoning being that such a practice would no longer rely on functional pedagogical standards of correctness; rather natural coordination conventions for solving the coordination problems would overtime become stabilised in a practice without the members having to refer to hypothetical imperatives for teaching.

Notwithstanding this 'release', these conventions are still functional in the manner that they solve coordination problems (they have this function so long as they solve these coordination problems to a sufficient degree). So there is no need for these conventions to be seen as fully normative yet. The creatures that act in accordance with these conventions and use them to encourage or expunge salience would still have their behaviour functionally defined with reference to the function these conventions play in solving coordination problems. The emergence of the *backward-looking* aspect of norms would not be entirely provided.

This shows that there is still an explanatory gap in getting from a recursive policing practice to a genuine policing practice (understood as normatively constrained). The discontinuity

[365] Bernhard Weiss, "From Tools to Rules: The Evolution of Rule Following," 78.
[366] Ruth Garrett Millikan, *Language: A biological model*, 9.
[367] Ibid., 2.
[368] Bernhard Weiss, "From Tools to Rules: The Evolution of Rule Following," 78.

proponent would deny that, given the resources of *Broad Scientific Naturalism*, a middle position has been provided that explains the transition between a *proto-backward-looking* policing practice and *backward-looking* policing practice. This can be presented as the following *Discontinuity Argument* for norms:

The Normativity Discontinuity Argument

1. Assume central assumptions (1) – (5) are true and the structure of normativity saltation genealogy.
2. Ask of any step in the diachronic developmental stage **X**: Must this step be describable as having the relevant system of norms in force? Viz., does this policing practice exhibit a *backward-looking* aspect.)
3. **If so**, then this step would provide no illumination on how the relevant system of norms emerged since it must be described using normative terms due to the irreducibility of moves exhibiting the *backward-looking* aspect and moves exhibiting a *proto-backward-looking* aspect (understood in terms of conventionalised patterns of behaviour with the function of solving coordination problems).
4. **If not**, then this step would provide no illumination on how the relevant system of norms emerged since this step is describable in terms of purely functional standards of correctness; it amounts to a sophisticated rendition of a nonnormative policing practice where moves exhibiting a *proto-backward-looking* aspect can be understood in terms of conventionalised patterns of behaviour with the function of solving coordination problems.
5. Iterate steps (1) – (4) until all intermediate steps between **A** & **C** are exhausted.

This results, in two classes – one with some normative policing practice with the *forward-looking* and *backward-looking* aspect and the other with only a nonnormative policing practice and *forward-looking* aspect:

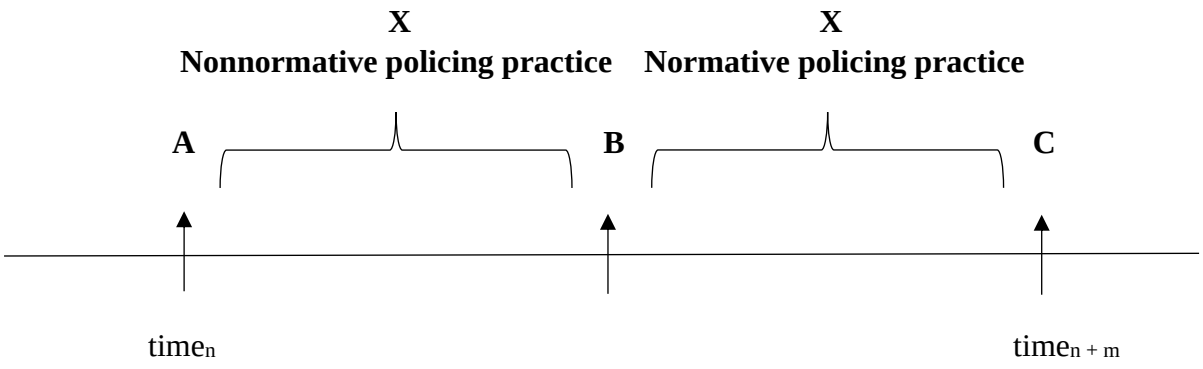

Fig. 4.7

Having outlined these concrete *Discontinuity Arguments*, we can outline a general procedure for generating *Discontinuity Arguments* given the following commitments:

Central Tenets of the Abstract Saltation Genealogy

1. The explanation should only appeal to Broad Scientific Naturalism;
2. The explanation should be diachronic;
3. **P** is determined by **Q**, where **P** and **Q** are facts or entities, and **P** is the target of a location problem;
4. **Q**s are to be understood as irreducible to the non-**Q**s;
5. It is possible to supply a nonreductive explanation of the transition from non-**Q**s to **Q**s.
6. The explanation should be, in principle, continuous.

Anything aiming to meet these central tenets could have a *Discontinuity Argument* raised against it:

The Abstract Discontinuity Argument

1. Assume central assumptions (1) – (5) are true and the structure of the naturalistic saltation genealogy of content.
2. Ask of any step in the diachronic developmental stage **X**: Must this step be describable in terms of **P**?
3. **If so**, then this step would provide no illumination on how **P** emerged since it must be described using **Q** terms due to the irreducibility of **Q** to proto-**Q**;
4. **If not**, then this step would provide no illumination on how **P** emerged since this step is purely describable in terms of proto-**Q**;
5. Iterate steps (1) – (4) until all intermediate steps between **A** & **C** are exhausted.

In summary, this section has tried to motivate a procedure for constructing *Discontinuity Arguments.* So long as there is a Strongly Emergent difference in type between the explanandum and the platform, and assuming **(CDN)**, we can construct such *Discontinuity Arguments* for saltation genealogies of content. More abstractly, for every explanation satisfying the central tenets of abstract naturalistic saltation genealogies of content, it will be possible to construct a corresponding *Discontinuity Argument*. This claim can be put as:

> For any **x**, there exists a **y** such that, if **x** is a continuity explanation, then **y** is a *Discontinuity Argument* **for x**.

Now one may take issue with the recipes provided. Why are there only two options "**If so**" and "**If not**"? Could there not be steps where the answer is indeterminate? These would be steps where the difference between it falling into one class or the other is so slight, that it would be practically impossible to identify which class it falls into. Another potential issue with this procedure comes with its generalisability. It can be claimed that this procedure generalises to other sorts of nonreductive diachronic explanations. But if this recipe does generalise to already acceptable explanations, then this would also show that these explanations are discontinuous. Surely this is unacceptable? These are serious objections to the procedure for setting up the *Discontinuity Argument*, hence I have devoted Ch. 5 to discussing them amongst other objections.

Having highlighted these indirect responses, there are two direct responses to the *Discontinuity Argument*. The first is to take issue with the definition of continuity found in the central tenets. This response, intimated in Ch. 2, involves an insistence that all there is to the explanation of the emergence of, say, a normative system from a proto-normative system is the naturalistically respectable story told in the diachronic developmental stage. There are no specific intermediary steps required to explain the transition from the proto-normative steps to the subsequent normative steps. This is to deny that continuity should be understood as a series of steps connected by the subsequent steps being explicable in terms of the former. Contrastingly, the continuity between the proto-normative to the normative can be understood in terms of some description of diachronic processes not analysable directly in terms of their synchronic stages. This is not so much of an objection than it is a reconceptualization of the way we should understand continuity for saltation genealogies of content – to be discussed in Ch. 5. The second direct response attempts to show that the *Discontinuity Argument* only establishes a *prima facie* discontinuity, one which dissolves once a further continuity explanation is raised – to be discussed in the following section. So, having discussed the procedure for creating *Discontinuity Arguments*, I would like to turn to the next component of the CDRA – the regress of *Discontinuity Arguments*.

4.4.3 The Regress of Discontinuity Arguments

In this section I will utilise the procedure for constructing *Discontinuity Arguments* to outline and motivate my argument that naturalistic saltation genealogies of content lead to a regress of *Discontinuity Arguments*. As mentioned, it accepts that the *Discontinuity Argument* establishes a *prima facie* discontinuity. It is *prima facie* because, on closer inspection, a sub-continuity explanation can be supplied to respond to this *Discontinuity Argument*. I have already concretely discussed how this continuity response would work at length before, so here I will only address the particular *Discontinuity Arguments* in abstract and focus on how they lead to a regress of *Discontinuity Arguments*.[369] The regress of *Discontinuity Arguments* is vital, since *Discontinuity Arguments* by themselves are weak and easily overcome. What the regress of *Discontinuity Arguments* adds to this is the following:

> For any **z**, there exists a **q** such that, if **z** is a *Discontinuity Argument*, then **q** is a continuity explanation **for z**.

Once this is motivated, we have what I have called the *Continuity-Discontinuity Regress Argument*. This involves putting the following two claims together:

[369] The following stipulations will be useful for understanding the idea behind this response. A *Discontinuity Argument* is one that aims to show that there is a discontinuity in explanation for a particular explanandum, in our case content. In contrast, the processes that are added in the developmental stage **X** are continuity explanations. It is important to note that while we are trying to give a saltation genealogy of content, this may not be the only continuity explanation at work. For example, there could be a further sub-continuity explanation that aims to explain how we get from a nonnormative practice to a policing practice. However, having supplied this would not necessarily amount to a continuity explanation for content since there may be other processes required that determine content; furthermore, there is no mention of the supervenience relation between content and normative systems in the 'genealogy of norms' explanation. So, this sub-continuity explanation must be added as part of the initial continuity argument for content.

> For any **x**, there exists a **y** such that, if **x** is a continuity explanation, then **y** is a *Discontinuity Argument* **for x**.

And,

> For any **z**, there exists a **q** such that, if **z** is a *Discontinuity Argument*, then **q** is a continuity explanation **for z**.

These imply an infinite regress of continuity explanations and corresponding *Discontinuity Arguments*, provided there is a base case. For example, if we have continuity explanation **a**, then there exists a *Discontinuity Argument* **b for a**. And because of the second claim comprising the CDRA, for *Discontinuity Argument* **b**, there exists a continuity explanation **c for b**. These steps are then iterated by applying the first claim comprising the CDRA again.[370] Importantly, the regress argument is not concerned with the plausibility of aspects in the saltation genealogy, rather, it aims to demonstrate that such a genealogy simply cannot explain the emergence of content without leading to an infinite regress. If a step of reduction is admitted between the normative and nonnormative, then there is nothing structurally barring such a genealogy from explaining the emergence of content since this would immediately stop the regress in its tracks.

To illustrate the regress, we need a base case. As discussed, both Bar-On's genealogy and Hutto & Satne's NOC programme aim to satisfy the six central tenets of a naturalistic saltation genealogy of content. Additionally, it was shown that there is a *Discontinuity Argument* that can be constructed for each. Either of these couplings of continuity explanation and *Discontinuity Argument* can be taken as a base case. Alternatively, one could view the NOC programme and Sultanescu's (extended) *Discontinuity Argument* as the second iteration of the regress, if Bar-On's genealogy and the Zenoesque Paradox of Content is taken as the base case. Nonetheless, I would like to provide an illustrative example of the way the dialectic might go in order to intuitively motivate the regress. Following this, I will consider some concerns and objections which will allow me to discuss the regress in abstract. So let us start with Bar-On's naturalistic saltation genealogy of content:

> ***Central Tenets of Bar-On's Genealogy of Content***
>
> 1. The explanation should only appeal to *Broad Scientific Naturalism*;
> 2. The explanation should be diachronic;
> 3. Contentful items are determined by reflective triangulation.
> 4. Meaningful linguistic communication, thought or intentionality are to be understood as irreducible to nonnormative biological, chemical and physical facts;
> 5. It is possible to supply a nonreductive explanation of the emergence of reflective triangulation from intermediate triangulation;

[370] We know that the continuity explanation **c** will be distinct from continuity explanation **a**, because if it weren't, then **b** would be a Discontinuity Argument **for c**. Therefore, **c** could not be a continuity explanation **for** *Discontinuity Argument* **b**.

6. The explanation should be, in principle, continuous.

Against this we can construct the Zenoesque Paradox of Content for generating an inexplicable gap in explanation. To avoid this *Discontinuity Argument*, one can 'patch' the genealogy up by adding some ingredients. This can be found in Hutto and Satne's NOC programme which expands the explanatory resources by which Bar-On aims to explain the emergence of content. These resources add the following conditions, over and above, Bar-On's central tenets:

(a) Some thoughts and linguistic utterances have content, through neo-pragmatism;
(b) It is possible, in principle, to nonreductively explain the transition from a world with ur-intentionality to contentful intentionality, through the development of a normative socio-cultural practice.

Adding these to the central tenets allows the initial genealogy to explain the emergence of content by means of the development of a normative socio-cultural practice.[371] The discussion above on the continuity response involves two vital points that I will simplify here. The first is the admission that by looking only at the initial continuity explanation supplied, the *Discontinuity Argument* is *prima facie* successful. The second point is that an additional continuity explanation can be added that addresses precisely what gave rise to this discontinuity. By supplying an additional continuity explanation, the initial continuity explanation is vindicated. In the context of the saltation genealogy of content, which itself is a continuity explanation, this further continuity explanation could be understood as a sub-continuity explanation – i.e. the continuity explanation that specifically addresses the emergence of normative socio-cultural practices. This is the strategy of the second direct objection to the *Discontinuity Argument.* In summary, it does not object to the structure of the *Discontinuity Argument*, rather it adds a further continuity explanation that 'patches' up the discontinuity caused by this *Discontinuity Argument*.

However, there is a significant problem with this strategy of responding to the *Discontinuity Argument*. Just as a further sub-continuity explanation can be added that 'patches' up the discontinuity caused by the initial *Discontinuity Argument*, so can a further adapted *Discontinuity Argument* be raised for this additional sub-continuity explanation. This is where Sultanescu's (extended) *Discontinuity Argument* enters. To avoid this *Discontinuity Argument*, one can 'patch' the genealogy up by adding further ingredients. Again, there are several ways of doing this, but the one considered is the naturalistically adapted version of Weiss's genealogy of norms. This genealogy expands the explanatory resources by which we can explain the emergence of content, through the addition of further modelling conditions, over and above, the last genealogy's central tenets:

(a) A *backward-looking* policing practice is indispensable and constitutive of a normative practice;

[371] This strategy was discussed at length in Ch. 3 with the NOC programme. Summarily, it was proposed that we combine ur-intentional creatures with some evolutionary niche construction, i.e. social conformism, which bridges the synchronic discontinuity between these creatures and full-fledged intentional creatures. It does so, by giving the ur-intentional creatures the capacity to engage in reflective triangulation.

