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A PRAGMATIC SOLUTION TO THE PROBLEM OF CATEGORY CROSSING METAPHORS

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ABSTRACT. A promising recent explanation of metaphorical language has come from pragmatics. Metaphor, and other departures from literal meaning, are all to be explained by the same set of pragmatic processes, namely *narrowing, loosening, saturation, and sense-selection* according to this explanation. However, the problem of *emergent* or *category crossing* metaphors arises when metaphors combine elements that cannot be meaningfully combined if construed literally. This sort of metaphor proves extremely hard to explain by appeal to the above mechanisms, leading many proponents of this analysis to seek explanations by appeal to additional mechanisms, some of which may be unique to metaphor interpretation, and thus susceptible to the charge that they are *ad hoc*. In this paper we first argue that these explanations are unsatisfactory, focusing in particular on what we take to be the most promising defense offered to date, Wilson and Carston (2008). We provide detailed arguments against their proposal. Secondly, we develop an account of category crossing metaphors that does not require the addition of any new processes beyond those listed above. We thus propose a novel, and complete, solution to the problem of category crossing metaphors which does not require any resources beyond those already recognized by mainstream theories of pragmatics.

Keywords: metaphor; pragmatics; philosophy of language; contextualism

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1. Introduction

One of the most promising recent attempts to explain metaphorical language construes the interpretation of metaphor as utilizing, in context, certain pragmatic processes by which hearers modify the literal predicates they hear to arrive at the relevant non-literal metaphorical meanings. On the simplest form of this theory, which we will call the primary pragmatic analysis (PPA), metaphorical interpretation is taken to rely on the same small group of pragmatic processes that are taken to be implicated in utterance interpretation more generally. PPA is central to the leading pragmatic accounts of how we understand metaphors and has been endorsed by Robyn Carston, Deirdre Wilson and François Recanati.[1] Furthermore, it appears that PPA is central not just to the proposed pragmatic analysis of metaphor, but also to the wider contextualist project in the philosophy of language, which posits the same pragmatic processes of sense extension to explain seemingly non-metaphorical language. According to the contextualist, the processes that explain metaphor are at play in communication generally, metaphor often being a particularly vivid example. According to Recanati: "Beyond a certain threshold, cases of sense extension … count as special" (Recanati 2001: 272). In other words, metaphor, for the contextualist, is generated by the same processes posited by PPA, but where the application of those processes results in a degree of departure from the literal use of the expression that is, sometimes, striking.[2] If the PPA analysis fails for metaphor – allegedly including the most transparent application of the mechanisms of sense extension – the prospects for contextualism in general will appear bleak. There is, moreover, a problem with the PPA theory of metaphor. A widely noted feature of some metaphors is that they combine expressions in a way that if literally construed appears to represent a categorically excluded combination of items. For example, on a literal reading of "God is my rock," an incorporeal deity is identified with something, a mass of stone, falling under concepts the extensions of which seem to exclude anything non-physical. These *category crossing* metaphors require a modification in the extension of their literal predicates – to allow for cases that are categorically excluded – that does not seem explicable with the range of primary pragmatic processes posited by PPA. The dilemma that threatens he advocate of PPA, therefore, is either to concede that category crossing metaphors present a substantial lacuna in the theory, or to introduce ad hoc pragmatic processes to explain these metaphors. The former option exposes PPA as, at best, seriously incomplete; the latter risks making PPA more complicated and less plausible. Evidently, this dilemma must be avoided if PPA is going to provide a compelling explanation of how metaphor functions. Furthermore, the issue has obvious ramifications for the plausibility of contextualist

accounts of meaning generally: metaphor, as noted above, is a paradigm case of the way in which the contextual situation of an utterance determines its meaning, hence it is imperative that contextualism provide a convincing account of metaphor.

In this paper we will avoid this dilemma by proposing a novel way of solving the problem of category crossing metaphors using PPA that shows how we can understand category crossing metaphors without relying on the introduction of complicated or ad hoc metaphor-specific pragmatic processes. We will explain PPA in more detail in the next section and the problem of category crossing metaphors in section three; in the following two sections we will review and reject the existing treatments of the problem and give our own solution. We will conclude by considering some objections and developing the account.

2. The Primary Pragmatic Analysis

Although they differ from one another in important details, the leading advocates of PPA include Recanati (2004), Carston (2002) and Wilson and Carston (2008), the latter two locating PPA within the relevance theoretic framework devised in Sperber and Wilson (1985/1986, 1986). The key claim of PPA is that metaphorical interpretation relies on only a small group of pragmatic processes that are involved more widely in the interpretation of both metaphorical and non-metaphorical utterances. In addition to so-called "bottom-up" or mandatory processes such as *saturation* (assigning values to indexical elements) and *sense-selection* (resolving lexical ambiguities), two other "top-down" processes – demanded or triggered by contextual cues –, *loosening* and the converse process of *narrowing*, which we will describe presently, explain how we come initially to grasp the meaning of a sentence in context according to PPA.[3]

Atomic concepts, according to the now standard theory developed by Sperber and Wilson (1986), can be seen as making available three types of information. First, there is logical content that consists in the inference rules and analytical implications of the concept. Second, there is encyclopaedic or general information, which involves commonplace assumptions, culturally held beliefs, experiences, observations, etc. And third, there are lexical properties that are the phonetic, phonological and syntactic characteristics of the linguistic form (typically a word) that encodes the concept.[4] For example, the concept CAT has a logical content that includes inferential rules, such as that a cat is a kind of animal; encyclopaedic information about cats – what they are like, their anatomy, behavior, appearance, etc.; and it has various grammatical and phonetic characteristics which for an English speaker characterize the word "cat." Note that not all concepts need have all three

components: OR, for example, seems to lack an encyclopaedic entry. Central to the pragmatic account is the notion of an *ad hoc concept*. An ad hoc concept is one that is modified in the course of understanding a sentence containing its expression in response to the context in which that sentence occurs. That is, by using a lexically encoded concept – i.e. one for which we have a word – in a certain context, one can communicate a *different* concept that shares some logical and encyclopaedic information with the encoded concept. This latter concept is ad hoc because it is generated on the fly in response to various cues given in the context.[5] Ad hoc concepts are arrived at by loosening, or narrowing. Loosening occurs whenever a restriction governing the application of the literal meaning of an expression is contextually withdrawn, resulting in a wider extension than is had by the unmodified concept. For example, a typical utterance of "the lawn is square" does not employ the strict meaning of "square" but the ad hoc concept SQUARE* which is derived by relaxing the rules governing the use of the lexically encoded concept SQUARE, so as to now admit *roughly* square items into the extension of the new concept. Narrowing occurs whenever a new restriction is imposed on the literal concept in context, resulting in a narrowing of the extension. Narrowing appears to be at work in cases of quantifier restriction, for example.

How does loosening help in a theory of metaphor? The PPA proposal is that metaphor *is* loose talk – supplemented, in some cases discussed below, by other pragmatic processes – and often where the degree of loosening is unusually high. According to the PPA theory of metaphor, therefore, we can understand metaphors using the same basic range of pragmatic processes that are involved in understanding other utterances.

3. The Problem

It is time to look at the problem we raised in the introduction, that category crossing metaphors appear inexplicable on the PPA. The problem quickly emerges when we consider the kinds of ad hoc conceptual modifications that the theory needs to account for. In the non-metaphorical example of loosening that we have considered, a "pure" loosening is involved such that the ad hoc concept includes all the denotations of the pre-loosened concept as a proper subset. We will call such cases *inclusive*. For example, the ad hoc modification of SQUARE to SQUARE* in interpreting "The lawn is square" seems to be inclusive. The modification of ADDICTION in the metaphor "We are addicted to oil" similarly appears inclusive. We drop the requirement that addiction is a chemical/biological dependency while other components of the logical and encyclopaedic entries are left intact: addictions are addictions*, but not all addictions* are addictions. However, it is easy to find metaphors that require concept modifications where the extension of the pre-loosened

concept intersects with that of the ad hoc concept, but the former is not a subset of the latter.

Consider, for example, the metaphor "George is a monk," uttered by someone describing a friend or associate. The metaphor communicates that George has a certain kind of personality and lifestyle: he is contemplative, steadfast and pure in his moral convictions, spends time removed from wider society, and is self-disciplined and ascetic – qualities associated with monks. The resulting ad hoc concept MONK* retains these features characteristic of some monks and makes them central to the concept's meaning; the requirement (either sufficient or necessary) that a monk is a member of a monastic order or is committed to religious service is filtered out. MONK* applies to individuals with unusually high ethical standards and ascetic lifestyles, and to *some* but not all monks: a member of a monastic order who is uncaring, conceited and lascivious, for example, will not be a monk*. Concept modifications such as these we will call *intersecting*.

Both inclusive and intersecting pragmatic modifications fit with PPA, since either type of ad hoc change can be plausibly made using the primary pragmatic processes of loosening and/or narrowing. The problem for PPA arises in cases where the extension of a concept could not, through loosening and/or narrowing processes that might realistically occur, deliver the requisite ad hoc modification. We will call such cases *disjoint*. Take, for example, the metaphor "Robert is a bulldozer." The concept BULLDOZER plausibly involves inferential rules, such as that a bulldozer is a type of heavy machinery, along with various general knowledge about its use in moving debris, clearing land, pushing large objects, and features of its physical appearance and mechanical structure. The ad hoc concept BULLDOZER* includes the representation of properties like obstinacy, persistence, singlemindedness with respect to personal goals, lack of consideration for others feelings and beliefs, etc. So properties that fall under the concept BULLDOZER, and the ad hoc concept BULLDOZER* appear to comprise mutually disjoint sets. The problem for PPA is that relaxing or filtering out logical or encyclopaedic information should yield an intersecting ad hoc concept with a broader extension that covers some or all the things denoted by the pre-loosened concept. Narrowing should yield an inclusive ad hoc concept that forms a subset of its pre-narrowed counterpart. Yet the concept apparently arrived at in disjoint cases carries informational properties that seem not to be derivable from the original concept by either process. These properties have, accordingly, been labeled "emergent properties" by Wilson and Carston (2008), and the ensuing problem the "emergent property problem."[6] So how could BULLDOZER/BULLDOZER*, and other disjoint cases be explained with PPA?[7]

The main sources of disjoint cases are the category crossing metaphors described in the introduction. According to Stern (2006), the problematic

class of metaphors are those where the predicate cannot literally apply, either truly or falsely, to the subject. Carston similarly thinks that the difficulty for PPA results from metaphors that involve a mismatch of categories. Other suggested examples from Carston include:

Sally is a block of ice.
The fog comes on little cat feet.
Love is the lighthouse and the rescued mariners.

Other examples include:

Love is a rose.
God is my rock.
Her heart is made of stone.