(b) It is possible, in principle, to nonreductively explain the transition from a world with nonnormative practices to *backward-looking* policing practice through the Technological Pedagogical Hypothesis.

Adding these to the central tenets allows the genealogy to explain the emergence of content by means of the development of a *backward-looking* policing practice.[372] However, just as a further continuity explanation can be added that 'patches' up the discontinuity caused by the *Discontinuity Argument*, so can a further adapted *Discontinuity Argument* be raised for this additional continuity explanation of a normative policing practice.

Again, a continuity explanation could be raised against this *Discontinuity Argument* in order to that 'patch' up the discontinuity. This explanation would have to explain how some property of the *backward-looking* aspect of a normative policing practice, which is absent and irreducible to the *proto-backward-looking* aspect of nonnormative policing practices, emerged in a continuous nonreductive way – call it aspect **Q**. Aspect **Q** is that property essential to normative systems and absent in and irreducible to nonnormative policing practice. Also, let us grant that there is some naturalistically respectable process that aims to explain how this property emerges. I don't have a particularly good idea what this sort of niche construction would look like, but I do have an abstract idea of what the discontinuity proponent could do. Since the *backward-looking* aspect of a normative policing practice should be taken as irreducible, I see nothing in principle barring one from raising some *Discontinuity Argument* for this specific aspect **Q** of *backward-looking* that *proto-backward-looking* aspect lacks. She could use this to propose a new difference in type between this aspect **Q** and some proto-**Q**. It would then be claimed that this shows that the additional developmental process cannot explain how we get from the one to the other without implicitly presupposing some reduction between the two. This is the developmental process that aims to explain the emergence of the *backward-looking* aspect of a normative policing practice from nonnormative policing. It does not have the explanatory resources to explain the emergence of aspect **Q** from proto-**Q**; it is simply assumed that it does which requires some reduction due to the difference in type between aspect **Q** and proto-**Q** and the ambitions to supply a continuous naturalistic explanation.

This to and fro argumentation can be iterated indefinitely *ad nauseam*, so I will stop here. Hopefully, what I have intuitively shown is that for any continuity explanation, there is a *Discontinuity Argument*; and for any *Discontinuity Argument* there is a continuity explanation. There is another curious way of looking at this result. One can see it as an infinite regress of *location problems* that require explanation. In Bar-On's genealogy, the *location problem* is content, i.e. the *placement problem*. Then after the Zenoesque Paradox of Content and the continuity response to it, the *location problem* shifted to normative socio-cultural practice. Then after Sultanescu's (extended) *Discontinuity Argument* and the continuity response to it, the *location problem* shifted to that of normativity. Then after my *Discontinuity Argument* against this and the continuity response to my argument, the *location*

[372] This was discussed at the end of Ch. 3. Summarily, it was suggested that we combine a practice involving only peer pressure with evolutionary niche construction, e.g. a Technological Pedagogical Niche. This provides an explanation of the emergence of *backward-looking* policing practice. It does so, by giving the ur-intentional creatures the capacity to engage in a normative socio-cultural practice.

problem shifted to that of *backward-looking*. After another iteration the additional sub-continuity explanation would shift to explaining the *location problem* of aspect **Q**. And so on…

What the regress argument shows is that there will be a shift, *ad infinitum*, from *location problem* to *location problem*. Since there is no cessation to these *location problems*, there cannot be a satisfactory explanation of the emergence of content. Now there will certainly be some unease with this conclusion on two fronts. Firstly, one may take issue with the possibility of such a regress. Secondly, granting that there is a regress, one might take issue with the conclusion drawn from it. So, before I bring the two components together to discuss what the *Continuity-Discontinuity Regress Argument* demonstrates, I will address each of these concerns about the regress component in turn.

Let me address one illuminating objection to the regress of *Discontinuity Arguments*. It can be put as follows:

> "Merely pointing to a difference in type between the explanandum **C** and part of the explanans, **A**, does not show that this will lead to an infinite regress. Sure, a *Discontinuity Argument* could be raised for every continuity explanation — but what is it? Could it be responded to? Without these details there is simply no guarantee that the rejection of reductionism will ensure that such a *Discontinuity Argument* can always be raised and that it will be successful. The regress of *Discontinuity Arguments* is just assumed."

The response aims to highlight that there is no need for the proponent of a naturalistic saltation genealogy of content to keep on entertaining the discontinuity proponent's endless *Discontinuity Arguments*. This is because, at some point in the regress we will be dealing with continuity explanations and *Discontinuity Arguments* in abstract, without concrete details of the how proponents would construct further sub-continuity explanations, e.g. the emergence of aspect **Q**. Without the details, we cannot specify what the new irreducible difference in type would be. Therefore, one is not permitted to claim that it is possible to construct a regress of *Discontinuity Arguments* against corresponding continuity explanations. This involves accepting:

> For any **x**, there exists a **y** such that, if **x** is a continuity explanation, then **y** is a *Discontinuity Argument* **for x**.

But denying that:

> For any **z**, there exists a **q** such that, if **z** is a *Discontinuity Argument*, then **q** is a continuity explanation **for z**.

The second claim is assumed not demonstrated, therefore, there is no regress. Basically, so long as there is no recipe for constructing continuity explanations in response to the *Discontinuity Arguments*, then there will be no regress.

In response, it could be pointed out that there is a hypothetical regress that can be constructed. The regress argument merely aims to show that, if you agree with the *Discontinuity Argument* in general and always provide a sub-continuity explanation in response, then there can be no end to the *Discontinuity Arguments* that can be raised for continuity explanations. Put slightly differently, you cannot hold that the *Discontinuity Argument* is *prima facie* correct, but then claim that it can be responded to by adding a further sub-continuity explanation – this too is susceptible to a *Discontinuity Argument*. So the regress of argument only addresses the strategy to always try to patch up discontinuities caused by *Discontinuity Arguments* with further continuity explanations. It is a hypothetical regress assuming the following two claims:

1. For any **x**, there exists a **y** such that, if **x** is a continuity explanation, then **y** is a *Discontinuity Argument* **for x**.

And,

2. The hypothetical claim that "if the continuity proponent wishes to overcome the discontinuity argument by raising a sub-continuity explanation, then use (1)".

This second hypothetical claim is what supports:

> For any **z**, there exists a **q** such that, if **z** is a *Discontinuity Argument*, then **q** is a continuity explanation **for z**.

But if one does not have to continue entertaining the *Discontinuity Arguments*, then what is the relevance of the regress argument? The regress discussed here is hypothetical, but not actual. The strength of the regress of *Discontinuity Arguments* is precisely that the continuity proponent will have to be committed to an infinite regress of *location problems* for their genealogy. It seems that the continuity proponent could simply decide not to construct a further sub-continuity explanation and insist that their previous continuity explanation does not fall prey to the last *Discontinuity Argument*. Furthermore, without the details of what this sub-continuity explanation looks like, there is no way to construct an appropriate *Discontinuity Argument* against it. Therefore, there would be no regress and no commitment to an infinite regress of *location problems*. In summary, so long as there is no recipe for necessarily constructing further sub-continuity explanations in response to *Discontinuity Arguments*, then there is no actual regress.

However, I think and hope to show that one must always entertain the regress of *Discontinuity Arguments*, by constructing sub-continuity explanations with a particular structure. The specific details of the sub-continuity explanations are not relevant here; what matters are that they satisfy the central assumptions and the structure of naturalistic saltation genealogy of content, i.e. the first continuity explanation. As mentioned earlier, the *Discontinuity Argument* presents the continuity proponents with a trilemma which is easily dissolved. This is where the weakness of the *Discontinuity Argument* is a strength to me. It merely aims to show that there is something missing in the naturalistic saltation genealogy of content – not that the genealogy *in toto* could not be continuous. Additionally, the

Discontinuity Argument only plays on the central tenets of the genealogy and the indispensable intermediate steps entailed by it. To summarise, while we don't specifically know what these additional ingredients are, we know enough for us to construct *Discontinuity Arguments* against them. All we need is the following knowledge:

1. **P** is irreducible to proto-**P**, because it lacks the constitutive property **Q**;
2. It is possible to supply nonreductive explanation of how **P** emerges from state-of-affairs only involving proto-**P** through the development of **Q**.

Why should a proponent of a naturalistic saltation genealogy of content be inclined to supply a further explanation of the emergence of **Q**? Why could they not insist that their previous nonreductive developmental process of **P** from proto-**P** gives us a continuous explanation? I claim that this is not possible since the last *Discontinuity Argument* already identifies a *prima facie* gap in the last explanation. It does so by using the property **Q** that is constitutive of **P** and absent from proto-**P**, and showing how it is irreducible to proto-**Q**. This points out exactly what gave rise to the previous discontinuity, i.e. a lack of vocabulary for describing the transition between proto-**Q** and **Q**. Therefore, this requires a process that nonreductively explains the emergence of **Q** from proto-**Q**, which would give the following sub-continuity explanation:

1. **Q** is irreducible to proto-**Q**, because it lacks the constitutive property **R**;
2. A nonreductive explanation of how **Q** emerges from state-of-affairs only involving proto-**Q** through the development of **R**.

The overarching response is simple: If one is committed to the central tenets of naturalistic saltation genealogies of content, then one must aim to supply nonreductive explanation between the explanandum and platform. If there is a lack of vocabulary for describing the transition between the explanandum and the platform, then one is theoretically obliged to supply this vocabulary for the transition. A discontinuity identified between the explanandum and the explanans is to show that there is a lack of vocabulary for describing the transition.[373] Naturalistic saltation genealogies of content supply this vocabulary by offering nonreductive processes of the explanandum. Given this, I would like to propose the following explanatory principle should be abided by:

> ***The Principle of Exaction***
> Given the commitment to a naturalistic saltation genealogy of content: For any discontinuity identified between the explanans and the explanandum, one is theoretically obliged to supply a nonreductive process for that explanandum that explains its emergence. This involves adding the following explanatory resources:
>
> 1. **Y** is irreducible to proto-**Y**, because it lacks the constitutive property **Z**;
> 2. A nonreductive explanation of how **Y** emerges from state-of-affairs only involving proto-**Y** through the development of **Z**.

[373] A *Discontinuity Argument* merely aims to show that the current explanation and processes do not address how this property emerges without using vocabulary that presupposes that property or vocabulary that makes no reference to it.

The principle gives us a necessary recipe for constructing continuity explanations. It does not matter whether the actual proponent of a naturalistic saltation genealogy of content does not supply a further sub-continuity explanation. We have the requirement that they should be constructed against the *Discontinuity Argument* and the relevant form they should take. So we can chart out the regress of continuity explanations in response to *Discontinuity Arguments*, even if they aren't supplied. This is to give an actual regress of sorts, thus vindicating the claim:

> For any **z**, there exists a **q** such that, if **z** is a *Discontinuity Argument*, then **q** is a continuity explanation **for z**.

There is one final objection to the regress. This involves granting that there is a regress of continuity and corresponding *Discontinuity Arguments*, but denying that it is vicious. Consider the following:

> 'If there is a regress of *Discontinuity Arguments*, then this will give rise to an argument claiming that there is an infinite regress of *location problems* which don't get solved. By contrast, if there is a corresponding regress of continuity explanations, then this will give rise to an argument that there is an infinite regress of *location problems* which get solved. The former argument claims that the genealogy is discontinuous, while the latter argument claims that the genealogy is continuous. The latter argument succeeds over the former because there will always be a possibility of supplying a continuous explanation. Merely pointing out that there is an infinite regress of *Discontinuity Arguments* does not undermine that there is a possibility an overall continuous explanation. By supplying a recipe for constructing continuity explanations for corresponding *Discontinuity Arguments*, this provides a generally applicable way for always constructing how we get from our platform to our explanandum.'

In order to respond it is important to distinguish between two ways that infinite regress arguments can be taken to provide objections. The first way is when a regress can be taken to illuminate some negative aspect of naturalistic saltation genealogies of content which we have reason to reject.[374] A contradiction would be an example of such a negative aspect, but in our case, it could be taken as showing that there is no way for the *placement problem* to get solved owing to the infinite regress of *Discontinuity Arguments*.[375] The second way a regress can provide an objection is by showing how the regress itself is unacceptable by the commitments of naturalistic saltation genealogies of content.[376] In this case the regress itself is the negative aspect. The response above to the regress argument interprets the negative aspect as involving a fact that is illuminated by the regress. Specifically, this negative aspect

[374] Ross Cameron, "Infinite Regress Arguments," *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta & Uri Nodelman, Fall 2022 Edition, <https://plato.stanford.edu/archives/fall2022/entries/infinite-regress/>.
[375] It is important to note that this is not to claim that the negative aspect is the regress itself, rather it is to claim that the regress makes a case for a negative aspect that the proponent of a naturalistic saltation genealogy ought to reject – i.e. a discontinuous explanation.
[376] Ibid.

is the fact that a regress of *Discontinuity Arguments* entails that there is a regress of *location problems* that never get solved, which entails that there is a discontinuity in the initial continuity explanation, i.e. the naturalistic saltation genealogy that aims to solve the *placement problem*. However, I do not want to consider whether this interpretation of the negative aspect of the regress is successful, since I think the unacceptable aspect of the regress is, rather, the regress itself. Viz., that there is an infinite regress of continuity explanations and corresponding *Discontinuity Arguments* should itself be taken as unacceptable by the commitments of naturalistic saltation genealogies of content. Let me motivate why this is the case.

To motivate, the regress itself shows that there will be an infinite regress of *location problems*. For my purposes, it does not matter whether you think these can be solved or not. Of course, by supplying a recipe for constructing continuity explanations for corresponding *Discontinuity Arguments*, this provides a generally applicable way for always constructing how we get from our platform to our explanandum. But this only applies at each iteration of a *Discontinuity Argument*. What matters for the proponent of a naturalistic saltation genealogy of content is that they can supply an, in principle, continuous explanation of the *placement problem.* In different terms, this involves supplying a *complete vocabulary* that could illuminate content.

The regress reveals that the aim to give a continuous explanation of the *placement problem* will have to involve commitment to an infinite regress of *location problems*. But this means that one can never truly supply a continuous explanation of the *placement problem*, since the model supplied will always be incomplete. The proponent of the naturalistic saltation genealogy of content aims to supply an, in principle, continuous explanation of content, but this is never possible if they are obliged to always solve further location problems *ad infinitum*. There would be no point at which they can claim to have supplied an, in principle, *complete vocabulary* for the emergence of content. Therefore, the regress itself shows that the central tenets of naturalistic saltation genealogies of content are inconsistent. Having outlined and intuitively motivated the regress of *Discontinuity Arguments*, I will bring together the two components of the CDRA and discuss what it shows.

4.4.4 What the CDRA Shows

As I see it, the two combined elements demonstrate that there cannot be an in principle continuous explanation of the emergence of content using naturalistic saltation genealogies of content. Each proposed genealogy will have to provide an infinitely many sub-continuity explanations, in response to complementary *Discontinuity Arguments*, showing why the previous continuity explanations can solve their respective *location problems.*[377] To be more accurate, since there is an infinite regress of continuity and complementary *Discontinuity Arguments*, there is no successful way for the proponent of naturalistic saltation genealogies

[377] Of course, this could be read in converse to say, for each proposed *Discontinuity Argument* it will have to provide infinitely many sub-*Discontinuity Arguments*, in response to complementary sub-continuity explanations, showing why the previous *Discontinuity Argument* can identify a gap in the explanation. But it would be mistaken to read this as support of saltation genealogies being able to explain the emergence of content.

to supply a continuous explanation solving the *placement problem*. In order to do so, they would be obliged to supply infinitely many solutions to differing *location problems* which means they would never be able to supply a continuous solution to the *placement problem.*

The outcome of this is simple. Given a particular naturalistic saltation genealogy of content, it will have following (expanded) central assumptions:

1. It should satisfy Dependency and Autonomy Criteria for Emergentism;
2. The genealogy should have the Naturalistic Saltation Genealogy tripartite structure of: (A) the platform, (X) the diachronic developmental stage and (C) the reductive stage. Or it should have the Saltation (Emergentist) Genealogy Structure which, *mutatis mutandis*, amounts to the same requirement as the former.
3. The explanation should only appeal to *Broad Scientific Naturalism*;
4. The explanation should be diachronic;
5. (CDN) Content is determined by norms;
6. Norms are to be understood as irreducible to the nonnormative;
7. It is possible to supply a nonreductive explanation of the transition from nonnormative states-of-affairs to content determining norms;
8. The explanation should be, in principle, continuous.

Because of the two key elements of the CDRA, it demonstrates that this set of central assumptions is inconsistent. This inconsistency is claimed to derive from taking central assumptions (1) – (7) as true, and then using the CDRA to entail that central assumption (8) is false. In other words, it entails the saltation genealogy of content is discontinuous. Now if the proponent of the saltation genealogy of content insists that the genealogy is continuous while holding all the central assumptions constant, then this must involve an implicit rejection of central tenet (3) or (6). Therefore, such a proponent of a continuous saltation genealogy of content will be implicitly committed to some supervenience relation or reduction between the normative and nonnormative or some non-naturalistic explanation. If this is conceded, then the saltation genealogy is self-defeating; it aims to provide a non-reductive naturalistically continuous explanation of the emergence of content, but can only do this by aid of reduction or non-naturalism that is not permitted by its own central tenets. Admitting this rejection would involve giving up on saltation genealogy altogether, so clearly unacceptable for such a proponent. This is how I derive the slogan:

> **(S)** Naturalistic saltation genealogies of content are either discontinuous explanations or implicitly entail the reduction of the normative to the nonnormative or some non-naturalistic explanation.

Which is the same as saying that:

> **(S*)** Naturalistic saltation genealogies of content are either discontinuous explanations or self-defeating.

Whereby ‘self-defeating’ I mean that these genealogies collapse into reductive genealogies or non-naturalistic explanations. When the relevant reductive account is rejected, saltation genealogies of content fail to explain the emergence of content; when accepted, we are no longer offering a saltation genealogy of content.

Surely, this demonstrates that the CDRA is non-naturalistic insofar as it ignores that the confirmed processes of cultural evolution and social conformism explain how normative socio-cultural practice developed? My response to this involves two points. Firstly, I agree that, if the processes of cultural evolution and social conformism are confirmed, then they can explain how normative socio-cultural practice developed. However, secondly, this explanation can only be continuous under certain modelling assumptions, implicit or explicit, about the relations between the normative and the nonnormative. My reflections on intermediate steps and the discontinuity it engenders has no bearing on whether cultural evolution and social conformism can, in principle, explain the emergence of normative socio-cultural practice. All I am claiming is that particular assumptions – i.e., the irreducibility of the normative to the nonnormative and the aim to supply a nonreductive explanation – prevents a genealogy (involving these processes) from supplying a complete explanation. The genealogy itself is discontinuous in the manner it uses these processes; the processes themselves are not necessarily discontinuous. For example, if reduction is permitted, then there will be no discontinuity in the genealogy. So, the CDRA does not ignore the fact that cultural evolution and social conformism can continuously explain how normative socio-cultural practice developed. It is merely pointing out that this cannot be done under particular assumptions, assumptions which are not under the purview of the evolutionary sciences to address. For this reason, I do not think the CDRA is anti-naturalistic. It just deals with questions not within the scope of the evolutionary sciences. I will be discussing this point in greater detail in Ch. 5 – *5.3 The Approximation Objection*.

Chapter Five:

5. Objections & Responses to the Continuity-Discontinuity Regress Argument

The final chapter addresses objections to the CDRA. Generally, there are two varieties of objection available to the critic of the CDRA: (1) objections to the regress of *Discontinuity Arguments* that involves adding additional 'ingredients' to the initial diachronic explanation so that it avoids the discontinuity, and (2) objections to the *Discontinuity Argument* that deny it succeeds in identifying a substantive discontinuity. Only objections of the second variety will be discussed in this chapter. The reason why the former will not be discussed is because it was argued that it is a structural feature that there will always be regress of continuity and complementary *Discontinuity Arguments*, provided one accepts the procedure for constructing *Discontinuity Argument*s. On the latter variety of objection, I will raise my responses, but also indicate which objections highlight significant issues.

5.1 A Taxonomy of Objections to CDRA

This section begins by providing charitable extensions of Davidson's *Puzzle*. Recall that he claims that "What we lack is a satisfactory vocabulary for describing the intermediate steps."[378] There are four standard interpretations of what he could mean by this: (a) there simply is no possible vocabulary for transitional intermediate steps, (b) there is no actual vocabulary for transitionary intermediate steps, but it is possible, (c) there is vocabulary for transitionary intermediate steps, but the relevant transitionary intermediate steps cannot be identified, hence it is impossible to provide an explanation, (d) there is vocabulary for transitionary intermediate steps, but the relevant transitionary intermediate steps have not been identified, hence we cannot currently provide an explanation.

The first two interpretations focus on the ineffability of intermediate steps. Call them the ineffability interpretations. The following two interpretations focus on the ontology of intermediate steps, rather than our ability to eff them. Either the transitionary intermediate steps do not exist, or they do but we have not identified them yet. Call these the ontological interpretations. However, I am, and have been, purely focussed on a fifth interpretation of what Davidson's claim could mean, one which permits the effability of transitionary intermediate steps and their actual existence: (e) we have the vocabulary for supplying transitionary intermediate steps and can purportedly explain the transition, but this leads to an infinite regress of *location problems*, hence there is no *complete* vocabulary for describing the transition given the central tenets of naturalistic saltation genealogies of content. So, in spite of these concessions, I have claimed that there is still a lack of satisfactory vocabulary which leads to an inconsistency by applying the CDRA to naturalistic saltation genealogies of content; hence these genealogies are either discontinuous or self-defeating.

[378] Donald Davidson, *The Emergence of Thought (1997)*, 127.

The four objections, to be discussed, all aim to respond to the CDRA by calling into question the ability of the *Discontinuity Argument* to produce substantive discontinuities in the possibly continuous explanation that naturalistic genealogies of content aim to achieve. In other words, the four objections all aim to respond to the fifth interpretation of what Davidson's challenge could mean by calling into question the *Discontinuity Argument*. If the *Discontinuity Argument* can be successfully responded to without supplying a further sub-continuity explanation, then the regress of *Discontinuity Arguments* is halted and there would be no lack of satisfactory vocabulary. The objections, to be discussed in turn, are:

(a) *Philosophical versus Scientific Continuity Objection*;

(b) *The Approximation Objection*;

(c) *Generality Objection*;

(d) *The Reconceptualised Definition of Continuity Objection*.

5.2 Philosophical v. Scientific Discontinuity Objection

Hutto & Satne have already briefly sketched a response to Sultanescu's *Discontinuity Argument* which is slightly different from the one suggested in Ch. 3 involving the addition of 'ingredients'.[379] Rather than adding additional 'ingredients' to their explanation, hence leading to the 'regress of *Discontinuity Arguments*', they deny that Sultanescu's *Discontinuity Argument* identifies any substantive discontinuity. Let me elaborate.

There are two clear ways I see to respond to Sultanescu. Firstly, one could deny that there is a discontinuity *simpliciter*. However, this either involves objecting to the structure of the *Discontinuity Argument* – which will be discussed in section *5.4 Generality Objection* – or it involves adding additional ingredients to 'patch up' the discontinuity showing why the previous *Discontinuity Argument* does not identify a substantive discontinuity. As mentioned, I do not find this latter approach viable, nor will it be discussed since it was addressed in Ch. 4 at length. I will focus on a variety of the former which is to accept there is a discontinuity, but deny that this is problematic in some manner.

Hutto & Satne agree with Sultanescu "that closing this sort of imaginative gap is a fool's errand."[380] However, in response, they distinguish between scientific and philosophical discontinuity, claiming that Sultanescu's argument is one for a philosophical discontinuity. They counter that NOC supplies scientifically respectable explanation for "how content could have arisen in the natural world without gaps."[381] The main reason for why they think there is no scientific discontinuity is a due to their Relaxed Naturalism; all that needs to be continuous is their scientifically respectable explanation of the emergence of normative socio-cultural practice through the processes of social conformism and cultural evolution. Philosophical problems, such as Sultanescu's, do not affect the scientific continuity of these processes. Furthermore, they already think that the philosophical discontinuity, proposed by

[379] Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 23-25.
[380] Ibid., 25.
[381] Ibid., 25.

Sultanescu, is impossible to overcome, thus they claim that "[t]here is no shame in failing to do the impossible."[382] This is to deny that Sultanescu's identified discontinuity is relevant to supplying a complete naturalistic story of the transition. In summary, the result of the Sultanescu's *Discontinuity Argument* (and any other *Discontinuity Argument* in general), does not show that content could not have continuously emerged in a naturalistic perspective of the world.

However, they do not say much about how these two discontinuities are to be distinguished.[383] And I must admit, I do not understand the distinction between philosophical and scientific discontinuity as something principled. Let me make several related points about why I think this is so. Firstly, the distinction does not make sense given the commitment to naturalism. Furthermore, it may even be charged with being anti-naturalistic. To illustrate, consider Maddy's claim about the difference between philosophers and scientists given the commitment to naturalism:

> "How ... does the philosophical methodologist differ from any other scientist? If she uses the same methods to speak to the same issues, what need is there for philosophers at all? The answer, I think, is that philosophical methodologists differ from ordinary scientists in training and perspective, not in the evidential standards at their disposal."[384]

Philosophers and scientists share 'evidential standards' which is a product of a commitment to naturalism, but they differ in 'perspective' over domain of discourse being investigated. But if this is agreeable, then there is no sense in making a distinction between philosophical and scientific discontinuity. Under naturalism, a philosophical discontinuity simply is a scientific discontinuity and *vice versa*. Likely, this is merely a poor choice of terminology for their distinction. What they could mean by scientific discontinuity is simply an account that is discontinuous by the lights of a *Broad Naturalistic Explanation*. A philosophical discontinuity would be that which is derived by any account more liberal than this, e.g. *Liberal Naturalistic Explanation*.

Employing this terminology, they could claim that explaining the emergence of vertical facts *qua* social facts only requires them to supply the processes of social conformism and cultural evolution which do in fact lead to the emergence of a normative socio-cultural practice. Displaying that no intermediate step(s) can be identified in the trajectory of these processes –

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[382] Ibid., 25.

[383] The primary motivation Hutto & Satne supply for this distinction can be found in: Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 25. There is little else supplied by them that elucidates this distinction. They primarily draw from Bar-On's characterisation of continuity skepticism. intuitively explain this distinction. See: Dorit Bar-On, "Expressive communication and continuity skepticism," 295. Following Bar-On, one comment they make about 'continuity skeptics' is that:

> "For these philosophers this implies that, as Bar-On (2013) makes clear "any scientific account of the emergence of our mental states and the sort of communication they underwrite is bound to be philosophically inadequate" (p. 303, emphasis added)." Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 24.

[384] P. Maddy, "Naturalizing mathematical methodology," In *The philosophy of mathematics today*, edited by Matthias Schirn, 175-193 (Oxford: Oxford University Press, 1998), 178.

those explaining the transition between biological regularities and *social facts* – is to ask for something that does not need explanation on a naturalistic perspective. If one insists that it does need explanation, then this would reveal commitment to requirements that are not found in the 'successful sciences'.

However, even if this is what they mean by their distinction, it could still be charged with being anti-naturalistic. This is because I think the evidential standards are the same for philosophers (such as Sultanescu) and scientists. So maintaining that a 'philosophical discontinuity' can be ignored would be to hold a non-naturalistic evidential standard. Let me motivate this reference to Hutto & Satne's view on content.

Firstly, neither content nor intentionality are direct objects of scientific inquiry for Hutto & Satne. The very fact that they aim to solve the *placement problem* shows that it does not neatly fit into a naturalistic view of the world – this needs an explanation for them.[385] This is not to say that contentful items do not figure as objects in the social sciences. Their commitment to Relaxed Naturalism already reveals that contentful items are indispensable to scientific theorising, such as psychology and sociology. These sciences study phenomena having the property of intentionality or content, such as beliefs, intentions, desires, etc.. However, there is no current science of content for Hutto & Satne, otherwise they would not need to supply their genealogy in the first place.