Unfortunately for PPA, category crossing metaphors are widespread. Take, for instance, perhaps the most commonly cited example of a metaphor in philosophical literature: "Juliet is the sun." Prima facie, it seems that there is some intersection between the extension of SUN and SUN* that can be reached by loosening/narrowing, for example, that the sun is the *centre* of the solar system and that Juliet is the *centre* of Romeo's life. This is misleading, however, because the physical centre that the sun occupies in the solar system and the emotional centre that Juliet has in Romeo's life are quite distinct senses of "centre."[8] Moreover, the senses seem categorically distinct: their extensions do not intersect. So even if we were to deploy a secondary stage of loosening/narrowing on the logical or encyclopaedic entries of SUN – such as *located at the centre of a system* –, there does not seem to be a way of generating the requisite concept SUN*.

Two further points are needed before we proceed. First, disjoint cases and category-crossing metaphors are distinct in that they result from relationships between, in the former case, the extensions of literal predicates and their ad hoc counterparts, and in the latter case, the literal predicates and their subjects. However, in category crossing metaphors, by predicating a concept C of an object *o* that *o* cannot possibly fall under, one automatically sets the stage for the introduction of a disjoint ad hoc concept C* (if C and C* intersected, *o* would not be *categorically* prohibited from being a C). So while there may be disjoint cases that are not category crossing, category-crossing metaphors provide a large and easily detectable supply of disjoint cases. The solution that we will propose in section five applies to all disjoint cases.

Second, although category crossing metaphors are seen as presenting the main challenge to PPA, in recent work Vega Moreno (2004) and Wilson and Carston (2008) have taken "The surgeon is a butcher" to be a metaphor that exhibits emergent properties but is not category crossing (nor is it clearly a disjoint case). It is not category crossing because there is nothing in the

literal content of "surgeon" or "butcher" which guarantees disjoint extensions for these two concepts – unlikely though it is, a surgeon could also practice as a butcher. It appears to be problematic for PPA because the properties of butchers* being attributed to the surgeon (dangerously incompetent, murderous, and so forth) are not recoverable from BUTCHER (someone who cuts up, prepares and/or retails meat for consumption) by either loosening or narrowing. However, this example does not constitute a problem for PPA since there are standard literal senses of the expression "butcher" to mean a lethally incompetent bungler or indiscriminate murderer (either of which might be intended by the utterance). The utterance "The surgeon is a butcher," in other words, is not metaphorical but ambiguous and its meaning can be resolved with sense selection.[9] In the absence of other examples, therefore, we remain skeptical that there are any emergent properties that are not disjoint cases.[10]

4. Responses to the Problem

The difficulty in accounting for disjoint cases does not, of course, pose a fatal objection to PPA. It may show only that the theory is incomplete and that PPA requires supplementation by additional pragmatic processes. For example, in his earlier work Recanati, and more recently Romero and Soria (2007), appeal to *transfer*: a change of the sense of the predicate expression that, without depending on loosening, makes it appropriate to the metaphor's subject. The new sense is facilitated by the shift in context involved in interpreting the metaphor. For example, in "The city is asleep" the literal interpretation of "the city" makes more accessible the relevant metaphorical sense of "is asleep," and this is then transferred. Another approach, inspired by Lakoff and Johnson (1987), is to draw on Conceptual Metaphor Theory to provide a number of pre-existing metaphorical schemas at our disposal – one general example might be PHYSICAL FORCE IS PSYCHOLOGICAL FORCE – that guide our interpretation of metaphors. This scheme might serve to make the connection between the physical character of bulldozers as indiscriminate path-clearing mechanisms, and the psychological characteristic of ignoring others' feelings in the pursuit of one's own ends.

Neither of these options are appealing modifications of PPA. The addition of further pragmatic processes (and presumably yet more could be introduced to account for problem cases as needed) results in a more complicated explanation of what is involved in grasping a metaphor.[11] The pre-existing metaphorical scheme in particular, without convincing arguments or empirical evidence in its favour,[12] looks like a kind of explanatory cheat: it posits a ready-made way of understanding metaphors that can cover all those tricky cases that loosening does not account for. Besides, the appeal of PPA is that it utilizes a limited range of primary pragmatic processes implicated in one's

initial grasp of the meaning of an utterance to explain how we arrive at the ad hoc concepts that are employed in metaphor. If one presupposes a supplementary system of conceptual representations that guide the processes posited by PPA, then those processes are robbed of their explanatory value. The most desirable option for PPA, should it be available, is to show how disjoint cases can be generated without introducing additional processes. Accordingly, in a recent paper, Deirdre Wilson and Robyn Carston have attempted to do just this. Rather than posit additional primary pragmatic processes, they aim to show that the existing resources of PPA and relevance theory are sufficient to solve the emergent property problem.

Wilson and Carston (2008)[13] propose that emergent properties can be explained by the "discourse context" in which an utterance is made. Conversational context, they propose, has two important effects on the interpretation of utterances. First, it modifies the accessibility of information in the encyclopaedic entries that constitute the utterance – some are primed while others are made less salient; in turn, other contextual assumptions and implications become more or less relevant. Second, it generates various expectations in the hearer as to how the utterance should be interpreted; in turn, these expectations or "goals" guide the process of interpretation. These two influences on utterance interpretation are fitted into the overall framework of relevance theory:

> According to relevance theory, every utterance addressed to someone creates a presumption of relevance, together with more specific expectations about how relevance is to be achieved (and in particular, about the type of contextual implications to be derived). The hearer's immediate goal is to find an overall interpretation that satisfies these expectations, since this is his best hypothesis about the speaker's meaning. (Wilson & Carston, 2008: 22)

According to Wilson and Carston it is the additional information introduced in the discourse context, combined with information given in the constituent concepts of the utterance, that enables the hearer to place restrictions on the range of relevant interpretations (expectation) and anticipate which encyclopaedic information is most relevant in determining what the utterance means (priming of encyclopaedic entries). Their solution, in effect, is to broaden the pool of information from which the metaphor is extracted: an emergent property of an utterance, once we take the discourse context into account, becomes a pragmatically derivable result.

Here is a worked out example. Consider the utterance "The surgeon is a butcher" and the following discourse context:

(1a) The surgeon ought to be dismissed.
(1b) He is a butcher.[14]

The discourse context (1a) generates the expectation that that there will be an answer to the question of why the speaker thinks the surgeon should be dismissed, and the expectation that the utterance (1b) will answer this question. Also, the mention of "surgeon" primes particular encyclopaedic entries of BUTCHER

(2a) CUTS UP DEAD BODIES FOR USE IN COOKING, etc.
(2b) CUTS UP FLESH ROUGHLY AND WITHOUT PRECISION, etc.

With these expectations and information priming in place, Wilson and Carston propose the following explanation for how we come to interpret the speaker as saying that the surgeon is incompetent:

> In the course of the mutual adjustment process, it would therefore be relatively easy to construct an overall interpretation on which the speaker of [1b] is understood as asserting that the surgeon in question is a BUTCHER* (where a BUTCHER* is a person who cuts flesh in a way appropriate to butchers), and implicating that he ought to be dismissed because, being a BUTCHER*, he performs operations in a grossly incompetent, dangerous way. (Wilson and Carston 2008: 25)

The account Wilson and Carston offer of the nature and role of pragmatic processes implicated in generating emergent properties looks like a case of the advocate of PPA having her cake and eating it. Not only are discourse contexts introduced to explain emergent properties, but contextual features of just the right kind are claimed to be available for cases in which there are emergent properties. As such, the theory is not a persuasive response to one skeptical about whether pragmatic processes have the resources to generate emergent properties. Rather, the theory presents a way that pragmatic processes *could* generate emergent properties *provided* there is a sufficiently rich discourse context that contains the additional information they need. For the skeptic, what is suspicious about Wilson and Carston's response is not their introduction of discourse context, but rather the claim that this context contains the information needed to extract emergent properties.

The skeptic's grounds for suspicion are supported by indications that, even for the examples that we have considered, Wilson and Carston need to doctor information in the encyclopaedic entries and in the discourse context to yield the required results. For an exampled of gerrymandered encyclopaedic entries, consider their account of "Sally is a block of ice." They posit the following discourse context:

(3a) I had dinner with Sally last night.
(3b) She's a block of ice.

and propose the following (partial) list of encyclopaedic entries for BLOCK OF ICE:

(4a) SQUARE, SOLID, HARD, COLD, RIGID, INFLEXIBLE, etc.
(4b) DIFFICULT/UNPLEASANT TO TOUCH, COME CLOSE TO, INTERACT WITH, etc.
(4c) MAKES THE SURROUNDING ATMOSPHERE UNCOMFORTABLE, etc.
(4d) MAKES PEOPLE WANT TO MOVE AWAY, etc.

The effect of the discourse context, they suggest, is to prime entries (4b), (4c) and (4d). Now, the way the entries are presented here gives the impression that the hearer can easily reach the correct interpretation by reading off the primed entries. But are these plausible encyclopaedic entries? To us, at least, they do not seem to be. Is it any part of the content of BLOCK OF ICE that it is difficult to interact with, or makes people want to move away? *Dry* ice, perhaps, but not *block* of ice. Is it generally known that a block of ice makes the surrounding atmosphere uncomfortable? Sitting on a block of ice could get uncomfortable, but this is not an atmospheric effect. If we are entitled to these encyclopaedic entries, then why not

(4e) IS POOR COMPANY FOR DINNER.

from which we can read off the intended meaning. The problem for Wilson and Carston, therefore, is to show that their account can explain metaphors without projecting their meanings into the list of encyclopaedic entries – after which, of course, the interpretation of the metaphor is trivial.

Similar gerrymandering of information is also in evidence in Wilson and Carston's treatment of discourse context. Their proposal relies on there being, for every utterance with emergent properties, a discourse context that guides their interpretation in the right way by generating expectations and priming encyclopaedic entries. (1a) is a case in point: it causes the hearer to expect that the speaker is going to provide some reason for the surgeon being dismissed, and directs the hearer's attention to potentially relevant encyclopaedic entries of SURGEON. But what reason is there, in general, for supposing that a suitable discourse context is available whenever a metaphor with emergent properties is uttered? There are two specific problems. First, Wilson and Carston's theory does not give us an account of the emergent properties of metaphors that have no useful context – a snippet of text, a piece of overheard conversation, a list of metaphors in a paper on metaphors – where no expectations are generated or encyclopaedic entries primed. Second, they have no explanation for metaphors that come as a surprise. Suppose, for example, that someone overhears the discourse context for "The surgeon is a butcher" as follows:

(1a*) That surgeon has just been promoted, and everyone says he's a genius.
(1b) He's a butcher.

Discourse contexts like this, where the speaker sets the hearer up for an unexpected utterance, are commonplace. When the speaker does this, however, the hearer forms the *wrong* expectations and primes exactly the *wrong* encyclopaedic entries. Carston and Wilson's theory must, therefore, be incomplete: an additional account is required to explain how, in cases of missing or misleading context, the hearer discerns the metaphor's meaning.

Suppose that we allow for favorable discourse contexts to guide our expectations of relevance in the right direction, and we are charitable in what we allow in the way of encyclopaedic entries of the operative concepts in a metaphor. PPA *still* does not have the resources, as Wilson and Carston acknowledge, to show how we can grasp the emergent properties of category crossing metaphors. Consider, for example, the encyclopaedic entries of BLOCK OF ICE. The expressions "hard," "cold," "inflexible" refer to *physical* hardness, coldness and inflexibility. But the metaphor means that Sally is *emotionally* hard, cold and inflexible. It is precisely this further change from physical to emotional categories that looks impossible to achieve using loosening and narrowing. For all of the additional paraphernalia of discourse context and expectation, we are still none the wiser as to how category crossing metaphors are understandable on the pragmatic theory.

Wilson and Carston suggest two ways in which the physical/psychological category could be crossed. The first proposal is that the physical concepts HARD, RIGID, COLD, etc. have, through a historical process of "repeated broadening of the basic physical senses," generated superordinate concepts HARD*, RIGID*, COLD*, etc., which "are not purely psychological but have both physical and psychological instances" (2008: 29). These latter concepts, in other words, have a broader extension that incorporates both physical and psychological members. As such, there is no problem with emergent properties because a hearer of the metaphor "Sally is a block of ice" already has access to encyclopaedic information that incorporates psychical and psychological categories, i.e., that BLOCK OF ICE is HARD*, RIGID* and COLD*. Carston and Wilson's second proposal is that "hard," "rigid" and "cold" could have distinct psychological and physical senses. That is, we do not have the concepts HARD*, RIGID* and COLD*, but rather the physical concepts HARD, RIGID and COLD, and the separate psychological concepts HARD**, RIGID** and COLD**. They argue, however, that:

> [I]t is easy to see how ad hoc (non-lexicalised) superordinate concepts such as COLD*, HARD*, (etc.), whose denotation include both items that are COLD/HARD and items that are COLD**/HARD**, might be constructed during the online interpretation of (9b) ('Sally

> is a block of ice') or (19b) ('She's a block of ice'). (Wilson & Carston 2008: 30–31)

Once COLD* and HARD* are pragmatically constructed by loosening, understanding the metaphor can modeled on the same lines as the first proposal.

The first proposal is problematic. Wilson and Carston again posit a (historical) process by which COLD is loosened to produce COLD*, without giving the details of how this is achieved. Appealing to a ready-made and mysteriously constructed range of category crossing concepts to explain category crossing metaphors highlights the lack of a good explanation thus far available to the PPA. The second proposal is unsatisfactory without substantial further development. It is, of course, "easy to see" that the metaphor "Sally is a block of ice" uses the concept BLOCK OF ICE to convey psychological opinions about Sally. What is not at all easy to see is how this is done by modifying the concept using pragmatic processes, unless we *already* know what the metaphor means. How do we get from the physical sense of cold attributable to blocks of ice to the psychological sense of cold attributed to Sally? Precisely what component of the concept COLD is loosened to extend its encyclopaedic entries to include EMOTIONALLY UNRESPONSIVE? This, after all, is an example of the problem of emergent properties. Stipulating that we can use loosening to solve it is not a solution, as the problem at issue here is that loosening does not appear adequate to that task. It is just this explanatory gap that must be filled if PPA is to be successfully defended, and we will offer a proposal to do so in the next section.

5. A New Solution

Let us begin by recalling the terminology we introduced earlier. The ad hoc modifications of concepts that interest us here are (1) inclusive cases where C is a proper subset of C*; (2) intersecting cases where C and C* share some members but some Cs are not C*s and some C*s are not Cs; and (3) disjoint cases where C and C* have no members in common. Our proposal is that disjoint cases can be understood as the combination of two primary pragmatic processes: the kind of loosening/narrowing operation that occurs in inclusive and intersecting cases and an additional instance of sense selection. To see how this works, however, we need to take into account the different kinds of information encoded in concepts, logical and encyclopaedic, to which these pragmatic processes are applied.

In inclusive cases, the extension of a concept forms a proper subset of its loosened ad hoc counterpart. As indicated by the examples we have considered, this is achieved by a modification of the logical content of the concepts. For example, SQUARE* extends the logical entry of SQUARE to include

shapes that are approximately square. The ad hoc concept will also have relevantly updated encyclopaedic entries to accord with the modification of the logical entry. For example, if SQUARE has as one of its encyclopaedic entries

Enc_1: You can put four squares of the same size together to make a larger square,

then the modified encyclopaedic entry for SQUARE* will be

Enc_1*: You can put four approximately square objects of the same size together to form a larger (very) approximately square object.

Intersecting cases cannot be produced by just eliminating features or relaxing conditions in the original logical entry, since this will not generate an ad hoc concept the extension of which only intersects with its literal counterpart. Narrowing is also involved. Consider the metaphor "She is a politician" said of an academic colleague. The metaphor communicates that the colleague is adept at recognizing and manipulating the power structures in the institution in which she works. Clearly, the concept POLITICIAN has been loosened: the requirement that one actually hold political office locally or nationally has been filtered out. As a consequence, only some, not all politicians* will be politicians. However, the concept has also been narrowed, because political adeptness – a property associated with politicians – has become a defining feature of politician*: not all politicians are politicians*. This is indeed evident from the fact that we can envisage an entirely appropriate use of the metaphor "the prime minister is no politician," to communicate a failing prime minister's inability to effectively navigate and control the power structures of government. However, there are two points that need elaboration.

The first point is that not just any sort of narrowing will do to yield an intersecting case. A simple example of narrowing consists in filling out unspecified conditions. For example in the context of ordering food in a restaurant the concept RICE is modified to obtain the ad hoc concept RICE* which, unlike RICE, has no uncooked or dehydrated cereal in its extension. In such cases, narrowing results in an ad hoc concept the extension of which is a proper subset of the literal concept. If a literal concept is loosened and then narrowed by filling out conditions, we may still end up with an ad hoc concept that has the extension of the literal concept as a proper subset rather than merely intersecting with it. Narrowing, when involved in the production of an intersecting case, is effected by introducing new information into the logical content of the concept to provide conditions that exclude some members of the literal extension. Secondly, the information in question is extracted from the concept's encyclopaedic content. In general, intersecting cases seem to function in this way: the logical content is loosened or elimi-

nated entirely, and a component of the encyclopaedic entry is raised to the status of a logical entry. Consider, for example, the concept POLITICIAN. It has the logical entry

Log_1: holds (or runs for) political office,

and encyclopaedic entries such as

Enc_1: understands and effectively manipulates political structures/situations.
Etc.

We saw that the ad hoc concept POLITICIAN* was constructed by eliminating condition Log_1 while making requisite other features associated with POLITICIAN such as Enc_1. In line with our general proposal about intersecting cases, the metaphor is generated from loosening the logical content and upgrading a piece of encyclopaedic information to the status of the logical entry of the resulting ad hoc concept. Now let us consider a disjoint case.

Take the metaphor "God is my rock." This is a category-crossing disjoint metaphor. The literal concept ROCK, which has the logical entry *solid mass of stone*, seems to have an extension that does not intersect with the extension of ROCK*, which has the logical entry *emotional and psychological support*. The concept ROCK has the logical entry *mass of stone* and encyclopaedic entries including *an object providing stability*. On our model, the metaphor is generated by deleting the logical entry and replacing it with information from an encyclopaedic entry. Note, however, that this will only yield an intersecting modification of the concept. For a disjoint modification, a further pragmatic process of sense selection is required. The concept STABILITY is raised to salience in the manner just explained. The lexical entry for this concept includes the information that the expression encoding this concept has other senses, including one which admits an interpretation of the metaphor. In this example, the metaphor requires a disambiguation between senses of "stability." The sense of "stability" God is claimed to provide here is not provided by rocks – it is psychological or emotional stability that is invoked, not physical. With the process of sense selection incorporated into the process of interpreting the metaphor, disjoint cases can be readily explained. Here, then, is how we propose that the interpretation of a disjoint metaphor is conducted in full:

1. We begin with the utterance "God is my rock." The concept ROCK includes the following logical and encyclopaedic entries:

Log_1: Mass of stone.
Enc_1: provides stability.
Etc.

2. Modifying ROCK to $ROCK^2$ (an intermediary modification where $ROCK^2$ intersects with ROCK) proceeds as follows: loosening drops Log_1 and narrowing raises Enc_1 to salience, i.e. shifts the information from its status as encyclopaedic to that of a logical entry:

Log_1^2: provides stability.

3. The concept STABILITY is thus raised to salience, and examination of its lexical entries reveals that it is encoded by an expression which also encodes a separate concept which makes sense of the utterance.

4. The sense of "stability" is selected. Having understood that God is not being claimed to provide the kind of stability required for e.g. the foundations of a building, we recover the relevant sense of "stability."

How does sense selection work in this process? For speakers of a language *L*, the lexical information associated with a concept *C* is the information regarding the phonetic or syntactic features of the lexeme that encodes *C* in *L*. So where lexemes have more than one sense in a language, competent speakers of the language who grasp all of the lexeme's senses will thereby grasp lexical information regarding the different senses also encoded by the same lexeme. To illustrate this, we can distinguish senses by subscripting concepts. "Bank," for example, encodes both $BANK_1$ (which has the logical entry *institution for holding money*) and $BANK_2$ (which has the logical entry *riverside*). So, our quest for a suitable sense for "stability" consists of a consideration of the concept $STABILITY_1$ which, as a component of the encyclopaedic entry of ROCK, has the following logical and encyclopaedic entries:

Log_1: can support physical objects.
Enc_1: a feature of good foundations for buildings.

Turning to the lexical entries, however, we will find:

Lex_1: A sense of the same lexeme as that which has the sense $STABILITY_2$.

Where $STABILITY_2$ is the emotional sense of "stability." In other words, the entire process of metaphorical interpretation can be understood as a process of information transfer. Information is first transferred from the encyclopaedic entry of the concept to the logical entry of the new loosened concept. Having raised this information to salience, a second round of information transfer is performed: encyclopaedic information is modified in the light of contextually relevant lexical information to arrive at the target concept, that is the concept which makes sense of the metaphor.

The problem with disjoint cases is that the metaphorical predicate seems to undergo a category shift that cannot be recovered by any amount of loosening or narrowing. We can loosen and narrow ROCK to give the idea of

something stable, but it is stability in the wrong sense: physical stability and not the emotional and spiritual stability claimed of God by a religious believer. We can loosen/narrow the concept SUN to give us the idea of something being central, but this is not the sense of centrality that Romeo is claiming for Juliet. Our proposal, therefore, is that disjoint cases are the product of information processing operations that involve two primary pragmatic processes. A loosening/narrowing process proceeds on the same lines as an intersecting concept construction, delivering an ad hoc concept with a new logical entry. Then a context sensitive sense selection is performed on the lexical encoding of the operative concept in the new logical entry, sifting through the concept's lexical entries to locate the relevant sense. To further elucidate the proposal, we will next present the steps by which the metaphor "Juliet is the sun" is interpreted on our model.

1. The first step is a loosening of the concept SUN, which includes entries such as the following:

Log_1: Radiant astral body.
Enc_1: a source of warmth.
Enc_2: central point of the solar system.

2. Modification of SUN to SUN_2 (which intersects with SUN) is effected by an operation of loosening/narrowing whereby Log_1 and similar logical entries are dropped (loosening) and an encyclopaedic entry like Enc_1 is raised to the status of a logical entry:

Log_1^2: a source of warmth.