Additionally, supposing that there will be some successful *future* science of content simply begs the question by assuming that the *placement problem* is solvable since we could locate content in the natural world.[386] Due to this it seems fair to say that content occupies a fuzzy area of theorizing; it is not a direct object of study in any science, yet we can still have the ambition that the emergence of content is entirely explicable using the resources of the successful sciences. In other words, this means that content is not a clearly defined scientific posit for Hutto & Satne. To make it clearly defined they supply the synchronic *foundational semantics* of neo-pragmatism. Because of this, they already specify what *constitution facts* of content are broadly relevant for solving the *placement problem*. Furthermore, they specify that their explanation should not involve a reduction of the normative to the nonnormative. Therefore, *social facts*, which are inherently normative, cannot be reduced to nonnormative regularities in performances. This delimits the sort of diachronic *foundational semantics* they can supply, i.e. it cannot involve such reduction.

If this is the case, then Hutto & Satne must consider the emergence of *vertical facts* about content as relevant when appraising whether they can give a continuous emergence story of content. They propose that this can be done through their diachronic processes of social conformism and cultural evolution. Now I agree with them that there is nothing "deeply mysterious about social conformity and cultural evolution."[387] Generally speaking, these can

[385] An instance of the contrasting view would be that expressed by Tyler Burge, *Origins of objectivity*.
[386] A weaker claim could be made that some practitioners in the social sciences do study content – e.g. cognitive psychology and neuropsychology. Here it isn't assumed that the *placement problem* is solved, but rather involves an *attempt to solve* it. However, this *attempt to solve* would not help Hutto & Satne, since it assumes that the *placement problem* either can be solved or not. The former possibility is the very thing that Hutto & Satne aim to demonstrate and what this paper calls into question for naturalistic saltation genealogies of content.
[387] Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 23.

supply continuous explanations, but what is important is whether they supply continuous explanations with regards to the commitments of the NOC programme. What needs to be explained is how social conformism and cultural evolution can, in principle, completely explain the development of normative socio-cultural practice in a continuous manner, given the assumptions made by NOC.

To vindicate the possibility of such a diachronic explanation, it needs to be possible to supply a suitable vocabulary that can identify how *social facts* nonreductively emerged from nonnormative regularities in performances – this is to answer the vertical question. It is no good as a response to the *Discontinuity Argument* to claim that 'We have done a great explanatory job up to proto-socio-cultural practice and after normative socio-cultural practice, but that it is impossible to explain the link between everything before and after. So we have a continuous explanation.' This is exactly what Sultanescu denies, due to a lack of transitionary vocabulary. Biting the bullet and holding that conformism and cultural evolution can explain this may reveal some residual commitment to reductionism which NOC ought to reject.[388] As I see it, Hutto & Satne have no principled reason for ignoring Sultanescu's argument for discontinuity. What it shows is that there is a discontinuity in the NOC programme due to its own central tenets, not due to any admission of a discontinuity in the general processes of social conformism and cultural evolution. It is NOC's commitment to neo-pragmatism, as an account of content irreducible to biological facts, that *prima facie* prevents a continuous explanation from ur-intentionality.[389]

Possibly, Hutto & Satne's insistence that they can ignore such a discontinuity could be motivated by a charitable extension of one of Wittgenstein's points about rule-following. Consider:

> "217. "How am I able to follow a rule?" - If this is not a question about causes, then it is about the justification for my acting in *this* way in complying with the rule. Once I have exhausted the justifications, I have reached bedrock, and my spade is turned. Then I am inclined to say: "This is simply what I do." (Remember that we sometimes demand explanations for the sake not of their content, but of their form. Our requirement is an architectural one; the explanation a kind of sham corbel that supports nothing.)"[390]

The question "How am I able to follow a rule?", could be extended to "How am I able to partake in a normative socio-cultural practice as an agent?" A positive answer to this question is precisely what the *Discontinuity Argument* tries to undermine for naturalistic saltation genealogies of content, by considering various intermediate steps leading up to the emergence of the normative socio-cultural practice. The search for intermediate steps that

[388] The reduction here would be that between socio-cultural practice (with vertical and horizontal factors identified) and proto-socio-cultural practice (with only horizontal factors).
[389] Of course, Hutto & Satne could claim that this goes beyond the evidential standards of naturalism. Though this is what they could claim, as I have indicated above, I am not disputing whether social conformism and cultural evolution are continuous explanations in general by the standards of scientists. Rather I am claiming that their NOC makes assumptions which leads to a discontinuity. I still concede that it may be possible to supply a continuous explanation of the emergence of content, using these processes, that does not have the same assumptions as NOC.
[390] Ludwig Wittgenstein, *Philosophical investigations*, 91e.

illuminate the nonreductive transition between regularities of performance and *social facts* is similar to the repeated insistence on justifications for acting in a particular way that is in accord with rules or norms. In the same manner as Wittgenstein insists that this is "simply what I do", could Hutto & Satne not insist that, after justifications are exhausted, that the processes of social conformism and cultural evolution are just the relevant sort of explanation required for the transition?[391] Hutto & Satne seem to suggest as much in the following:

> "There are other versions of the characterization problem that should also be avoided. In particular, it is important not to construe it as a "missing link" problem, the solution to which is supposed to consist in finding intermediate steps. We agree with Sultanescu (2015) that seeking to solve Davidson's characterization problem is a fool's errand if doing so requires being able to positively characterize each stage of thought, from the inside. For if that were necessary for solving the problem then, a bit like Zeno's paradox, we could replay the worry at every micro-step of the process with the result that "the intermediate steps between primitive intentionality and contentful intentionality cannot in fact fully be accounted for" (Sultanescu 2015, p. 639). Accordingly, however much we might succeed in narrowing the imaginative gap there would be no way to close it completely. Thus even if expressive or intentional attitudes are allowed into the story we can always ask how exactly the gap between such attitudes and "contentful goings-on is supposed to be bridged" (Sultanescu 2015, 646), and so on."[392]

What is important here is that Hutto & Satne recognise the discontinuities engendered by the Zenoesque Paradox of Content and Sultanescu's *Discontinuity Argument*. However, they do not think there is any sense in trying to dissolve them since they will always be permanent features of their and Bar-On's genealogy. Furthermore, they do not think that these discontinuities are substantive in the sense that they display a scientifically serious discontinuity. This is because they do not see the task of supplying a continuous explanation as one which involves identifying all the relevant intermediate steps in the explanation. Rather they could propose that the task of supplying a continuous explanation involves supplying the relevant scientifically respectable processes which will, over time, give a continuous explanation of content's emergence. This is to deny the definition of continuity that I have proposed. But now their defence of the continuity does not hinge on a metaphysical distinction between philosophical and scientific discontinuity. Rather it involves rejecting my definition of continuity as one that is not naturalistically respectable. This will be discussed at length in the last objection – *5.5 The Reconceptualised Definition of Continuity Objection.*

[391] Ibid., 91e.
[392] Daniel D. Hutto, and Glenda Satne, "Demystifying Davidson: Radical interpretation meets radical enactivism," 25-26.

5.3 The Approximation Objection

The approximation objection derives from Sultanescu's comments following her *Discontinuity Argument* against the NOC.[393] To discuss this objection, consider the outcome of Sultanescu's (extended) *Discontinuity Argument* applied to the NOC programme. There were two classes formed – one with some normative socio-cultural practice with vertical and horizontal factors and the other with only proto-socio-cultural practice and horizontal factors. This introduces a discontinuity at **B** due to the absence of a transitionary step between these two classes – one with vertical and horizontal factors and the other with only horizontal factors.

Now one may take issue with the recipe provided. Could there not be intermediate steps where the answer is indeterminate? This is to take issue with the recipe of generating *Discontinuity Arguments* – 'Why are there only two options "If so" and "If not"?' There could be relevant intermediate steps where the difference between it falling into one class or the other is so slight, that it would be practically impossible to identify which class it falls into. Alternatively, they could be genuinely indeterminate in a sense that they do not fall into either class. The idea is that, in spite of the impossibility of accurately being able to answer "If so" or "If not", we can still reach an approximate explanation of how normative socio-cultural practice emerged. Such approximate explanations should not frighten us; we utilise them all the time. For example, consider a diachronic explanation for the emergence of Anna's ability to ride a bicycle.

At one point in time t_n, Anna didn't know how to ride a bicycle **A**, but later on she did **C**. How can we supply a nonreductive explanation of how this ability emerged? One way, is to add a diachronic developmental stage **X** which would include a variety of processes such as *being taught the basic mechanics of the bicycle*, *practicing with the guidance of competent bicycle rider*, *practicing by oneself*, and *observing others and how they ride bicycles*. Each of these would require a more thoroughgoing naturalistic explanation, but I think it fair to claim that some combination of these processes would explain how Anna learns to ride a bicycle. Immediately, there appears to be a trivial discontinuity in the story of Anna's training – at stage **AB** she does not have an ability and at the later stage **BC** she does:

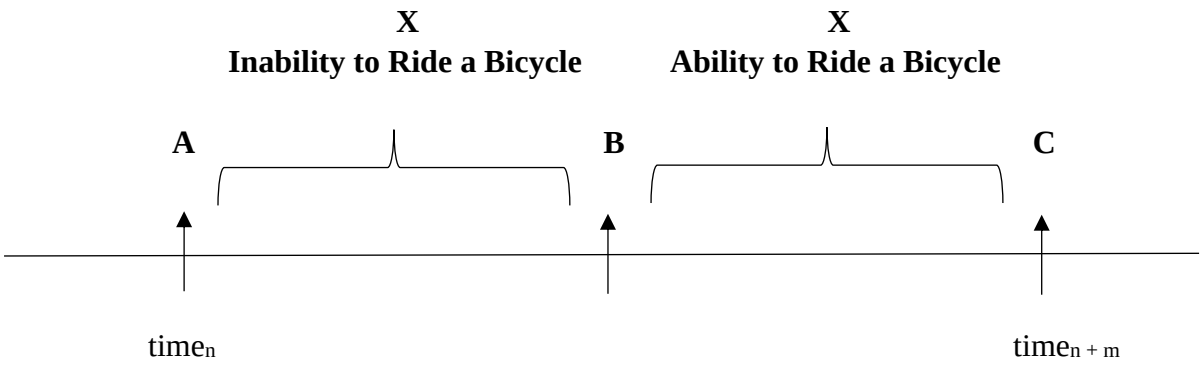

Fig. 5.2

[393] Olivia Sultanescu, "Bridging the gap: A reply to Hutto and Satne," 647.

But if we home in on what happens at **B**, it should not surprise us. As time goes by, Anna's behaviour will start to become nearly indistinguishable from that of a person who knows how to ride a bicycle. Additionally, we understand the processes that are at play in her training. However, as it often happens with others, one day Anna clearly cannot ride her bicycle while the following day she can. This is not a mystery though, in spite of our inability to pinpoint the exact moment she learnt the ability to ride a bicycle. We have a clear understanding of the processes involved in developing that ability, even though we have practically or genuinely vague transitionary intermediate steps leading up to her ability. An approximate understanding is satisfactory in supplying such an explanation.

In response, I maintain that naturalistic saltation genealogies of content are not analogous with the explanation of how Anna learnt to ride a bicycle. While I admit that they may be analogous in the case when practically trying to identify whether a particular intermediate step involves a certain ability or not, this is to focus on intermediate steps as objects the *model is about*. In fact, I do not even dispute that there are truly indeterminate intermediate steps in the *order of being* between ur-intentional creatures and contentful creatures. The reason why they are disanalogous is to be found in the different modelling assumptions made about the *objects of the model*. Unlike the Anna's ability to ride a bicycle, saltation genealogies of content do not merely equate the emergence of content with the emergence of a new kind of ability, e.g. the ability to engage in a normative socio-cultural practice. Viz., the emergence of content and normativity is not tantamount to the emergence or increased sophistication of any biological, chemical or physical regularities. This is because we are assuming that the normative is irreducible to the nonnormative. So the emergence of content or a system of norms requires, not just an explanation of the emergence of the ability to engage in a normative socio-cultural practice, but also an emergence explanation of a new sort of basic natural fact – normative facts. As Sultanescu puts it:

> "[T]his analogy assumes that acquiring thought is simply tantamount to gaining a new ability, an assumption that is misguided. […C]ontentful mentality is *of a different kind* from primitive mentality […] Becoming a thinker is not merely a matter of acquiring a novel ability, but also, and more importantly, a matter of acquiring a novel kind of mentality."[394]

What Sultanescu is expressing is that the biological facts that specify the horizontal facts are not sufficient for explaining the *social facts* which are used to specify the vertical facts. Answering the constitution question requires a new sort of fact which is irreducible to biological facts – *social facts*. Therefore, in explaining the emergence of content we will need to explain, not just the ability to engage in a normative socio-cultural practice, but also the emergence of *social facts* or, more fundamentally, normative facts. This claim may be challenged in the following way:

[394] Ibid., 647.

> 'Isn't the acquisition or learning of this novel ability precisely what gives an account of content and what Hutto & Satne try to explain the emergence of? The emergence of this novel ability is tantamount to the emergence of content under neo-pragmatism.'

This claim is partially correct. In response I would like to point out that this novel ability requires that the novel kind of 'mentality' is already in place. There is a subtle, but significant difference between what is required for 'becoming a thinker' and 'being a thinker'. The latter amounts to the ability, while the former requires an explanation of the 'becoming' verb. This is answered by the emergence of the novel kind of fact. Neo-pragmatism only gives an account of content in terms of a certain ability, not an account of what is required for this ability to emerge – i.e. the difference between a synchronic & diachronic *foundational semantics*. How does this point aid in avoiding the approximation objection? I will explain this by considering Hutto & Satne's NOC, though the response applies *mutatis mutandis* to other saltation genealogies of content.