3. To reach the target concept SUN*, sense selection must be performed on the lexical items encoding the information in Log_1^2. It is the sense of the English expression "warmth" that relates to affection, etc. that must be selected to yield the logical entry for SUN*. This information about the English word "warmth" is contained as a lexical entry for the concept $WARMTH_1$ (the physical sense of warmth):

Lex_1: a sense expressed by the same English lexeme as $WARMTH_2$

(where $WARMTH_2$ is the affective sense).

Notice that some metaphorical concepts have more than one encyclopaedic entry that can be raised to salience and, following the pragmatic processes described above, provide a plausible interpretation of the metaphor. For example, we could raise Enc_2 to the status of a logical entry, relax the restriction that it is the solar system that the sun is central to, and then perform a sense selection on the English expression "central" to select its cardinal, rather than physical, sense (i.e. the sense in place when "central" is synonymous with "important," "fundamental" etc.). Enc_1 and Enc_2 can each

be used to provide a distinct reading of "Juliet is the sun." Moreover, there is no reason to suppose that all speakers and hearers must perform the process we describe on the same items when more than one is available. Indeed it seems likely that the richer the metaphor, the more options that are available for its interpretation. In Shakespeare's day, the state of encyclopaedic knowledge about astronomy would not have supported interpretations of "Juliet is the sun" that are available to us. But the metaphor nonetheless makes a closely related meaning available to interpreters in either period, though it is not identical as the process of interpretation operates on slightly different conceptual material. Our theory therefore preserves the open-ended quality of metaphors. There need not be any one unique way of modifying the literal content of a disjoint metaphor to arrive at the intended metaphorical content.

We complete our discussion of disjoint cases by briefly showing how our account deals with the widely discussed metaphor "Robert is a bulldozer." Step one involves loosening/narrowing on BULLDOZER to arrive at BULLDOZER^2 (an intermediary ad hoc concept intersecting with the original) by dropping logical entries such as log_1 below and either dropping or extending others in obvious ways, while certain encyclopaedic information such as Enc_1 and Enc_2 are raised to salience as the logical entries of the ad hoc concept BULLDOZER^2:

BULLDOZER
Log_1: A type of heavy machinery.
Etc.
Enc_1: Crushes obstacles in its path.
Enc_1: Demolishes obstacles in its path.
Etc.

BULLDOZER^2
Log_1^2: Crushes obstacles in its path.
Log_2^2: Demolishes obstacles in its path.
Etc.

To complete the process, the psychological senses of the verbs "crush" and "demolish" (and whatever others may occur in the other encyclopaedic entries for bulldozer) are selected. This information is located in the lexical entries for CRUSH$_1$ and DEMOLISH$_1$ known to competent speakers of English (again we employ subscripts to make the point clear):

DEMOLISH$_1$
Log_1: destroy an object.
Lex_1: a sense of the same lexeme as that which encodes DEMOLISH$_2$.

Where DEMOLISH$_2$ is that sense of "demolish" used to describe the manner in which some people (including bulldozers*) treat arguments and opinions

which are an obstacle to their objectives. A similar operation derives CRUSH_2 from CRUSH_1, where CRUSH_1 is the physical sense of "crush" whereby something is broken and/or compressed into small fragments, and CRUSH_2 is the psychological sense whereby to crush_2 someone is to oppress or humiliate them. Thus we arrive at our target ad hoc concept:

BULLDOZER*
Log_1*: Crushes_2 obstacles in its path.
Log_2*: Demolishes_2 obstacles in its path.

This completes the interpretation of the metaphor. The required ad hoc concept BULLDOZER* is reached in two stages by modifying the lexical concept BULLDOZER, and this two stage process allows us to arrive at a concept whose extension has no intersection with the lexical concept from which it was derived.

6. Objections

We will consider four potential worries that might arise in response to our employment of sense selection.

First, the PPA account in general may be objected to on the grounds that a number of the examples considered here could be explained far more simply by the postulation of a relevant secondary sense for the supposedly metaphorical predicate. For example, it might be thought that the common noun "politician" already has the sense that we are attempting to construct via pragmatic modulation, as a bona fide secondary sense. Thus, understanding of "she is a politician" can be achieved by sense selection alone, without recourse to narrowing, loosening, or any hybrid of the two. We do not find this objection troubling. While we think it unlikely that this approach would be convincing for many metaphors, we can safely admit any examples that our objector offers, while maintaining that our account provides the explanation for those which remain. To deny that there are any remaining would effectively be to deny that there is such a phenomenon as novel metaphor. Anyone who grants that there are novel metaphors will not be able to appeal directly to sense selection to explain these. We offer our account as an explanation of novel metaphor, and can happily to let others decide exactly where secondary senses end, and novel metaphor takes over (though "God is my rock" and "Robert is a bulldozer," for example, seem to us *clearly* cases of live metaphor).

Second, it may be objected that our use of sense selection runs into the same difficulty as Romero and Soria's proposal that semantic transfer plays a role in metaphor, namely that it overly complicates the explanation with an additional process that is not widely agreed upon (either with respect to its

mechanics or existence). However, sense selection is a pervasive phenomenon required for the correct interpretation of utterances of sentences that most people would hold to be uncontroversially literal. For example, consider the different senses of "light" in the following three examples (from Pelczar, 2000: 488):

1. There was a light breeze from the south.
2. This is a light package.
3. The fire won't last with such light fuel.

In (1)–(3) three distinct senses of the adjective "light" occur, having to do with intensity, weight, and density, respectively. No one would want to say that these sentences are metaphors, however. Each sense is a genuine literal sense of the word, and a pragmatic process is required to recover the correct sense from the context if any utterance of the word is to be understood. In light of the ubiquity of such cases, it is obvious that PPA must be antecedently committed to some account of sense selection prior to any discussion of live metaphor.

This brings us on to the third worry, which concerns our use of sense selection in the interpretation and construction of metaphors. Given that at least *some* senses of *some* words are inherited from dead metaphorical uses of those words, is there a danger that, by employing sense selection in our account of understanding live metaphor, we are lapsing into a circular explanation? If the differences in sense are generated by metaphors, how can our knowledge of those senses explain our grasp of (disjoint) metaphors? The first thing to say here is that the alleged circularity would not be vicious: our knowledge of a metaphorical meaning of an expression *e* does not rely on any grasp of a (dead) metaphorical sense of *e*, but rather of a contextually salient sense of an expression *f* featuring in the (lexical encoding of the) encyclopaedic information of the concept encoded by *e*. It is our knowledge of the lexical properties of *f* that does the work in explaining how we grasp the metaphorical occurrence of *e*. Thus we do not presuppose knowledge of *e*'s metaphorical meaning at any point in our account of how that meaning is recovered. For example, in the case of "God is my rock" the proposed pragmatic modification of the concept ROCK is achieved in part by a sense selection on the distinct concept STABILITY.

Our proposed development of PPA does, however, commit us to the following account of (at least some) dead metaphors. In a live metaphor the operative predicate *P* is pragmatically modified in one of the ways described in section five to generate an ad hoc concept *P**. When a metaphor "dies," the once ad hoc concept *P** becomes lexically encoded as a secondary sense of *P*. For example, the concept ROBUST_1 with logical entry

Log_1: Strong; well-constructed; healthy.

can, through a process of loosening (relaxing the conditions to do with health and construction) and narrowing (restricting the class of strong things), give us a concept $ROBUST_2$ with the logical entry

Log_1: Strong in taste or smell.

This ad hoc variation on $ROBUST_1$, entering into common parlance about wine and food, becomes a dead metaphor and thus a secondary sense of the lexeme.[15] Rather than going through the more complex process of working out the right level of loosening, reviewing the relevant encyclopaedic information to introduce into the logical entry and, in disjoint cases, checking through the lexical entries for the appropriate sense, there is instead an established sense available that can be recovered by sense selection.

It follows that for dead metaphors, the ad hoc construction of which is still available to us, their meaning can in principle be reached by *two* routes: sense selection and the more circuitous ad hoc concept construction that replays the information processing that was originally required to understand the metaphor when it was still novel. It is unlikely, of course, that the latter route would be psychologically realized even at a sub-personal level: once a metaphor has died there is no reason why it should be processed differently to a literal expression. So the sense in question will be made available even to those who have no awareness of its previously metaphorical status, while those who are aware of its metaphorical origins would simply be failing to process the available information in the most efficient manner open to them were they to go the long way around by repeating the loosening/narrowing procedure instead of fixing on the sense already extracted from that process and located in the lexicon. Furthermore, there are clearly going to be cases where the resources for interpreting the metaphor may have long since been lost after it has passed into literal usage.

Note that in a disjoint metaphor the sense selection component may select as a sense a dead metaphor that was itself at one time the result of a disjoint metaphor construction. This process may be iterated as our concepts evolve, with each new metaphor building on a prior dead metaphor. In this way disjoint metaphor construction may involve the encoded product of a long history of dead metaphors.

The final objection we will consider is that our theory falls prey to the same objections we raised against Wilson and Carston's alternative. We accuse them of gerrymandering discourse context and unwarrantedly assuming that a discourse context will always be in place to guide metaphorical interpretation. But do we make similarly baseless assumptions about the availability of relevant senses of expressions involved in the interpretation of disjoint metaphors, and do we also gerrymander the senses given in our examples?

It is useful to begin by briefly comparing our position with Wilson and Carston's and showing how it addresses the problems facing their account. Their theory has two components: (1) they posit discourse contexts for category-crossing metaphors that supplement the conceptual information contained in the utterance. These contexts facilitate the interpretation of the metaphor by generating expectations in the hearer and modifying the accessibility conditions of the encyclopaedic entries. (2) They contend that by using the information from discourse context and conceptual content, the operative metaphorical concept can be constructed by (unspecified) pragmatic processes. Our objections were: (a) It is counter-intuitive that the requisite discourse context should be present for every category-crossing metaphor; moreover, the examples that Wilson and Carston give appear to use gerrymandered contexts; (b) category-crossing metaphors are graspable when there is *no* useful discourse context, or a misleading discourse context; (c) critical details about the pragmatic processes implicated in (2) that contribute to the construction of the ad hoc concept are missing, and the examples that Wilson and Carston provide give the discourse context but do not reveal the process by which the metaphorical content is arrived at.

Our theory is that disjoint metaphors can be generated from the implementation of standard pragmatic processes: loosening and narrowing and sense selection. Since this method does not rely on discourse context – we argue, in effect, that disjoint metaphors are not emergent properties but can be retrieved from the information content of constituent concepts – it avoids objection (a). We explicitly set out how pragmatic processes are employed in reaching the metaphorical concept, addressing objection (c). Finally, in answer to (b), while we allow that a discourse context may assist in working out the interpretation of a disjoint metaphor, the pragmatic processes can still operate with an unhelpful or misleading context.

Do comparable objections to those raised in (a) against discourse context also apply to our use of sense selection? Let us begin with the question of whether our examples of senses are gerrymandered. There are two ways in which our examples might have been gerrymandered: either by proposing an analysis of an expression which is not a genuine sense but a novel construction, or by taking an existing sense of an expression and doctoring it to suit the purposes of justifying a particular metaphorical interpretation. There is, however, a reliable way of determining whether an analysis should be regarded as providing an established sense: if it can be found in a standard entry (i.e. neither archaic nor obsolete) in reputable (single volume) dictionaries. This is not, of course, a necessary condition to determine an established sense because a non-specialist dictionary will not include, for example, the peculiarities of language uses of small communities; it does,

however, seem to be a sufficient condition. Moreover, all of the examples that we give in this paper are dictionary-based definitions.

Are we making an unwarranted assumption about the availability of senses that can be used to interpret disjoint metaphors? We have no *a priori* argument to show that for each disjoint metaphor there is an entry with a component expression with a secondary sense that can be used to construct the metaphor's content. However, our assumption is not unwarranted. It can be seen that our theory gives an account of how a disjoint metaphor can be arrived at using pragmatic processes that is supported with worked out examples, including some of the most widely discussed problem cases. This method can be used to explain all of the disjoint metaphors of which we are aware. Whereas with Wilson and Carston's theory there seemed to be plentiful examples of metaphors without the requisite discourse context, as shown by objection (b), our theory does not have the same obvious counterexamples. So while we cannot prove that that no counterexamples to our theory exist, they will, if they do exist, constitute a distinct (and, we suspect, a very much smaller) collection of cases than the class of category-crossing metaphors that have hitherto presented a serious problem for PPA.[16]

We have presented a theory of how category-crossing and disjoint metaphors can be understood which is consistent with PPA and, unlike the other suggested modifications of radical pragmatism that we have discussed, requires the introduction of no processes that are not already independently required by PPA.

NOTES

1. See e.g. Carston (2002), Wilson & Carston (2008), Recanati (2001, 2004, 2007). Advocates of what we are labeling PPA do not agree either in the details, or in the theoretical frameworks in which PPA is nested. Recanati takes utterance interpretation to rely on two sorts of primary pragmatic processes: (1) "bottom-up" processes include saturation of indexicals and sense-selection and are mandatory for any utterance interpretation; (2) "top-down" processes include modulation of senses of the sort outlines below and are triggered contextually by the demands of conversation. Carston and Wilson situate PPA within a Relevance Theoretical Framework. Modulations of sense are the results of an inferential process of utterance interpretation guided by the Principle of Relevance on this model. However, both parties share a commitment to the basic idea that contextually triggered pragmatic processes are responsible for metaphorical interpretation, and it is this commitment that we take to be essential to PPA.

2. Recanati maintains, however, that metaphors are not always striking. In the metaphor, "The ATM swallowed my credit card," we do not even register the departure from the literal. Metaphor, for Recanati, encompasses a continuum from

the barely noticeable to the obviously figurative cases of loosening. For more details on Recanati's view see Recanati (1993, 1995, 2001, 2010).

3. Other processes are sometimes postulated. For example, transfer – the process of shifting context to make available an alternative sense of an expression is sometimes postulated to explain metonymy. As we will explain below, we do not think transfer provides an illuminating explanation of metaphor. Furthermore, we aim to show that it is not needed for the explanation of metaphor. This does not show that transfer is not needed to explain other phenomena such as metonymy, but it does show that it, or any other process apart from the four listed above, would be redundant in the explanation of metaphor.

4. See Carston (2002: 321).

5. For more background and detail see Carston (2002), Ch. 5.

6. See Wearing (2014) for the most recent discussion of these cases.

7. Note that it is technically possible in principle to generate a disjoint case like BULLDOZER by loosening *then* narrowing, where the loosening eliminates all the necessary and/or sufficient conditions for the concept's application and then narrowing introduces a novel condition into the logical entry of BULLDOZER* that appears inconsistent with the conditions that have been excluded. However, this is of no assistance to the supporter of PPA since the source of the information in the novel condition and the reasons for introducing it would be mysterious. PPA requires a plausible account of how a hearer, using pragmatic processes and information that is available to her, interpret a disjoint metaphor.

8. This equivocation between literal and apparently metaphorical senses of certain expressions is noted by Pugmire (1998) and Martinich (1984).

9. It remains a possibility that "The surgeon is a butcher" is a dead metaphor, and that the expression "butcher" at one time had just the literal meaning "meat purveyor" from which its other senses were developed through their repeated metaphorical use. This, however, would require etymological evidence.

10. One suggestion we have encountered is that in the case where emergent properties arise from the modification of a concept to an ad hoc concept, the subject holding the emergent properties holds them in a different way to the way in which non-metaphorical subjects do. For example, in the metaphor "George is a monk" used to say of an individual who is not a member of any monastic order that they hold certain virtuous character traits, it might be suggested that the properties are possessed in a different manner to that in which actual monks have them. However, we see no concrete evidence of this: it seems to us that the move from MONK to MONK* may result in different properties, and different ranges of objects having those properties, but no difference in the way in which properties are instantiated.

11. Notably, as Recanati points out (2007: 162–163), the cases of metaphor that transfer is used to explain can also be understood as the product of loosening, making transfer redundant as a tool in explaining metaphor (although it should be noted that Recanati does think some phenomena, most notably metonymy, are best explained by appeal to transfer).

12. It is hard to see how Conceptual Metaphor Theory can even be subject to empirical testing: as Vervaeke & Green (1997) note in their critique of Lakoff (1987), the latter's insistence that the mechanism governing the redeployment of an expression

outside of its literal domain of use is culturally embedded in a non-deterministic way seems to make the theory immune to the consequences of the failure of any empirical predictions it might make about actual metaphorical utterances.

13. See also Wilson and Carston (2006).

14. As noted in section three, we do not regard this example as a genuine metaphor; we consider it here as illustrative of Wilson and Carston's approach.

15. We make no claims for the historical accuracy of this particular example; it is offered only to illustrate the way in which an ad hoc sense can become an encoded secondary sense.

16. One thing we have not addressed here, is why metaphors have the literary force that they do, if they can (as our account predicts) always be literally paraphrased. This has been a core question in the philosophical discussions of metaphor since Davidson (1979). While we offer no answer to that question in this paper, we hope that we have at least provided some constraints on an answer – the claim that metaphors express something ineffable in literal speech cannot be right if our theory of metaphor is correct.

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SAINSBURY AND TYE FAIL TO SOLVE FREGE'S PUZZLE

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ABSTRACT. In *Seven Puzzles of Thought and How to Solve Them*, Sainsbury and Tye argue for their Originalist theory of concepts on the basis that it solves seven well-known puzzles. These puzzles are traditionally seen as puzzles about language, and in particular puzzles concerning semantic content. Sainsbury and Tye argue that they have analogues as applied to the content of thoughts. In this paper I argue that their solution of Frege's Identity Puzzle (from "On Sense and Reference") is implausible, because Originalism fails to explain the difference in cognitive significance which Frege took to be the puzzling explanandum.

Keywords: Sainsbury; Tye; Frege; Originalism; language; thought

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"Discoveries happen in math too, and Fregeanism is really about discovery."
--Jason Stanley[1]

1. Introduction

Sainsbury and Tye (2012) argue for their Originalist theory of concepts on the basis that it solves seven well-known puzzles. These puzzles are traditionally seen as puzzles about language, and in particular puzzles concerning semantic content. Sainsbury and Tye argue that they have analogues as applied to the content of thoughts. In this paper I argue that their solution of Frege's Identity Puzzle (Frege 1892) is implausible, because Originalism fails to explain the difference in cognitive significance which Frege took to be the puzzling explanandum. In the next section I briefly review Frege's Puzzle

before explaining the putative solution of Sainsbury and Tye in Section 3. The bulk of the paper is Section 4, where I lay out in detail the reason for finding the Originalist solution unsatisfying. In concluding I briefly put the project of this paper in perspective of Sainsbury and Tye's book, and point out a take-home message of the book which remains even if Originalism fails.

2. Frege's Puzzle

Although Frege's puzzle of identity (1892) is familiar, a brief reminder may be important for understanding where Sainsbury and Tye go wrong in their solution. True identity statements of the form 'a = a' are trivial and uninformative, yet true identity statements of the form 'a = b' (where 'b' is a name which refers to the same object as 'a') can be significant and informative. The names 'Phosphorous' and 'Hesperus' were names given to the planet Venus by the Ancient Babylonians, who thought incorrectly that the astronomical bodies which they saw in the morning sky and in the evening sky were two different objects (at least according to philosophical legend).[2] This results in the following statements for illustration:

(1) Hesperus is Hesperus.
(2) Hesperus is Phosphorous.

If the meaning of a name is nothing over and above its referent,[3] then (1) and (2) have the same meaning, since the names 'Hesperus' and 'Phosphorous' designate the same object. However, (1) and (2) "have different cognitive values," as Frege puts it (p. 78). For instance, someone could believe (1) but not believe (2), as presumably the Babylonians did. Furthermore, (1) is trivial in the sense that it doesn't add to our knowledge, but (2) was an important discovery about the world. Frege's solution was to divide semantic content (which he called "thoughts") into two parts: Besides the referent ("bedeutung") of a name or other expression, there is also the sense ("sinn"), "wherein the mode of presentation [of the referent] is contained" (p. 57).[4]

Sainsbury and Tye note that this puzzle about sentences and their constituent names has an analogue for thoughts and their constituent concepts (as Fodor and others have previously realized). Putting the puzzle in these terms, they sum it up thus (p. 4):

> The concept HESPERUS would seem to represent just what the concept PHOSPHOROUS represents. So how can there be a difference between the thought that Hesperus is Hesperus (trivial) and the thought that Hesperus is Phosphorous (an important empirical discovery)?

3. The Originalist Solution

Sainsbury and Tye present some arguments against Frege's solution to the puzzle (22–26), most of which are familiar from Kripke (1980). For instance, one argument is that differences in knowledge concerning e.g. Aristotle would result in idiosyncrasies of sense associated with the name 'Aristotle,' but we all presumably share the same concept ARISTOTLE when we think thoughts about him (Sainsbury & Tye 2012, p. 17, 24). Since these arguments are well-known and I am sympathetic to them, I won't rehearse them here, but instead turn the focus to their positive view. The key Fregean principle which they reject is that cognitive differences such as that between (1) and (2) are to be explained by a difference in semantic content (p. 26).

Their basic idea is to individuate concepts by their *origin*, which is an event reminiscent of Kripke's *baptism* of a name (Kripke 1980, pp. 96–97; see the example of QUARK on p. 41 of Sainsbury & Tye 2012). According to Sainsbury and Tye, concepts have an introductory use which is their origin, and different concepts have different introductory uses. This is, they argue, analogous to the individuation of words (pp. 41, 58–63). Words are not individuated by their semantic content, because if two words are true synonyms (i.e. they have the same semantic content) they are nonetheless distinct words. After the initial baptism, concepts are transferred from person to person by series of "descendant" uses (pp. 44, 69–72, 81–85). Again, the sketch by Sainsbury and Tye is reminiscent of Kripke's causal chain story (see Kripke 1980, pp. 91–97).[5]

Sainsbury and Tye's solution to the Frege puzzle, then, is to explain the difference between the thoughts (1) and (2) as a difference in the concepts which are part of the thoughts. HESPERUS and PHOSPHOROUS are different concepts because they have different origins. Presumably, the concept PHOSPHOROUS was introduced on some particular morning and the concept HESPERUS was introduced on some particular evening. Thus, (1) and (2) are distinct thoughts (pp. 45, 124). Sainsbury and Tye (in agreement with e.g. Fodor and Edwards 2010) admit that HESPERUS and PHOSPHOROUS have the same content "since they refer to the same thing" (p. 45). Thus, (1) and (2) have the same content (as opposed to a Fregean view), but since concepts are individuated by their origin (1) and (2) are nonetheless different thoughts. This explains why, for example, the same person can believe (1) but not believe (2). Sainsbury and Tye hence reject the Fregean principle that the cognitive difference between (1) and (2) must be explained by a difference of content.