Hutto & Satne are committed to the Embodiment Thesis which "equates basic cognition with concrete spatio-temporally extended patterns of dynamic interaction between organisms and their environments"; this means that ur-intentionality lacks the requisite *social facts* that are required for contentful intentionality.[395] The process of social conformism and cultural evolution are then used to explain the emergence of the ability to engage in normative socio-cultural practice with the requisite *social facts*. Sultanescu's point is that there still needs to be an explanation of how the novel kind of fact, i.e. *social facts*, that is constitutive of normative socio-cultural practices, emerged. On the one hand, these processes can illuminate the development of creatures already engaged in a normative socio-cultural practice. On the other hand, these processes are able to explain how ur-intentional creatures can begin to exhibit more sophisticated stages of "concrete spatio-temporally extended patterns of dynamic interaction between organisms and their environments."[396] In other words, these processes can illuminate how ur-intentional creatures can begin to engage in a social practice understood in terms of biological regularities.

However, due to NOC's commitment to the irreducibility of contentful items to nonnormative facts, these processes by themselves do not provide an adequate explanation of the transition between the social practices understood in terms of biological regularities and a normative socio-cultural practice understood in terms of *social facts*. If it is assumed that these processes can explain the transition, this is either question begging or reveals a residual commitment to reductionism. Because of this, we can separate the intermediate steps into two classes – those involving this new fact, and those that do not.[397] The processes will only illuminate one or the other side of the inexplicable gap. Sultanescu voices a similar point:

> "I am not suggesting that no light can be shed on the acquisition of the novel kind of mentality, for that would be to ignore the progress that, say, developmental psychology has made in recent decades. Rather, I am suggesting that the explanations

[395] Daniel D. Hutto, and Erik Myin, *Radicalizing enactivism: Basic minds without content*, 5.
[396] Ibid., 5.
[397] Some of the ideas in this paragraph derive from Olivia Sultanescu, "Bridging the gap: A reply to Hutto and Satne," 647.

> supplied are bound to shed light either on one or on the other of the two sides of the unbridgeable gap, and cannot bridge that gap."[398]

In sum, there is a lack of explanatory vocabulary for describing intermediate steps between these two sides. This shows that the approximation objection cannot be used by proponent of saltation genealogies of content in response to a *Discontinuity Argument*. Pointing out that there are indeterminate intermediate steps in reality, between the platform and the explanandum, does not aid in undermining the *Discontinuity Argument* if there is a lack of explanatory vocabulary in the model that will supply a complete explanation. For example, the explanatory resources supplied by NOC do not supply the vocabulary for describing the transition between biological regularities and *social facts*. This means that even if there are stages (as intermediate steps the *model is about*) which are indeterminate, the explanatory resources of NOC make it *prima facie* impossible to identify intermediate steps (as *objects of the model*) that can explain the transition. In fact, I am perfectly satisfied to claim that the processes of social conformism and cultural evolution (as *objects our models are about*) can give rise to genuinely indeterminate intermediate steps which cannot be described as either normative or nonnormative. But this is only to observe that these processes (in the natural world) are involved in giving rise to transition, not that these processes (as models) will be able to explain the transition under certain modelling assumptions.

5.4 Generality Objection

To understand the *Generality Objection*, consider the abstract central tenets of naturalistic saltation genealogies of content, where content occupies the variable "**P**" and norms the variable "**Q**". Norms, normativity and normative systems do play a significant role in the saltation genealogy of content. But there is no requirement that this be norms in general. This opens up the CDRA to criticism that it unacceptably generalises to different plausible genealogies that satisfy all the conditions above. This can be seen by considering the procedure for generating *Discontinuity Arguments*:

The Abstract Discontinuity Argument

1. Assume central assumptions (1) – (5) are true and the structure of the naturalistic saltation genealogy of content.
2. Ask of any step in the diachronic developmental stage **X**: Must this step be describable in terms of **P**?
3. **If so**, then this step would provide no illumination on how **P** emerged since it must be described using **Q** terms due to the irreducibility of **Q** to proto-**Q.**
4. **If not**, then this step would provide no illumination on how **P** emerged since this step is purely describable in terms of proto-**Q**.
5. Iterate steps (1) – (4) until all intermediate steps between **A** & **C** are exhausted.

[398] Ibid., 647.

This forms two classes – one with **Q**, the other without. This introduces a discontinuity due to the absence of a transitional step between these two classes:

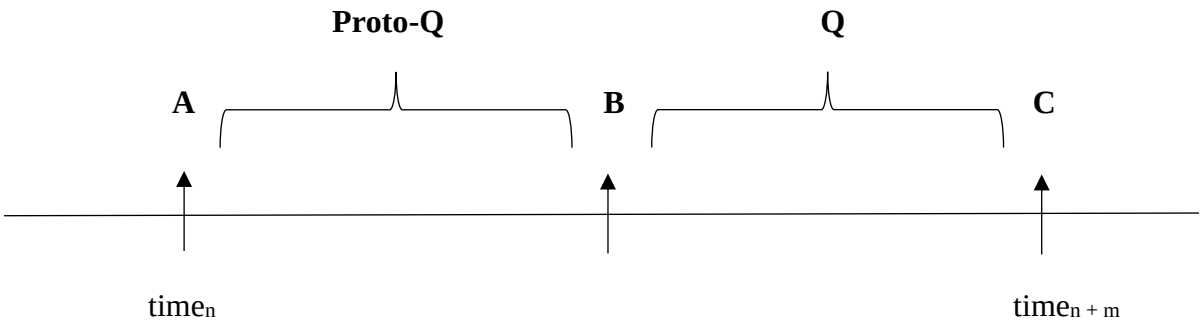

Fig. 5.3

Because the *Discontinuity Argument* applies, not specifically to norms and content, but rather to any explanandum and irreducible property of that explanandum, it could be claimed that this recipe generalises to other sorts of nonreductive diachronic explanations – 'how one learns to ride a bicycle', 'how a young child acquires competence in a language', 'how the human eye evolved', 'how legal facts emerge', 'how consciousness emerges', etc… (I am assuming that there are candidate nonreductive explanations for these features.) But if this recipe does generalise, then surely it would also show that there can be no satisfactory continuous explanation of how these abilities, anatomical parts, social facts, etc. emerged. For example, consider the diachronic explanation involving the process that takes a bucket of red paint to a bucket of orange paint. Here the process would be 'add yellow paint to the bucket'. The explanandum would be orange paint and platform would be red paint which is different in type and irreducible to orange paint. We could fill in the abstract central tenets of saltation genealogies as follows:

1. The explanation should only appeal to *Broad Scientific Naturalism*;
2. The explanation should be diachronic;
3. The orange paint is determined by properties of orange;
4. Orange properties are to be understood as irreducible to non-orange properties, e.g. red properties, yellow properties, etc.;
5. It is possible to nonreductively explain the emergence of orange properties through the process of 'adding yellow paint' to red paint with red properties;
6. The explanation should be, in principle, continuous.

Given this we could raise the following *Discontinuity Argument*:

Discontinuity Argument for the Emergence of Orange Paint

1. Assume central assumptions (1) – (5) are true and the structure of the naturalistic saltation genealogy of orange paint.

2. Ask of any step in the diachronic developmental stage **X**: Must this step be describable in terms of orange paint?
3. **If the answer is 'Yes'**, then this step would provide no illumination on how orange paint emerged since it must be described using orange properties which are irreducibility red properties**;**
4. **If the answer is 'No'**, then this step would provide no illumination on how orange paint emerged since this step is purely describable in terms of non-orange properties;
5. Iterate steps (1) – (4) until all intermediate steps between **A** & **C** are exhausted.

This forms two classes – one with some orange properties, the other without:

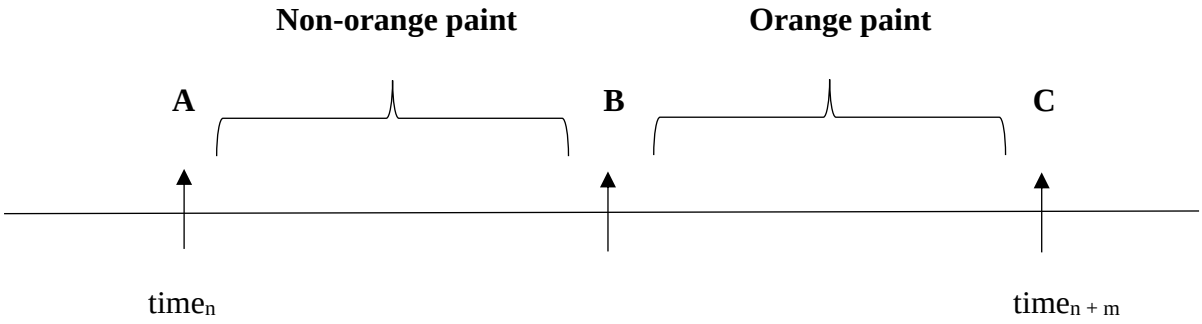

Fig. 5.4

So there is a discontinuity in the explanation. This is just one brief way the procedure could be taken to generalise to other plausible diachronic explanations. But this is absurd since the process of 'adding yellow paint' does take us from a bucket of red paint to a bucket of orange paint.

There are two ways that this absurd result can be interpreted. You can either accept that the generalised *Discontinuity Argument* shows that there is a discontinuity or reject that it does. The latter approach may be motivated on the ground of conservatism, since we already take these other diachronic explanations to be reasonably plausible – e.g. the nonreductive explanation of orange paint. Briefly, because we reject the discontinuity in these explanations, then it follows that there is something wrong with the generalised *Discontinuity Argument*. The example of orange paint makes a good case for this.

The other approach is to accept that the generalised *Discontinuity Argument* shows that there are discontinuities in these other plausible diachronic explanations. Notwithstanding these discontinuities, it could be claimed that the *Discontinuity Argument* only identifies a trivial sort of discontinuity, so it does not show that there is any substantive discontinuity in explanation. The bicycle example above makes a good case for this. While there may be practical limitations for explaining each step involved in learning to ride a bicycle, we are, however, able to supply a plausible naturalistic story by outlining the developmental processes involved in Anna learning this ability. The gap identified by partitioning all steps into either an ability or inability to ride a bicycle seems to merely be the product of using these words – i.e. 'ability' and 'inability' – to create an arbitrary *thin end of the wedge*

linguistic discontinuity. This is clearly a discontinuity that is not relevant to the explanation of the emergence of Anna's ability to ride a bicycle.

Fortunately, I contest that the *Discontinuity Argument* does not generalise easily to what the scientific community considers plausible explanations. It only to applies to diachronic explanations that are given a nonreductive interpretation, addressing an explanandum with some irreducible property constituting it that satisfies the Dependency and Autonomy Criteria of Strong Emergentism. In our case, the *Discontinuity Argument* applies to the saltation genealogy of content because it assumes that normativity is essential to determining content and also irreducible to the nonnormative. This means that the contentful items are of a wholly different kind to proto-contentful items. The former is constituted by a new and irreducible kind of fact. By contrast, the diachronic explanation of how Anna learns to ride a bicycle does not require any commitment to the ability being irreducible to biological facts. Furthermore, the bicycle riding ability does not require the emergence of a new kind of fact; it is entirely explicable in terms of Anna's biology, psychology, training, and practice.

But what of the example of orange paint? Orange paint is clearly different in type to red paint. It does not seem uncontroversial that this is due to some properties that orange paint has, that red paint lacks. Furthermore, it does not seem unreasonable that the explanation can be seen as nonreductive; the process 'adding yellow paint' does not require any step of reduction. In fact, it adds something new into the mix analogous to Sultanescu's requirement that contentfulness requires the acquisition of a new kind of fact.[399] But then it is absurd to claim that this explanation is discontinuous. Therefore, there must be something wrong with the procedure for constructing *Discontinuity Arguments*.

I do agree that merely 'adding yellow paint' does not patently have to involve reduction. In fact, I do not think that 'adding yellow paint' is a discontinuous process *per se*. However, when this process is added to the model that attempts to explain how orange paint emerged, then the process model would need to supply some indication of how the addition of yellow paint to red paint results in orange paint. This would be required in order to give a complete explanation. One answer would involve the reduction of orange paint properties to *combinations of red paint and yellow paint properties*. Here with every addition of yellow paint to red paint, combinations of yellow and red paint would form. This would simply be the same as saying orange paint. If we continue to add yellow paint, eventually the bucket of red paint will change in hue as a result of the bucket becoming saturated with combinations of yellow and red paint with the uncombined red paint. The bucket of paint can be considered entirely orange once there is no remaining uncombined red paint. Viz., the bucket of orange paint is just the bucket of combined yellow and red paint. In this case, the process is nonreductive, but the explanation that incorporates the process already assumes that orange paint is reducible to *combinations of red and yellow paint*. The process of 'adding yellow paint' is continuous, but only because the genealogy it is part of clearly involves reduction. In

[399] Ibid., 647.

other words, there is no absence of intermediate steps that explain the transition because of the explanatory resource of reduction.[400]

How would the process of 'adding yellow paint' be understood when it is incorporated in a model involving no reduction in the explanation from properties of orange paint to non-orange properties? This process could not work on the prior reduction of orange paint properties to *combinations of red paint and yellow paint properties*. For the explanation to be analogous, the properties of orange would have to be strongly emergent properties that are distinct and irreducible to non-orange properties. But now in this process model, 'adding yellow paint' to the bucket of red paint can entail predictions where there will be orange paint exhibiting orange properties. The process model can also entail predictions where there will be *combinations of red paint and yellow paint*. This would be the same as non-orange paint exhibiting non-orange properties. However, it doesn't matter where in the process model of 'adding yellow paint' to red paint we draw out a prediction; we will just get more predictions of *combinations of red paint and yellow paint*.

This is where I bite the bullet and say that there is a *prima facie* discontinuity in this explanation. It is discontinuous because there is a lack of explanatory resources, i.e. vocabulary, for describing the transition from *combinations of red and yellow paint properties* to orange paint properties. Again, this does not mean that the process of 'adding yellow paint' would be discontinuous. Rather, it would be the explanation of which it is a part of that is discontinuous – the process itself would continuously describe everything on the one side of the gap and likewise on the other.