4. The Sainsbury and Tye Solution Doesn't Work

The problem I want to raise for Sainsbury and Tye's putative solution is that it doesn't provide a sufficient explanation of the explanandum which Frege was attempting to address. The Fregean data which need to be explained are the cognitive differences between identity statements containing distinct co-referential expressions. This includes the fact that the same person can believe (1) but not believe (2). Frege (1892) says, for instance (p. 56):

> … 'a = a' and 'a = b' are obviously statements of different cognitive value; 'a = a' holds *a priori* and, according to Kant, is to be labeled analytic, while statements of the form 'a = b' often contain very valuable extensions of our knowledge and cannot always be established *a priori*.

The theory of sense and reference is taken by Frege to explain this cognitive difference (p. 78):

> … the sense of 'b' may differ from that of 'a,' and thereby the sense expressed in 'a = b' differs from that of 'a = a.' In that case the two sentences do not have the same cognitive value. If we understand by 'judgment' the advance from the thought to its truth value, …we can also say that the judgments are different.

If two thoughts or expressions differ in content then it's straightforward why they should differ in cognitive role. However, the difference in terms of origin doesn't explain the cognitive difference between (1) and (2).

On the Originalist account, co-referring names should be like true synonyms – they have the same content, but are different words. For Sainsbury and Tye, the concepts HESPERUS and PHOSPHOROUS have the same content but are different concepts because they have different origins. Following their analogy with words (see pp. 41, 58–63), these situations should be analogous. But they're very different. For example, assume that 'polite' and 'courteous' are true synonyms.[6] If I think that Bob is polite but I mistakenly believe that the word "courteous" means *impolite*, then initially I might assent to (3) but not to (4):

(3) Bob is polite.
(4) Bob is courteous.

For Sainsbury and Tye, this should be analogous to the Frege cases.

However, when I learn the true meaning of 'courteous' and thereby come to assent to (4), I learn something new about *language*. I learn that two words which I believed to have different meanings actually have the same semantic content. However, if we were to call up Lois Lane and tell her that Clark Kent is Superman, then she's learned something new about *the world* – about how things are. She's learned something about the guy whose desk

sits next to hers. 'Clark Kent is Superman' and 'Hesperus is Phosphorous' are informative in a way that (4) is not. When I come to believe (4) as such I don't learn anything about Bob that I didn't already believe. However, Lois does learn something new about Clark Kent. Similarly, when the Babylonians discovered (2) they discovered something about the world, about the astronomical body in the sky. They didn't merely learn something new about their concepts. When I reflect upon not accepting (4) at an earlier point in time, I realize that I made a mistake about words, but that in a sense I believed (4) all along.[7] Lois's discovery is not only that she had a mistaken concept, but also that she was mistaken about a number of worldly facts. We might say that (2) and similar Frege sentences are *ontologically informative*, and this feature is left unexplained by the Originalist story.

Sainsbury and Tye argue that "distinct concepts can, and typically will, play different roles in our cognitive activities, even if they have the same content" (p. 53). They argue, for instance, that thinking (1) involves tokening the same concept twice but that thinking (2) involves tokening a new concept on the other side of the identity, and so will require more cognitive effort (p. 54). In this regard, their solution to the Frege puzzle appears similar to Fodor's.[8] Fodor (2008) argues that the cognitive difference between (1) and (2) can be explained by their syntactic difference. If the mind is computational and there's a language of thought, then it's straightforward how a syntactic difference can make a cognitive difference. Given the example concerning speed and ease of processing, Sainsbury and Tye appear to be thinking along the same lines. They conclude that "cognitive processing depends not directly on content but on the vehicles of content: concepts and thoughts" (p. 57). I agree with the latter point as far as it goes; in fact, I take it to be relatively uncontroversial. There is plenty of evidence that synonymous words can be processed differently, or even that the same word can be process differently when preceded by different sentences (ambiguous words, for example).

Where I disagree is with the claim that these sorts of differences in cognitive processing can explain the difference in informativeness between thoughts such as (1) and (2). Discovering that Hesperus is Phosphorous feels like discovering something about the external world, rather than discovering something about cognition. For example, by using multiple object tracking displays I may discover that I can only visually track four objects at a time (Pylyshyn 2001). In this way I discover something about human cognition, about cognitive processing. Or suppose through seeing a Freudian psychoanalyst I discover that I subconsciously think of my father as a competitor for my mother's affections. In this way I learn something about my beliefs and my cognitive processing, but I don't learn anything about my father.

These sorts of discoveries about cognition contrast with the Babylonians' astronomical discovery that Hesperus is Phosphorous.

Sainsbury and Tye attempt to make room for this intuition by distinguishing two different kinds of discovery (pp. 125–127). (2) is a *Cognitive Discovery* for the Ancient Babylonians because this particular thought, which has as a part constituent concepts which are individuated by their origin, was not previously known by them. It's not a *Possibility-Eliminating Discovery* since, being a necessary truth, it doesn't "shrink the set of [metaphysically possible] worlds that are consistent with what we know" (p. 125). However, Sainsbury and Tye continue, that just puts all identity statements in the same category as mathematical truths and other necessary truths. We can talk about mathematical discoveries or the discovery that water is H_2O, but these are all cognitive discoveries and not possibility-eliminating ones. Everyone is in the same boat here because "this is simply how things are on any reasonable view" (p. 125). It doesn't depend upon Originalism about concepts.

However, this distinction doesn't help. Recall that Frege's Puzzle begins with a supposition which Frege himself will eventually reject: Supposing that reference exhausts content, then the content of (1) and (2) are equivalent, and we can't explain their difference in cognitive significance. Frege rejects the supposition because he thinks that content is a combination of sense and reference. If one accepts the supposition, then one needs a new explanation. Furthermore, everyone is clearly not in the same boat here, because if one accepted the Chalmers-style Two-Dimensionalist picture which Sainsbury and Tye criticize (to take just one example), then one could say that we eliminated a possibility (in one sense) when we discovered that water is H_2O.

Sainsbury and Tye simply take an odd view about concept individuation and tack on an implausible view concerning discovery. Water is H_2O was a scientific discovery of a fact about our world. It's a necessary truth, and so doesn't eliminate a metaphysical possibility, so a theory about possible worlds which results in this not being "new information" (p. 125) is a *prima facie* bad theory. The problem with the Sainsbury and Tye view is that discovering Hesperus is Phosphorous is for them learning something new about our concepts or about our cognition when intuitively it is learning something about the external world, and this has nothing to do with the metaphysical necessity of identity statements.

Furthermore, recall that Frege's Puzzle is a puzzle about what distinguishes two different sorts of identity statements – the identity statements exemplified by (1) and (2). Using Sainsbury and Tye's distinction we can simply restate the puzzle thus: Given that they are both identity statements with the same content, what makes (1) trivial but (2) a cognitive discovery? Sainsbury and Tye don't say much about cognitive discoveries, and don't tell any kind

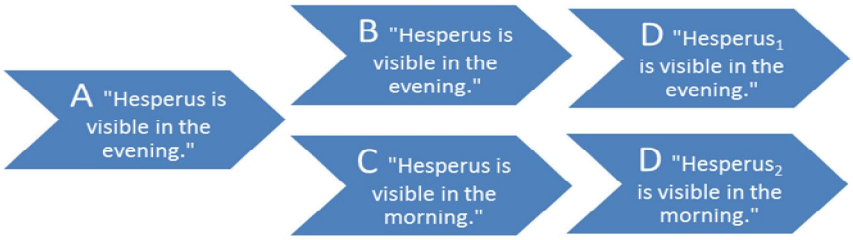
of story as to why different origins of concepts should lead to one. For someone who believes that Bob is polite, 'Bob is courteous' is not informative. Either the hearer doesn't know the meaning of the word 'courteous,' in which case it won't mean anything at all, or she does and so doesn't learn anything new, or else she is mistaken about the meaning of the word 'courteous.' I guess the Babylonians are supposed to be in the latter sort of predicament. But then, correcting the listener only informs her about the meaning of a word, but doesn't add to her knowledge of anything outside of vehicles of content (i.e. words). All identity statements are necessary and so none of them can be possibility-eliminating. However, what is interesting is that some identity statements (viz. those of the form 'a = a') are trivial and knowable a priori, whereas others are important scientific discoveries. Even Kripke (1980) – the definitive dismantling of descriptivism – notes that there is an epistemic sense in which e.g. *water is H_2O* could have turned out otherwise (see e.g. pp. 140–141). This is the crucial difference which Frege sought an explanation for.[9]

All of these considerations point to the general problem with Sainsbury and Tye's proposal. Frege is concerned with the different cognitive roles played by thoughts such as (1) and (2),[10] but *prima facie* the origin of a concept has little to do with its role in an agent's psychology. If the analogy with words were correct, then we can see how such a difference would affect cognitive processing, but this fails to explain the cognitive difference in question, such as how it is possible that one may believe one but not the other. What is needed for a solution to the Frege Puzzle is not just pointing something which could distinguish thoughts such as (1) and (2), but also something that can *explain* how one could be trivial but the other could be informative – informative enough to count as a scientific discovery. If it were simply a matter of finding *some* difference between (1) and (2), then we could simply individuate words and concepts by their spelling in English, for example. A plausible solution to the puzzle must explain the cognitive difference which Frege was interested in.[11]

Furthermore, the Originalist story doesn't appear able to distinguish every thought which has a different cognitive role. As an illustration, Originalism appears subject to a problem which McKay (1984) raises for a similar view (pp. 365–366). The counter-example runs as follows (adapted to fit Sainsbury & Tye; see Figure 1). Suppose we have four Ancient Babylonians, call them A, B, C, and D. A has inherited the concept HESPERUS from a series of descendent uses from the introductory origin event. He tells both B and C that Hesperus is visible in the evening. B reports to D that Hesperus is visible in the evening, but C (for whatever reason) tells D that Hesperus is *not* visible in the evening. D believes both B and C and assumes that they must be talking about two different astronomical objects which happen to

share the same name. Now D has contradictory beliefs, and both of them make use of the same concept HESPERUS, with the same origin (and a nearly identical history of descendent uses). Once again, individuation of concepts by their origin doesn't neatly track differences in cognitive role.

Figure 1 Counterexample to Sainsbury and Tye



5. Conclusion

In this paper I have demonstrated that Originalism fails as a solution to the Frege Puzzle. Sainsbury and Tye see their argument as holistic – their solution works for all seven puzzles, whereas many piecemeal plausible solutions are in conflict with each other (p. ix). However, failing to solve Frege's puzzle at all is a significant problem for them, and pointing out why it fails is a criticism of Originalism as a theory of concepts. There are six other puzzles which we lack the space to discuss, but as many of these puzzles also have to do with the cognitive role of thoughts which *prima facie* look to have the same content according to Direct Reference theories, Originalism may be poorly suited to handle those puzzles for reasons similar to the ones I have given here. Nonetheless, we may still take home one point from the book: In solving philosophical puzzles, it's important to come up with solutions that are consistent with each other. This is an important aspect of the process of reflective equilibrium in which many philosophers (including myself) feel themselves to be engaged.[12]

NOTES

1. This was an aside during Stanley's comments for the Author Meets Critics session for Chalmers (2012) at the 2013 Pacific Division Meeting of the American Philosophical Association in San Francisco.

2. Frege's original examples are 'morning star' and 'evening star' and two distinct definite descriptions referring to the same point of intersection on a triangle (p. 57). I believe it was Quine who altered the Morning Star/ Evening Star example to Hesperus/ Phosphorous.

3. This is the Direct Reference view of Mill, Kripke, Kaplan, Donnellan, Salmon, Soames, McKay, and many others.

4. Getting clear and precise about Frege's *sense* is not an easy task, and one that would take us too far afield here. It suffices for our purposes to know that different expressions can share the same sense and that co-referential expressions can differ in sense. It is this latter fact which explains the puzzle. One way to understand senses is that they do much of the theoretical work for names (and probably other expressions) that propositions do for sentences.

5. Of course, Kripke's causal chain story is a picture of how reference works, and not a theory of individuation. Fodor and others would object to the very idea of passing along concepts as a matter of convention, weakening the analogy with words which Sainsbury and Tye employ, but let's set that worry aside for the sake of argument.

6. There may be no true synonyms in actuality, because every word may have at least some slight variation in meaning. However, they are at least possible in principle.

7. More strictly, according to Originalism I didn't believe (4) but I believed a thought with the exact same content. (Thanks to Alex Grzankowski for pointing this out.) However, my point is that intuitively there is a sense in which I believed (4) all along, but no sense in which Lois believed "Clark Kent can fly" or the early Babylonians believed "Hesperus rises in the morning."

8. On page 53 (footnote 17), Sainsbury and Tye quote Fodor approvingly and agree that in the Frege puzzle, differences in the medium and not the message can do the needed explanatory work. They also express agreement with the spirit of the Fodor solution from *LOT 2* on page 73 (footnote 16) and page 85.

9. It is for similar reasons that I find Sainsbury and Tye's purported solution to the paradox of analysis (pp. 74–75) unsatisfactory.

10. Frege was concerned with sentences, but remember that Sainsbury and Tye are concerned with an analogous problem for thoughts.

11. Robert Stainton objects that one could argue that Frege is in the same boat, because according to his solution the Babylonians didn't learn anything new about the world, but only something about the sense (Sinn) of the two expressions. However, it is intuitively obvious how a difference in content could explain the cognitive difference between (1) and (2). After all, they mean different things. But a difference in origin seems completely irrelevant. For instance, we normally think that the same thought can be expressed in different languages. However, if two languages are unrelated in ancestry, then Originalism would have the consequence that sentences with the same meaning but in different languages would constitute distinct thoughts. In this and other ways, I think that Originalism clashes with how we normally use 'that' clauses, whereas a difference in content would not.

12. Thanks to Kevan Edwards for comments on an earlier draft of this paper. Thanks to José Benardete, André Gallois, Tom McKay, Lucia Munguia, and Bob Van Gulick for helpful discussion of some of the topics of this paper. This paper was presented at the 2013 Pacific Division Meeting of the APA, and I would also like to thank audience members who asked questions and helped me to think more about this issue, especially Alex Grzankowski, Dan Korman, my commentator Ted Parent, Robert Stainton, and Michael Tye.

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WITTGENSTEIN ON *ANIMAL* (HUMAN AND NON-HUMAN) LANGUAGES

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ABSTRACT. In this paper, I propose an analysis of the quite original Wittgenstein naturalism. Wittgenstein included human language into the wider category of animal language. Wittgenstein's naturalism clearly shows itself in his ethological description of human language – a description based on the frequent and illuminating comparison between non-human animal and human animal behaviors. According to Wittgenstein, each language is relative to a species-specific "form of life." Therefore, the differences between animal (human and non-human) languages are differences in the kind of actions that each "form of life" can realize through its own language. Consequently, between human and animal language there is not a difference in kind; rather, the difference between them is a difference between the relative "forms of life." Inside such a naturalistic frame, Wittgenstein never forgets that human language is part of animal languages.

Keywords: Wittgenstein; naturalism; animal language; human language; human nature

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> "In Rosroe Wittgenstein is still remembered as the man who talked to the birds."
> (*Portraits of Wittgenstein*, vol. IV, p. 36)

1. Kinds of "Naturalism"

Although the issue of Wittgensteinian naturalism is quite controversial (Strawson, 1985; Hilmy, 1989; Wolgast, 1994; Das, 1998; Haines, 2000; de Lara, 2003; Dromm, 2008; Tripodi, 2009; Coliva, 2010; McGinn, 2010; Hertzberg, 2011; Kenny, 2011; Moyal-Sharrock, 2013), in this paper I will

maintain that Wittengenstein's description of human language is fully naturalistic. Therefore my argumentative strategy will not to demonstrate that Wittgenstein enlisted to some form of explicit "naturalism," rather I will try to show how Wittgenstein was in fact a sort of naturalistic philosopher when he actually described linguistic phenomena. In particular, his naturalism is apparent in the contrastive comparison he frequently makes between human and animal behavior and language. Wittgenstein is a philosopher who is part of that naturalistic vein that − from Aristotle to Merleau-Ponty − cannot consider philosophy without taking into account the basic bodily experiences of *Homo sapiens* as an animal (albeit an animal with quite peculiar characteristics).

As well known (Rosenberg, 1996; Stroud, 2009; Ritchie, 2014), it is a very difficult task to exactly establish what "naturalism" is; an even more difficult task is to know if Wittgenstein can be considered a naturalistic philosopher (Moyal-Sharrock, 2004; Kenny, 2011; Searle, 2011). Despite these difficulties, I will try to elaborate a tentative and operative concept of *naturalism* that I will use in this paper. Firstly, *naturalism* does not mean materialism, that is, the thesis that only material entities exist. For example, an oral language exists, even if it is not the same sort of thing as an apple or a cat (i.e., a description of the material aspects of a language does not capture what make them *linguistic* entities; Williams, 2011). Epistemologically, this means that it is not the case that only an entity which can be explained by a natural science – like physics or biology – can be considered natural (Searle, 2011). That is, a naturalistic approach does not assume the same stance as "hard" sciences. More controversially, a description of a phenomenon can be considered naturalistic even if it cannot be formulated in evolutionary terms.

This is an important point to remember if one wants to understand Wittgenstein's remarks that human language is a "natural" phenomenon, in contrast with an emphasis on evolutionary explanations of human mind (Pinker, 2002). For example, Wittgenstein, in order to delineate the basic characteristic of human language, quite frequently makes reference to animal behavior (Frongia, 1995; Ángel Garcia, 2013; Moyal-Sharrock, 2013); at the same time, he never seems interested in evolutionary explanations of human language. That is, he does not search animal behavior for any precursor of human behavior. Wittgenstein does not seem to distrust evolutionary explanations because he believes that that evolutionary biology is not a science. His point is that evolutionary explanations frequently involve anthropocentrism (Gordon, 1992; Chomsky, 2007) and conceptual confusion which prevent us from seeing the differences between Homo sapiens' language and all other animals' languages. At the same time, and in sharp contrast with many others philosophers, Wittgenstein describes human language and behavior in a very

crude and simple way, because there is nothing special in human language (Ferretti, 2007). For Wittgenstein a "naturalistic" stance mainly means to look for differences more than similarities. This is a point frequently misunderstood: biology is not the science of similarities between forms of life, rather it is the science of similarities and differences between them (Mayr, 1976). Therefore, Wittgenstein naturalism is neither epistemological nor properly philosophical; moreover, Wittgenstein is a naturalistic philosopher when he describes human language in the same way an ethologist looks at animal behavior. In particular, an ethologist looks at animal behavior from a radically external point of view; for this reason, her first duty is to describe what she *actually* sees in an accurate way. She has to abstain from any explanation just because she belongs to a different "form of life:" «Philosophy must not interfere in any way with the actual use of language, so it can in the end only describe it. For it cannot justify it either. It leaves everything as it is» (Wittgenstein, 1953, I, § 124). Such an original dislike for explanations qualifies Wittgenstein philosophy as a kind of naturalism.

2. «If a lion could talk»

«If a lion could talk – Wittgenstein wrote in *Philosophical Investigations* (I, § 327) – we wouldn't be able to understand it». A lion is a living being. A lion belongs to a completely *different* form of life from the human one. Let's suppose that the lion speaks English. The lion says, in front of an herbivore, "That's a gazelle." Why «we wouldn't be able to understand it.»? When someone says "that's a gazelle," it is likely she wants to get our attention, she wants to inform us about the particular animal, or she is simply describing what she is seeing. The speaker does not need to make explicit what she intended to say when she uttered "that's a gazelle." She and her listeners share «a dark background» (Wittgenstein, 1979, p. 36). For example, in such a «background» there is the tacit assumption that words make reference to objects (apart from the annoying exception of the words that do not make reference to objects, like "love" or "god"): «The usual way of looking at things sees objects as it were from the midst of them, the view *sub specie æternitatis* from outside. In such a way that they have the whole world as background» (p. 83). In contrast, when a lion says "that's a gazelle" how can we assume that from *its* point of view, objects exist which «have the whole world as background»? In the case of the lion such an assumption is completely unwarranted; maybe the lion does not see objects in space, but instead it takes part in a global event: gazelle + savannah + lion + hungry and so on (Schaller, 1972). However, there is another, more serious problem: what did the lion intend to do when it uttered "that's a gazelle"? What does it want *to do* with such an utterance? There is no common ground between it

and us that could help us understand what such an utterance was purported to do. The speaking lion case is akin to the case of the «calculating machine» case, which causally "computes" a product:

> Does a calculating machine calculate? Imagine that a calculating machine had come into existence by accident; now someone accidentally presses its knobs (or an animal walks over it) and it calculates the product 25 x 20. I want to say: it is essential to mathematics that its signs are also employed in *mufti*. It is the use outside mathematics, and so the meaning of the signs, that makes the sign-game into mathematics (Wittgenstein, 1967, p. 257).

It is not sufficient for a calculus to be algorithmically exact: a calculus is correct when it is part of a complex set of activities, to a «form of life», where it acquires all its value and meaning. The same situation applies to the case of the lion: a "correct" utterance without the context that makes it meaningful. Since we and the lion do not participate in the same «form of life», we as humans cannot understand what it says, even if we can decipher its utterances' sounds.