In summary, this procedure for generating *Discontinuity Arguments* only generalises if the different model accepts the Autonomy and Dependency criteria and are Strongly Emergentist. Of course, motivating that there are no unacceptable generalisations will be a large undertaking in its own right. I do not have a general argument that is able to show how this will never lead to unacceptable generalisations, so I do recognise the *Generality Objection* as a significant and unresolved weakness. My only solution is to approach it in a piecemeal manner, by considering claimed instances of unacceptable generalisations and responding to them. Ambitiously, I would like to say that:

> 'Give me your *naturalistic saltation genealogy of X* and I will tease out why it should be seen as *prima facie* discontinuous or involves an implicit commitment to reductionism or non-naturalistic explanation.'

5.5 The Reconceptualised Definition of Continuity Objection

So far, we have discussed indirect objections to the *Discontinuity Argument*. They are indirect insofar as they only aim to undermine the *Discontinuity Argument's* force. The

[400] This interpretation is similar to CIC, since orange paint is always present when there are combinations of yellow and red paint, because it is identical to these combinations. Importantly, if the process of 'adding yellow paint' involves this reduction, then this *Discontinuity Argument* would no longer apply to it. This would be a product of the 'yes' and 'no' option no longer applying.

Philosophical v. Scientific Discontinuity Objection aims to show that the *Discontinuity Argument* only identifies 'philosophical' discontinuities, and the only relevant sort of discontinuity would be a scientific one. The *Approximation Objection* aims to show that while there may be a discontinuity, this is insufficient to show that the explanation is discontinuous since we may still be satisfied with an approximate explanation of the transition. Finally, the *Generality Objection* aims to show that discontinuity identified either shows that there is something deeply flawed in the structure of the *Discontinuity Argument* or that its structure is fine, but only identifies trivial discontinuities.[401]

By contrast, direct responses take the discontinuity identified as substantive. Because of this they aim to show how the *Discontinuity Argument* can be avoided. There are two direct responses to the *Discontinuity Argument*. The first direct response attempts to show that the *Discontinuity Argument* only establishes a *prima facie* discontinuity, one which dissolves once a further continuity explanation is raised.[402] The second direct response is to take issue with the definition of continuity found in the central tenets. This response involves an insistence on the fact that all there is to the explanation of the emergence of a normative system from a proto-normative system is the naturalistically respectable story told in the diachronic developmental stage. There are no specific intermediary steps required to explain the transition from the proto-normative steps to the subsequent normative steps. In effect, this is not so much of an objection than it is a reconceptualization of the way we should understand continuity for saltation genealogies of content. This objection will be my focus for the rest of this section. But before, I discuss the details, let me frame it with reference to Zeno's Arrow Paradox.

5.5.1 Zeno's Arrow Paradox

As mentioned, part of the inspiration for the *Discontinuity Argument* derives from Davidson; the other part comes from Zeno's paradoxes. The formulation of Zeno's Arrow Paradox is most like the *Discontinuity Argument*, so this is partly the reason for discussing it. The other reason is that there is a curious response to Zeno's Arrow Paradox that shares commonalties with the second direct response to the *Discontinuity Argument* mentioned above. If these arguments are suitably analogous, then this may show that the response to Zeno's paradox will also apply *mutatis mutandis* to the *Discontinuity Argument.* If they are not analogous, then this discussion will at least serve as an illustrative device in explaining the response to the *Discontinuity Argument*. Aristotle put his Zeno's Arrow Paradox in the following succinct manner:

> "The third is … that the flying arrow is at rest, which result follows from the assumption that time is composed of moments …. he says that if everything when it

[401] The *Philosophical v. Scientific Discontinuity Objection* is actually a rendition of the second disjunct of this dilemma.
[402] This objection will not be discussed further since it sets off the regress of continuity explanations and complementary *Discontinuity Arguments* discussed in Ch. 4.

> occupies an equal space is at rest, and if that which is in locomotion is always in a now, the flying arrow is therefore motionless."[403]

This argument aims to show that motion for any object is impossible. It begins with two assumptions, first, that time is composed of instants, where these are to be understood as points on a timeline. Second, that any object in motion, taken at any instant in time will travel no distance. This is taken to show that an object at any instant is at rest (or motionless). Now consider an arrow which is released from a bow and hits its target soon after. The interval of time when the arrow is in motion must be understood as comprised of series of instants. However, each of these arrow instants are instants where the arrow is covers no distance, by assumption, so is at rest. Hence there is no point at which the arrow moves. This argument can be applied *mutatis mutandis* for any other moving object, provided the two assumptions above are met.

There are numerous ways to respond, but I will only consider one here. The response does not deny either assumption made by Zeno. Rather, it attempts to show that we should reconceptualise how we conceive of motion. This can be motivated by asking how we determine the velocity[404] of the arrow over some finite interval; this is given by the function of dividing the distance travelled by the time the arrow took to cover this distance.[405] Given this, Zeno's notion of an 'instant being at rest' can be called into question. If any instant is a point in time, it will have no duration i.e. 0 time. Furthermore, there will be no distance covered at this point in time, i.e. 0 distance. But this means that, at an instant, the velocity of the arrow is undefined according to the function – 0/0 m/s is not defined in the function that gives us velocity. So it would be mistaken to draw out the conclusion that an object does not have any velocity at an instant in time.[406]

How are we then to understand the velocity of the arrow at an instant? Firstly, what this function tells us is that the primary way of understanding the velocity of the arrow is in terms of some distance taken over some finite non-zero interval of time. And so, if we want to understand the velocity of the arrow at an instant, we should try to understand it relative to the interval of time it is a part of. Abstractly put, the velocity at a point in time should be understood in terms of the limit of the velocity of converging intervals of time.[407, 408] Simply put, the velocity at a point in time is the limit of change in the object's position over increasingly small durations of that time. Secondly, this means that the notion of velocity at an instant is derivative from the notion of velocity taken over intervals of time, albeit 'infinitesimal' intervals. Therefore, velocity at an instant is relationally defined in the afore mentioned manner and is not intrinsic to the instant of time. In this sense, strictly speaking

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[403] Aristotle, "Physics," In *The Complete Works of Aristotle*, edited by J. Barnes, translated by W. D. Ross (Princeton: Princeton University Press, 1984), 239b30.
[404] I am using 'velocity' as a surrogate term for motion here.
[405] Nick Huggett, *Zeno's Paradoxes,* edited by Edward N. Zalta, Winter 2019 Edition, <https://plato.stanford.edu/archives/win2019/entries/paradox-zeno/>.
(Huggett Winter 2019 Edition)
[406] Ibid.
[407] Frank Arntzenius, "Are there really instantaneous velocities?" *The Monist* 83, no. 2 (2000): 192.
[408] The notion of 'limit of the velocity of converging intervals of time' should be understood in terms of some arbitrarily small value $\delta \in R$ s.t. for all elements x of the open interval (a, b), $0 < |x - t| < \delta$.

there is no such thing as velocity at a point in time, that is, taken in isolation of the velocity of intervals of that time tending to zero.

Generally, the response is that motion/velocity should be reconceptualised as occurring over finite periods of time.[409] But why accept this? There are two important points to note. Firstly, things do move over time, so there is an incentive for finding an alternative account of motion in order to avoid a skeptical scenario. Secondly, it seems reasonable to accept that time is composed of instants and no distance is covered at an instant. By accepting these points, then it becomes clear that the motion of an object can only be understood in terms occupying different intermediate instants in the series of time as it changes position from point A at t_1 to point B at t_2.[410] So the order of explanation has been reversed. This leaves the potentially unintuitive result that a moving object at an instant still covers no distance, but this is not something that I will address.[411] The point that I simply want to make here is that there is an adequate response to Zeno's Arrow Paradox involving a reversal of the order of explanation.[412]

5.5.2 An Analogous Response to the CDRA

The analogous response is targeted at the *Discontinuity Argument* element of the CDRA. As mentioned, this involves a reconceptualization of continuity for a saltation genealogy. To make this clear, I will first discuss how Zeno's Arrow Paradox is analogous to the *Discontinuity Argument*. Then I will demonstrate how an analogous response, to that raised against Zeno's paradox, can also be raised in response to the *Discontinuity Argument.* And just as the response to Zeno's paradox involves a reconceptualization of how we should understand motion, so analogously does this response require a reconceptualization of the notion of continuity.

The *Discontinuity Argument* is similar to Zeno's Arrow Paradox, in the manner it attempts to explain the impossibility of motion. To summarise, Zeno's paradox assumes that time is composed of instants and that an object travels no distance at any instant. This is taken to show that an object at an instant is motionless which is then used to show the object taken over an interval of time must be motionless too. Analogously, the *Discontinuity Argument* starts with a notion of diachronic explanation as comprised of steps that are connected in some relation of being explicable in terms of former steps. It then shows that each of these steps can be separated into one of two classes – those which already involve the explanandum and those which do not. Therefore, there are no steps left that can explain the transition between these two classes. So there is a discontinuity in the diachronic explanation due to the

[409] Nick Huggett, *Zeno's Paradoxes.*
[410] Ibid.
[411] For more details on the problems befalling the "at-at" theory of motion see: Frank Arntzenius, "Are there really instantaneous velocities?" 189-196.
[412] A point could also be made that the motivations considered here for changing to the "at-at" theory of time involve no naturalistic motivations. Viz., if we want to consider how motion is meant to be understood, then we should simply look to the scientific community's manner of conceptualising motion, not armchair theorising. I agree with this point. However, the only reason why I raise this response is to introduce the reconceptualised definition of continuity.

fact that there are no intermediate steps that explain the transition, i.e. a subsequent describable step explicable in relation to the former.

These two arguments are analogous in the following ways:

(1) Zeno's paradox begins with the assumption that 'time is composed of instants' and analogously the *Discontinuity Argument* begins with the assumption that 'a diachronic explanation is composed of steps in explanation'.
(2) The paradox claims that an object at an 'instant is motionless' and analogously the *Discontinuity Argument* claims that 'no intermediate step can provide an explanation' of the transition between the two classes formed.
(3) The paradox concludes that 'motion over time' is impossible and analogously the *Discontinuity Argument* concludes that 'continuity for the diachronic explanation' is impossible.

To make the analogy even sharper, consider the following *Discontinuity Argument* for Zeno's Arrow Paradox:

1. Assume central assumptions of Zeno's paradox regarding time and distance at an instant.
2. Ask of any 'instant' in the trajectory of the object **X**: Must the object be described as being in motion?
3. **If so**, then this 'instant' would not be an instant, since by assumption, an object at an instant covers no distance or time and is therefore motionless. So all 'instants' that are in motion cannot help explain the motion of the object – it begs the question.
4. **If not**, then this instant could not possibly help explain how the object is in motion over time.
5. Iterate steps (1) – (4) until all intermediate 'instants' between **A** & **C** are exhausted.

What we are left with are two classes of 'instants' – those that are not instants, so cannot explain how the arrow moves over time and those that are instants, therefore motionless, so cannot explain how the arrow moves over time. Because there is no third class of 'instants' that are instants and in motion, then then motion over time is impossible for any object that covers some distance over time.

The response to the *Discontinuity Argument* has a similar flavour to that of Zeno's Arrow Paradox. We should reconceptualise our notion of continuity by changing the order of explanation. Rather than trying to explain the continuity of a saltation genealogy in terms of steps that are describable and explicable in terms of former steps, we should try to explain continuity in terms of some interval of explanation which these steps form a part. So the processes in the diachronic developmental stage **X** continuously explain the transition from **A** to **C**, not in terms of some intermediate steps that explain the transition, but simply in terms of these processes, taken as diachronic explanations, acting on the creatures at **A** to give us **C**. If an intermediate step in the process is to be considered as part of this continuous

explanation, then it is so only relative to being part of the continuous diachronic explanation that takes us from **A** to **C**.[413]

5.5.3 The Reconceptualised Definition of Continuity

What I have discussed so far involves showing that we can provide an analogous response to the *Discontinuity Argument* by reconceptualising continuity. This was motivated on two fronts. Firstly, by the analogy between Zeno's Arrow Paradox and the *Discontinuity Argument* and the reconceptualised responses to each. Secondly, by the need to avoid skeptical scenarios, i.e. there is no motion and there is a discontinuity in explanation. Both motivational fronts are required to instate the reconceptualised definition of continuity as a plausible response to the *Discontinuity Argument*. However, while I do think the analogy broadly holds, I do not think that the need for a reconceptualized definition of continuity can be motivated on the grounds that the *Discontinuity Argument* leads to an unintuitive outcome. So in this section I start by elaborating on why I think this need for reconceptualization is not necessarily permitted in case of continuity, therefore, the analogous response is not successful against the *Discontinuity Argument*.[414] I will follow this up by formalising the reconceptualised definition of continuity and then propose why I think it is not permitted in general.

The first point to discuss is the nature of the analogy between Zeno's Arrow Paradox and the *Discontinuity Argument*. While I think these are similar in several respects, their methodological basis differs in a significant way. Because of this, I don't think there is an analogous response permitted for the *Discontinuity Argument.* The key difference is that Zeno's paradox deals with metaphysical questions about motion, time and distance. Certain metaphysical assumptions are made, and then these are used to demonstrate that there is a paradox, or a need for a reconceptualization of motion. By contrast, the *Discontinuity Argument* deals with basic conditions required for naturalistic explanation, viz., it broadly deals with meta-epistemological issues. How is this relevant in the case we want to reconceptualize? Well, in Zeno's Arrow Paradox we are forced to either accept a paradox or a reconceptualization of motion, provided we hold onto Zeno's basic assumption about time and distance. But this is only forced on us in the context of doing esoteric metaphysics, i.e. armchair theorising. In the case of the *Discontinuity Argument*, we are also thrust into a decision between no possibility of a continuous explanation or a reconceptualization. But they differ in virtue of the following question:

> "How does this process, taken over an interval of time, explain the transition from **A** to **C** without appeal to intermediate transitionary steps?"

[413] There is an interesting consequence though. If one accepts this view of continuity, then one will also have to accept that while there is a continuous explanation, there are no steps, taken in isolation, that can explain the transition from **A** to **C**. It is possible to have a continuous explanation without any intermediate steps. But there is no problem with this, so long as you think there is no issue in accepting the analogous result derived from the reconceptualization of motion for Zeno's paradox.

[414] This does not mean that the reconceptualised definition of continuity is not correct – it just does not follow from analogous need to avoid unintuitive outcomes.

This is a meta-epistemological question on whether the naturalistic diachronic process, taken as a whole, is necessary and sufficient for continuity. It is a perfectly reasonable question and requires an illuminating naturalistic answer. An analogous illuminating answer is not available for the reconceptualization of motion in the context of esoteric metaphysics. Motion is just defined that way, because, if it were not, then this would lead to a paradox. Any question regarding why it is sufficient for motion will be met with the dull reassertion of the definition or a demonstration of why the alternatives do not account for our intuitions about motion. To put this slightly differently, the question of what is sufficient for continuity requires a naturalistic explanation, while the answer to what is sufficient for motion simply involves the definition of the motion of an object.[415]

The point being made is that one's view of continuity cannot boil down to a mere difference in stance – i.e., a difference in attitude on how one should approach diachronic explanations – or a difference in axiomatic theoretical commitments. The nature of continuity in naturalistic explanation is something that requires illumination from examining how the scientific community conceive of these explanations. It is not a question to be decided by one's intuitions and basic commitments, as is found in the practice of esoteric metaphysics. This is why the analogous response to the *Discontinuity Argument* fails. One cannot simply hold an alternative account of continuity, because this does not lead to unintuitive outcomes. The correct account of continuity needs to be seen as exhibited in the practice of the 'successful sciences'.

My broader contention is that the question above cannot be answered in an illuminating naturalistic manner or without appeal to the previous definition of continuity. If one appeals to any step, even if it is a sub-interval, in explaining how this process explains the transition, then this would hark back to the other definition of continuity. It would be to take a describable step as basic in explaining how the process is a continuous explanation. So how does one directly answer this question in a naturalistically respectable manner, without appeal to intermediate steps? Presumably, this could be done by highlighting some feature that the process, taken over time, accomplishes. But I do not think that this is how the scientific community views these processes. Before motivating why this reconceptualization of continuity is not used by the scientific community, let me formalise what I have been saying so far.

There are two broad accounts of continuity for saltation genealogies of content, given the tripartite structure of naturalistic genealogies. One defines continuity in terms of intermediate steps that are describable and explicable in terms of former intermediate steps. The other definition of continuity is a reconceptualization of the former. It claims that we should try to explain continuity in terms of some 'interval of explanation', i.e. a process, which these intermediate steps form a part. The two definitions of continuity can be formalised as:

> **Continuous Diachronic Explanation**: (1) it is possible for there to be describable intermediate steps that do not beg the question by assuming intentional items, and (2)

[415] For example, motion can only be understood in terms occupying different intermediate instants in the series of time as it changes position from point A at t_1 to point B at t_2. Nick Huggett, *Zeno's Paradoxes.*

that for any describable intermediate step, there will be a subsequent describable step explicable in relation to the former.

Reconceptualised Continuous Diachronic Explanation: (1) it is possible for there to be a describable process taken over an interval of explanation that does not beg the question by assuming intentional items, and (2) the describable process taken over an interval of explanation acts on **A** to give us **C**.

From this we can contrast the two definitions of continuity by considering their second conditions. The former definition of continuity requires that any relevant intermediate step has a subsequent step which is explicable in relation to the former. The process is continuous as a product of the relations between these steps. The latter definition of continuity requires that the relevant intermediate steps can confirm the process. However, the process is meant to be understood as continuous *simpliciter*, provided it can be confirmed by the relevant intermediate steps. In this case, the continuity is not derivative from the relations between the intermediate steps, but rather, it is a property that the process has if the relevant intermediate steps can confirm it. On this definition of continuity, whether or not the relevant intermediate steps are explicable in relation to their former steps is irrelevant to assessing whether the explanation is continuous. All that matters is whether the relevant intermediate steps can, in principle, confirm the process; it is the process, taken over an interval of time, which confers the property of continuity on the diachronic explanation, hence explaining the transition from **A** to **C**.

For example, Hutto and Satne claim that a non-gappy explanation of the emergence of content in terms of a normative socio-cultural practice is possible, so long as there is nothing mysterious about the processes of social conformism and cultural evolution.[416] But now we can ask, what is it about these processes that facilitate the emergence of socio-cultural practices? Their answer is that cultural evolution and social conformism are the processes that explain how normative socio-cultural practices emerged over time, independent of any transitionary intermediate steps; they explain the emergence of normative socio-cultural practice taken over an interval in time. [417]

By using this reconceptualised definition of continuity, they are able to hold that a *Discontinuity Argument* successfully argues for a discontinuity, but deny that it is relevant when assessing whether the processes of cultural evolution and social conformism supply a continuous explanation. We know that these naturalistically respectable processes act on the platform in the explanans and, over time, will result in a state-of-affairs that we call the explanandum. Hutto & Satne do not need to endlessly consider contrived discontinuities, that locate missing intermediate steps, since it is not the intermediate steps that make the process continuous. The process itself is continuous and applying this over time will result in states-of-affairs that we need no further justification for being the explanandum.

[416] Daniel D. Hutto, and Glenda Satne, "Continuity scepticism in doubt: A radically enactive take," 23.
[417] Daniel D. Hutto, and Glenda Satne, "The natural origins of content," 527.

5.5.4 How the Reconceptualised Definition of Continuity Fails

Having outlined how this reconceptualization avoids the force of the *Discontinuity Argument*, I will now focus on my objection to it. Abstractly, the objection begins by asking the following question:

δ 'How does this process, taken over an interval of time, explain the transition from **A** to **C**?'

This is to ask for what is necessary and sufficient for continuity. The reason why it is not patently necessary is because both the definitions of continuity agree that it is sufficient for scientific processes to be continuous if they are confirmed by intermediate steps (as predictions). However, they disagree on what confers the property of continuity on the process. The latter is to ask what is necessary for continuity in explanation. There are two possible answers:

(1) It does so in virtue of describable intermediate steps being explicable in relation to former describable steps.
(2) It does so in virtue of the properties the process, taken over an interval of time.

The first answer is clearly unacceptable for the reconceptualised definition of continuity – discussed before. I would like to suggest that the second answer is also unacceptable because this is not how modelling processes are used by the scientific community. This is not to claim that the reconceptualised definition of continuity is false in general, rather it is to show that it cannot be necessary by the standards of the scientific community.

To see what is necessary for a definition of continuity to capture, consider the question ***δ***. What is essential to capture is how the scientific community can view processes as discontinuous in a particular context of explanation[418]. The notion of 'processes' that I am interested in are not processes understood as objects the model is about, rather they should be understood as the model itself – i.e. processes *qua* models or process models. There are several names for this understanding of processes in the sciences e.g. models, pathways, recipes, mechanisms and trajectories. Some examples would be photosynthesis, ketogenesis, evolution by natural selection, the hypothetical learning trajectory of number sense, anaerobic respiration, glycolysis, Krebs cycle, etc…

My contention is that all of these processes need to be understood in terms of certain intermediate steps and the manner in which they are 'linked'. If the processes are not considered with reference to these 'linked' intermediate steps, then it simply isn't a process in the sense that the scientific community understands it. This is to directly show that my definition continuity is necessary and sufficient for continuity in explanation, and that makes the reconceptualised definition of continuity inappropriate. If the process can be confirmed by the relevant intermediate steps, then the process just is, in principle, continuous. If it cannot be confirmed by the relevant intermediate steps, then it simply does not apply in that

[418] By particular 'context of explanation' I mean that the process must be understood with reference to the particular target it is modelling. It should not be considered in abstraction of the particular target it is meant to explain.

context – it is not considered as discontinuous. (In this case, the process would be considered, in principle, continuous, but unable to actually explain the transition from **A** to **C**.) But if the notion of a process, taken over an interval of time, cannot be considered discontinuous, then assessments of continuity that the reconceptualised definition of continuity issues cannot hold weight.

Example – The Evolution of Flight in Bats

Before I discuss the evolution of bat flight, let me return to the recipe of evolution by natural selection provided by Lewontin – i.e. variation, heritability & differential fitness is necessary and sufficient for evolution by natural selection. Though he does write that a "sufficient mechanism for evolution by natural selection" is found in this recipe, what I think this recipe outlines, are ingredients that all processes of evolution by natural selection should share.[419] Because of this, the recipe is better understood as theory[420] that is incorporated in an evolutionary model, rather than a model itself. Let me explain this by reference to Godfrey-Smith.

Godfrey-Smith points out that these recipes face problems since they aim to accomplish two tasks: (1) they aim to describe all the cases of evolution by natural selection, and (2) they aim to describe an abstract mechanism that all these cases share.[421] In other words, the recipes aim to provide both (1) accurate descriptions of the particular cases of change by evolution, by avoiding idealisation at the cost of not abstractly being able to describe the necessary and sufficient conditions for change, and (2) conditions that are necessary and sufficient for change, by idealising away from the relevant details of particular cases.[422] Whether or not one thinks it is possible to supply a recipe that describes both tasks, it is important to note that these are different tasks. I am not interested in processes that necessarily describe the conditions for something being an instance of evolution by natural selection; rather I am interested in the task of supplying conditions that will result in evolution by natural selection (assuming that we know what it is). This corresponds to the first task and is to describe an accurate model of particular cases and how they result in change.

With that clarified, I would like to motivate why supplying a process model of evolution by natural selection does not involve simply observing that the process, as a whole, takes us from the platform to the explanandum. When we consider particular cases of evolution by natural selection, such as the evolution of flight in bats, then we will need to factor in a variety features in our model as time passes. Let me motivate this by considering the evolution of powered flight in bats (chiropterans). The trait of flight in bats is complex and requires several sequences of elements in a diachronic story. This is a long and complicated process, so I will only consider general parts of the overall model. In the evolutionary explanation of powered flight in bats, there are three features that are considered to be inherently linked:

[419] R. C. Lewontin, "Adaptation," 76.
[420] This notion of 'theory' will be discussed below.
[421] Peter Godfrey-Smith, *Darwinian populations and natural selection*, 20.
[422] Ibid., 174.

(1) Skeletal morphology and their unique aerodynamic mechanics;

(2) Metabolic requirements for flight, and

(3) Echolocation.[423]

On the first feature, bats are the only extant mammal capable of flight which requires a unique skeletal structures quite different from birds (the only other extant vertebrates capable of flight); furthermore, their powered flight involves aerodynamics that are quite different from that found in birds.[424] This can be seen by observing how the bat wing (i.e. patagium) function, due to it being formed by the dactylopatagium – the portion of skin membrane between fingers of the patagium.[425] On the second feature, this involves the observation that powered flight is metabolically taxing, which requires an explanation of how and why bats developed their unique morphology to aid in this development. The last feature is that bats exhibit a very sophisticated ability for echolocation which requires specific morphological structures. Furthermore, they are the only creatures capable of laryngeal echolocation in concert with powered flight, which, for reasons I will not explore, links these abilities in supplying an evolutionary story of how flight emerged.[426] Importantly, the differing abilities for echolocation in bats is used to taxonomize the phylogenetic groups of bats. Consider:

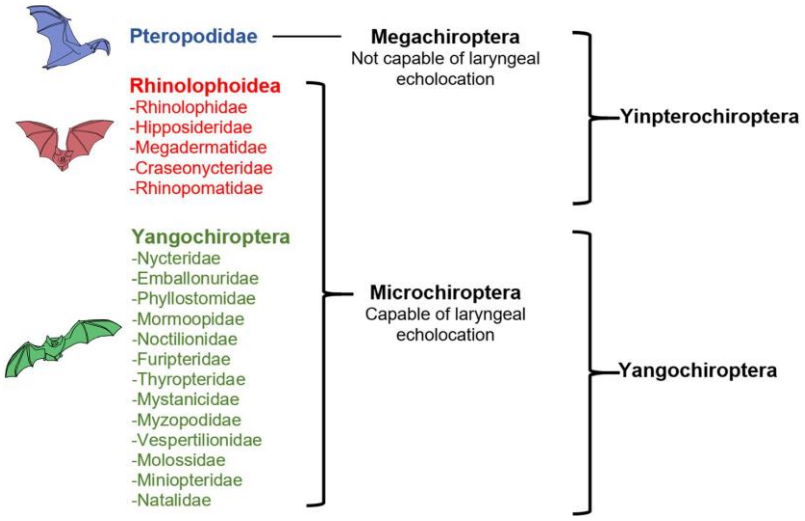

Fig. 5.8[427]
(The phylogenetic grouping of chiropterans)

[423] Sophia C. Anderson, and D. Ruxton Graeme, "The evolution of flight in bats: a novel hypothesis." *Mammal Review* 50, no. 4 (2022): 428-430.
[424] Ibid., 428-429.
[425] Ibid., 428.
[426] Ibid., 427-429.
[427] Ibid., 427.

There are a variety of hypotheses for how the ability of powered flight emerged, so I will briefly mention a few and provide one as an illustration. Firstly, there is the "Gliding Model" which claims that powered flight emerged from ancestors capable of gliding.[428] This is an important intermediate step in the evolution of flight, which itself is comprised of three linked intermediate steps that each require explication:

(1) the gliding stage involving an ancestral patagium which was followed by;

(2) the flapping and gliding stage involving the development of the dactylopatagium, which was followed by;

(3) only flapping and the complete abandonment of gliding.[429]

However, there is still an open question: What developed first, flight or echolocation? To answer this question is to add to the Gliding Model, either by echolocation being prior to the ability to glide, only prior to the development of the dactylopatagium or post the ability to fly. There are three traditional hypotheses:

(1) Echolocation-first Hypothesis;

(2) Flight-first hypothesis, or

(3) The Tandem Development Hypothesis (of flight and echolocation).[430]

I will not supply further explanation of these besides mentioning that each of these hypotheses aim to explain how Pteropodidae, Yangochiroptera and Rhinolophoidea evolved their ability of powered flight and echolocation from a common ancestor having a dactylopatagium wing arrangement. Crucially, there is no consensus on which of these hypotheses is correct. Nonetheless, each aims to describe a sequence of events that resulted in powered flight in combination with bats' specialised ability to echolocate. They can be seen to provide surrogate predictions about the evolution of powered flight.

Now there is a fourth illuminating hypothesis that I will consider – The Interdigital Webbing Hypothesis. Firstly, this hypothesis rejects the Gliding Model with regards to a common ancestor of bats which had a dactylopatagium; rather it thinks of the common ancestor as having interdigital webbing.[431] Secondly, this common ancestor would be nocturnal and capable of using ultrasonic communicative signals.[432] Thirdly, it aims to explain how the abilities of powered flight and echolocation of Pteropodidae, Yangochiroptera and Rhinolophoidea involved independent evolutionary developments from interdigital webbing ancestor.[433] This means that each of these three phyla would have to independently develop

[428] Ibid., 430.
[429] Ibid., 430.
[430] For more details on these hypotheses see: Ibid., 430-432.
[431] Ibid., 433.
[432] Ibid., 433.
[433] Ibid., 433.

their dactylopatagium from interdigital webbing through parallel trajectories resulting in convergent evolution. This hypothesis can be diagrammatically present as follows:

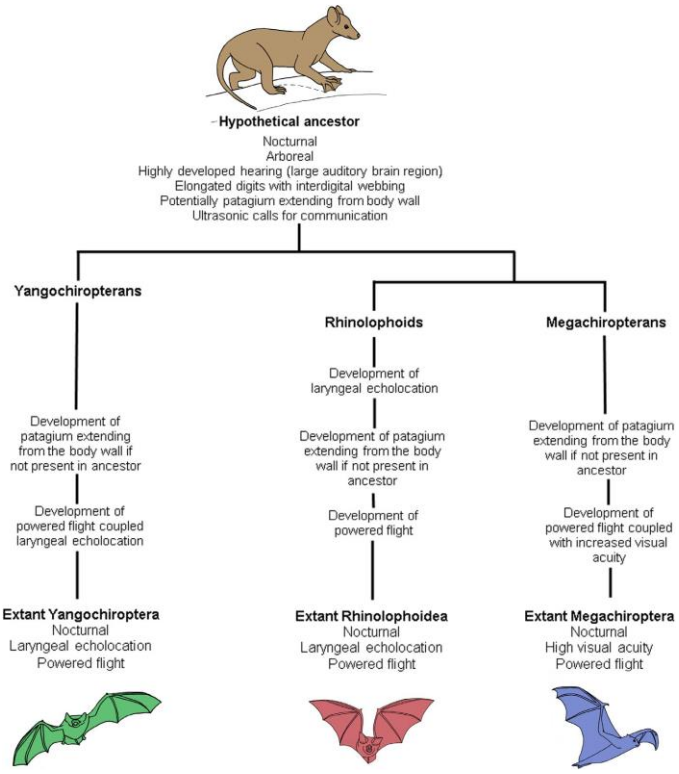

Fig. 5.9[434]
(The Interdigital Webbing Hypothesis of the independent evolutionary trajectories)

At this point I would like to draw out some observations from the discussion above and using the diagrammatic model process. The Interdigital Webbing Hypothesis, as presented above is an evolutionary process model. It involves several predictions which are 'linked' in virtue of proposed developments between them. Each of these predictions are indispensable for telling a complete evolutionary story from a flightless common ancestor to the flight of bats. It is not enough to point out that the three ingredients of evolution by natural selection apply to the hypothetical ancestor, since as development occurs this will result in different environmental pressures.

This point can be clearly seen in the differences between the traditional hypotheses and the further difference between them and the Interdigital Webbing hypothesis. All of these hypotheses aim to explain the flight of bats through similar developments and features, e.g. the development to the dactylopatagium, the shift from gliding to flapping, the importance of echolocation for explaining the powered flight of bats, etc… However, the hypotheses provide very different stories of how these stages are meant to be sequenced. In my terminology, they provide a different organisation of intermediate steps and how they are 'linked'. Most importantly, there is no evolutionary process model of the powered flight of bats from some hypothetical ancestor in absence of the sequenced indispensable predictions.

[434] Ibid., 435.

Since all the models discussed aim to accurately describe how the evolution of the flight of bats occurred, then I take it that they all aim to describe the same process of evolution by natural selection (in the world) that acts on these creatures. None of these models dispute that the trait has evolved, but they nonetheless describe the process of evolution as occurring in radically different ways in the world. Because of this, they cannot all be continuous explanations. If it is found that echolocation occurs before flight, then this would show that models involving the Flight-first Hypothesis are not empirically adequate. They would be considered empirically inadequate in virtue of the sequence of predictions they provide involving a gap in explanation. This gap would be the transition from, for example, 'bat' gliding to 'bat' flapping and gliding, since the transition already requires echolocation to be in place, by prior scientific evidence. In my terminology, these models would be discontinuous owing to the gap in transitionary intermediate steps.

Does this not show that the explanation the model supplies is simply wrong, not that it is discontinuous? This is to point out that it isn't really a failure of continuity, rather it is a failure of explanation. While it certainly is a failure in explanation of the model, there are several reasons why an explanation can be wrong. It could be due to internal incoherence, contradiction, empirical inadequacy, etc… Models involving the Flight-first Hypothesis are not incoherent or contradictory, nonetheless, they can be empirically inadequate in virtue of one prediction not leading to another in the diachronic explanation. Therefore, this illustrative model that aims to describe the transition between the hypothetical ancestor and the powered flight of bats is discontinuous.

The reconceptualised definition of continuity does not seem capable of capturing what is necessary for continuity. To see this, grant that it is confirmed that echolocation is prior to the ability to fly. This would mean that the Flight-first Hypothesis within the Gliding Model is empirically inadequate or discontinuous. But without considering the sequence of predictions and the fact that they cannot explain how flapping emerged from gliding, then it could not claim that the explanation is empirically inadequate or discontinuous. This ends my discussion of the example. What I have tried to do is show that the empirical adequacy of process models discussed is nothing over and above the sequence of intermediate steps and the manner in which they are linked. Of course, what I have claim needn't generalised to all process models, so this is what I will attempt to motivate.

A good place to start is with my earlier claim that the recipes of evolution by natural selection are better seen as theory rather than models *simpliciter*. So what is theory? As I would like to understand theory, it is a collection of: (1) general commitments about what is being studied, e.g. an abstract description of what evolution is; (2) the primary objects of study, e.g. variation, heredity, differential fitness, reproducibility, survivability, populations, etc…; (3) the resources from which models can be constructed, e.g. the primary objects mentioned will be used in creating a representation of a particular evolutionary case; (4) the scope of the research programme as embodied or outlined by *focus*, *orientation* and *aim* of research

questions[435], e.g. an evolutionary psychologist holding to methodological adaptionism will inquire what the biological function of a particular trait is, by seeking to explain why the trait is adaptive; (5) the methods and conceptual tools used to make general statements, e.g. systems of reasoning and mathematics.[436] Further details and clarifications could be added, but I will stop here since my interest is in distinguishing modelling from theory.

In contrast to theory, models aim to create a representation of some target system by drawing from the resources of theory. Most importantly, they are used to make predictions and test the commitments of theory.[437] This allows for the construction of experiments which can evaluate the accuracy of the model (and also test the commitments of the theory).[438] Basically, experiments, which are constructed in response to predictions, are what confirmationally relate the model to the target. This gives us the three elements of a scientific study: (1) theory, (2) models (3) experiments.[439] The relationships can be diagrammatically represented as follows:

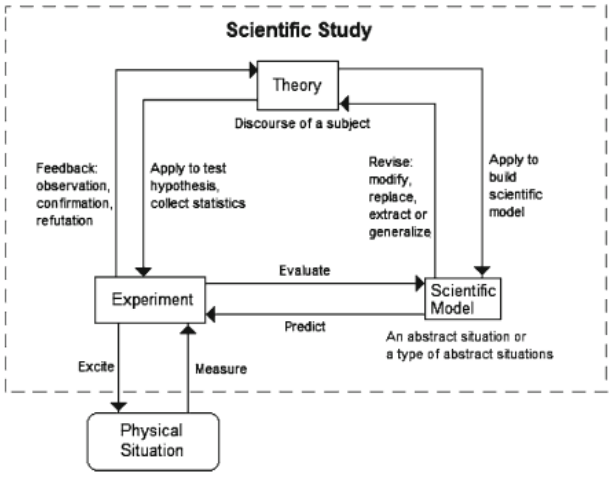

Fig. 5.10[440]

With reference to the recipes of evolution, these aim to provide abstract and universal descriptions of what occurs in evolutionary models and in the physical world. However, they do not describe *how* something evolves (i.e. the function of models). Generally speaking, models aim to describe, given particular theoretical commitments, how a particular target system functions. Theory, by contrast, only aims to describe what the (general) target system is or involves. Now consider diachronic models. Since these issue predictions in order to be evaluated by experiments, these predictions can be understood as entailments of the model that need to be satisfied in order for it to be verified as true, accurate or empirically adequate.

[435] For more details on these aspects of research questions see: Silvia Ivani, "What we (should) talk about when we talk about fruitfulness," *European Journal for Philosophy of Science* 9, no. 1 (2019): 10.
[436] Robert W. P. Luk, "Understanding scientific study via process modelling," *Foundations of Science* 15, no. 1 (2010): 52.
[437] Ibid., 52.
[438] Ibid., 52.
[439] Ibid., 51.
[440] Ibid., 51.

For example, in the case of photosynthesis, the absorption of light energy by antenna is an indispensable prediction that is required for the model process, as it stands, to be empirically adequate.[441] Such a process model, that aims to explain some molecular trajectory, issues in a sequence of predictions that are essential for the model to be empirically adequate. If any of these predictions are conclusively disconfirmed[442], then by the Duhem-Quine Thesis[443], this does not necessarily mean that the theory will be rejected or changed (most often it simply is not). Rather, the model, as it stands, will be seen as empirically inadequate and simply adapted. In this case it is empirically inadequate because the predictions do not explain the transition from one position in the model to another. In my vocabulary, there is an inexplicable gap in explanation, so the model is discontinuous. This is precisely why the model is adapted.

Now I have tried to motivate that process models should be understood as aiming, at base, to supply empirically adequate explanations in terms of the sequence of indispensable predictions they entail. These sequenced indispensable predictions are necessary and sufficient for empirical adequacy, since they are what confirmationally relate the model to the world. Additionally, I have also tried to motivate that my definition of continuity accurately captures what is necessary and sufficient for empirical adequacy of process models, where the indispensable predictions that are necessary and sufficient for explaining how we get from the platform to the explanandum, are what I aim to capture with my intermediate steps being explicable in terms of former steps. It can also account for the process model being discontinuous. It is discontinuous if the relevant intermediate steps are not explicable in relation to the former intermediate steps. By contrast, the reconceptualised definition of continuity takes the very thing we want an explanation of as basic, i.e. the process over some interval, that explains how the platform gives rise to the explanandum. This ignores the vital role that sequenced predictions play in the construction of scientific process modelling. The reconceptualised definition of continuity may be able to explain how the process is sufficient in explaining the transition in a particular context, but it cannot supply a necessary explanation of this. Furthermore, we need an account of continuity which can explain how some process can, in principle, be considered discontinuous. This does not seem possible without considering the role of sequenced predictions that the process model entails.

Let me return to continuity with reference to saltation genealogies of content. If continuity is to be interpreted in terms of supplying an explanation from **A** to **C** using these processes of

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[441] That these positions are predictions can be seen in the history leading up to the canonical model of photosynthesis. See the following for the history of photosynthesis: Alexandrina Stirbet, Dušan Lazár, Ya Guo, and Govindjee Govindjee, "Photosynthesis: basics, history and modelling," *Annals of Botany* 126 no. 4 (2020): 511-537; Robert E. Blankenship, *Molecular mechanisms of photosynthesis* (Oxford: John Wiley & Sons, 2021), Ch. 3; Dmitry Shevela, and Lars Olof Bjorn, *Photosynthesis: solar energy for life.* (Tuck Link: World Scientific Publishing, 2018), Ch. 1. For more general details regarding the current process model of photosynthesis, see: Robert E. Blankenship, *Molecular mechanisms of photosynthesis*, 5-9; Julian J. Eaton-Rye, Baishnab C. Tripathy, and Thomas D. Sharkey, eds., *Photosynthesis: plastid biology, energy conversion and carbon assimilation*. Vol. 34 (New York: Springer Science & Business Media, 2011).

[442] By 'conclusively disconfirmed' I mean that the prediction is not disconfirmed due to some recalcitrant data, inadequacy in measurement tools or techniques, poor experimental construction, etc…

[443] P. Duhem, *The Aim and Structure of Physical Theory*, translated. from 2nd by P. W. Wiener, originally published as La Théorie Physique: Son Objet et sa Structure. Paris: Marcel Riviera & Cie, [1914] (Princeton, NJ: Princeton University Press, 1954), 185-187; W. V. O. Quine, "Two Dogmas of Empiricism," In *From a Logical Point of View, 2nd Ed*, 20–46. (Cambridge, MA: Harvard University Press, 1951), 42-43.

cultural evolution and social conformism, taken over an interval of time, then it is incumbent on the proponent of this view to answer: "What is it about these processes that provides illumination of the transition?" As I have argued, the continuity of a model needs to be assessed relative to relevant intermediate steps being explicable in relation to former intermediate steps. So, the only manner to answer this is to find some intermediary steps (as predictions) that illuminate the nonreductive transition from, for example, nonnormative biological regularities and normative practice. If these predictions are absent from the process, then there is a gap in the model supplied. This is merely to deny that the naturalistic saltation model, incorporating these processes, lacks predictions that connects predictions involving nonnormative regularities to predictions about normative practice. Appealing to the reconceptualised definition of continuity would be to ignore this requirement. Therefore, I think that there is no difference between this notion of continuity and saying:

> 'There are creatures with content that are part of normative socio-cultural practices now, and it is clear that these features didn't arise by magic.'

Understanding continuity in terms of processes, taken over an interval of time, that explain the emergence of normative systems, is the same as *noticing* that normative systems emerged during the duration of these processes. This notion of continuity takes the very thing we want an explanation of as basic, i.e., the processes over some interval, that naturalistically explain how normative systems emerged. It cannot be acceptable that continuity in explanation is the same as *noticing* that during these processes a transition occurred. For these reasons, I claim that this alternative notion of continuity is not correct in the context of naturalism, since it does not capture how the scientific community use process modelling. The reconceptualization of continuity does not supply a viable alternative for assessing continuity in naturalistic explanation.

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