This is a very important point, if one wants to understand Wittgensteinian naturalism: non-human animals are *completely* different from human beings, even if this is not a zoological difference, rather it is such a difference that exists between different "forms of life." Wittgenstein does not want to deny the obvious biological similarities between *Homo sapiens* and all other living beings – his point is methodological, not zoological. What he wants to stress is the radical difficulty in putting aside our point of view, when we describe other forms of life. When he spoke of animals, he was interested in the *difference* between life forms. For example, to consider a dog as somewhat similar to a human is deeply unfair. As a living being, a dog has to be considered on its own, not as an incomplete form of humanity. When a person, who says that she loves animals, says that "her" dog does not speak, for example, she is presuming that humanity represents the reference point for all living beings. According to Wittgenstein, there is no hierarchy of life forms. From this point of view, Wittgenstein never falls into anthropomorphism. For example, he once wrote: «How do I know that a dog is hearing something continuously, is having a continuous visual impression, that it feels joy, fear, pain? What do I know of the 'experience contents' of a dog?» (Wittgenstein, 1980, § 922). The more radical question is the latter: how can one even imagine what a dog's "experience content" could be? Animality, for Wittgenstein, always implies a radical diversity from what we are, and from what we believe to know about ourselves.

What is animality according to Wittgenstein? «A child has much to learn before it can pretend. (A dog can't be a hypocrite, but neither can it be sincere)» (Wittgenstein, 1953, II, p. 229). Hypocrisy is a peculiar double

psychological state: one presents an attitude – for example, mourning – while secretly she is happy. The body and the face present a certain way, but what the "I" feels finds itself elsewhere. A child can learn how to pretend, a dog cannot. This does not mean that the dog is sincere, because there is no sincerity without hypocrisy (as there is no truth without falsity). The dog lives in the *hic et nunc*. In *Culture and Value* Wittgenstein wrote:

> 389. [Someone] might surely be taught e.g. to mime pain (not with the intention of deceiving). But could this be taught to just anyone? I mean: someone might well learn to give certain crude tokens of pain, but without ever spontaneously giving a finer imitation out of his own insight. (Talent for languages.) (A clever dog might perhaps be taught to give a kind of whine of pain but it would never get as far as conscious imitation) (Wittgenstein, 1998, p. 108).

A dog could learn «a kind of whine of pain», but for the dog, such a behavior would be only a behavior like any other one. The dog is not aware of pretending. In order to be aware of pretending the dog should be able to live in two different times together: the space-time where pretending takes place, and the space-time where the dog behavior is sincere. This means to live beyond the chronological time of the *body* (but not the self reflexive "I"): «We say a dog is afraid his master will beat him; but not: he is afraid his master will beat him tomorrow. Why not?» (*Philosophical Investigations*, I, § 650). In order to have the concept "tomorrow" one has to master at least the concept of "yesterday" and "today." Nevertheless, how could one explain the difference between these concepts without the corresponding words, a calendar, or a clock (Glock, 2000)? A dog does not have the *explicit* concept of "tomorrow" because it does not master a complex language (here it is important to take notice of the difference between an explicit – therefore, often conscious – concept and an implicit one):

> One can imagine an animal angry, fearful, sad, joyful, startled. But hopeful? And why not? A dog believes his master is at the door. But can he also believe that his master will come the day after tomorrow? And what can he not do here? How do I do it? What answer am I supposed to give to this? Can only those hope who can talk? Only those who have mastered the use of a language. That is to say, the manifestations of hope are modifications of this complicated form of life. (If a concept points to a characteristic of human handwriting, it has no application to beings that do not write.) (Wittgenstein, 1953, part II, I).

There is an important difference between being joyful and hopeful. A dog is joyful when it can play with its friends, for example, or when it is not hungry, or when there is no danger around. Joyfulness is a bodily feeling. On the contrary, one is hopeful when what is actually present does not completely

satisfy one. The body is here, but the "I" is not here but elsewhere. Hope implies a dualism between the body and "I," the mind. In order to think of what is not present, one needs a cognitive device, which dislocates the "I" from the place the body actually encompasses. For example, one at least needs the concept associated with a word like "tomorrow." That is, one needs (human) language and all the «modifications of this complicated form of life». Animality attracts Wittgenstein just because it represents a form of life where language's relevance is limited (all animals to a lesser or greater degree communicate; cf. Hauser and Konishi, 1999; while *Homo sapiens* seems to be a form of life *completely* based on language). On the contrary, animality entirely participates in the flow of life: for this reason, animality is not able to detach itself from the space-time in which it is embedded: «an animal cannot point to a thing that interests it» (Wittgenstein, 1992, p. 41). In order to point to something, one needs to separate the place which the body encompasses and what the body is attracted to, as if body and object were *two* different entities. Pointing implies the capacity for the body to transcend its own position, and placing itself elsewhere. Only a living being, which is able to think in language, seems able to create such an experience (Miklósi and Soproni, 2006).

This a clear example of the risk of attributing to a non-human animal a humanlike attitude. Take the case of the pointer, the dog who "points" the prey for the huntsman. There is pointing from the huntsman's point of view, who uses the dog's position and posture like a signal that refers to an object. On the contrary, from the dog's point of view, there probably is a unitary tight bond between it and the prey; there are not two entities – the dog and the prey – there is just one perceptual-affective unitary event, dog + prey. According to Wittgenstein, animality is the condition in which someone proves one is absolutely certain of what one feels and does:

> 358. Now I would like to regard this certainty, not as something akin to hastiness or superficiality, but as a form of life. (That is very badly expressed and probably badly thought as well.)
> 359. But that means I want to conceive it as something that lies beyond being justified or unjustified; as it were, as something animal (Wittgenstein, 1969).

It is not surprising that in the book he was working on in the last days of his life, *On Certainty*, Wittgenstein raised the question of animality, which helps Wittgenstein to find a stable, "natural," ground for language:

> 475. I want to regard man here as an animal; as a primitive being to which one grants instinct but not ratiocination. As a creature in a primitive state. Any logic good enough for a primitive means of communication needs no apology from us. Language did not emerge from some kind of ratiocination.

For such a «man here as an animal» language would be no more the cognitive device which produces abstract and unavailable entities like the "meanings," which separates the body from the "I", which makes possible the experience of hope at the same time frustrating and exciting (Moyal-Sharrock, 2004; Moyal-Sharrock, 2013; Kern, 2015).

3. Language and Instinct

In Wittgenstein there is a double and opposite movement in respect to animality. On the one hand, he underlines the differences between human and non-human animal language; on the other hand, however, sometimes he seems to use animal behavior as a model to understand *human* language, in particular language origins (Malcolm, 1982): «I want to regard man here as an animal». The point Wittgenstein wants to stress is that language is not an intellectual practice, but it is mainly action (Borghi, Cimatti, 2010; Moyal-Sharrock, 2013): «Does a child believe that milk exists? Or does it know that milk exists? Does a cat know that a mouse exists?» (Wittgenstein, 1968, § 478). The child stretches out her arm to grab the milk bottle without asking herself if the bottle really exists, like the cat chases the mouse without asking itself if it really exists. That is, language only is possible because we take it for granted as our hand without reflection takes for granted the existence of the milk bottle: «at any rate that we quite instinctively designate those objects by means of names» (Wittgenstein, 1961, p. 48). In this sense, the situation of the origin of language repeats itself each time we speak, because each time we instinctively presume that language is completely at our disposal, like the milk for the child, or the mouse for the cat:

> I really want to say that scruples in thinking begin with (have their roots in) instinct. Or again: a language-game does not have its origin in consideration. *Consideration* is part of a language-game. And that is why a concept is in its element within the language-game (Wittgenstein, 1980, § 632).

At the beginning of language – a beginning that begins each time someone speaks – there was neither consideration nor scruple. For this reason when Wittgenstein has to imagine the primitive language situations appeals to children *and* animal examples, because «language did not emerge from some kind of ratiocination»:

> 501. Am I not getting closer and closer to saying that in the end logic cannot be described? You must look at the practice of language, then you will see it.

The logic of language cannot be described because language is not a calculus, because there is not a shared and explicit set of rules, which grounds

it. If language were separable from the human body, it could be described as a separate object, like the anatomical and physiological description of a hand. The paradox here is that we cannot describe human language without using language. The description of a particular language, English, is always a sort of translation in *another* language – for example, Italian. That is, language is not really explained, that is, reduced to some other more basic phenomenon (Williams, 2010); the best we can do is to paraphrase it in another language (like the language of formal logic). «'Understanding' and 'meaning' are not metalogical concepts» (Wittgenstein, 1974, p. 46); that is, they are at *same* logical level of the phenomena they claim to explain:

> One might think: if philosophy speaks of the use of the word "philosophy" there must be a second-order philosophy. But it is not so: it is, rather, like the case of orthography, which deals with the word 'orthography' among others without then being second-order (Wittgenstein, 1953, I, § 121).

On the contrary, a phenomenon only is scientifically explained when it is somewhat melted in the explanation, like when water is no longer wet and liquid once that it is translated in the chemical formula H_2O. From this point of view, Wittgenstein can put in unique class seemingly different concepts like "logic," "animal," "child," and "instinct" because all of them share a common character: they designate situations and behaviors, which do not need further ground. For example, an "instinct," like a "tautology," is a behavioral state that is enough in itself; it is the *ultimate* ground. It is obvious that an instinct has an evolutionary origin that can be more or less easily traced (Tinbergen, 1951). The point here is that once the instinct has been established in the behavioral repertoire of an animal, its "functioning" does not depend any longer on its phylogenetic origins (the major part of what I can do with a pencil does not depend on the geological characteristics of graphite). Now the instinct, like a tautology which «is true for all the truth-possibilities of the elementary propositions» (Wittgenstein, 1922, § 4.46), is «without sense» (§ 4.461) because it is – roundly, tautologically – what it is. In fact, when it is the case the instinct simply clicks. The ground of language is completely natural, *therefore* it is «without sense» (In this sense Wittgenstein admits a ground – he is not a relativist; Coliva 2010 – although such a ground is «without sense»).

In *Philosophical Investigations* (I, § 467), Wittgenstein asks himself why humans think. A standard phylogenetic answer is that humans think because an earlier form of *Homo sapiens* species (maybe when it was not already *sapiens*) was rewarded for casually behaving intelligently (it is better here to neglect the paradox implicit in such a sentence). It could be a good answer; the point is that whatever was the biological origin of thinking, now humans think regardless of such an origin.

> Does man think, then, because he has found that thinking pays? – Because he thinks it is advantageous to think? (Does he bring his children up because he has found it pays?).

Could a *human* being not think? If such a being is human, she must think. Thinking is human nature. The point is that «human beings do in fact think» (§ 465), like they do in fact speak. That is, the nature of human beings is thinking (and speaking). In this sense an assertion such as "human beings think" is not a scientific one (that is, an assertion that could have been false), it is not a discovery. In fact, it is a tautology. In the peculiar Wittgensteinian naturalism, there is an ultimate ground; it is the groundless fact that human beings speak.

> Man possesses the capacity of constructing languages, in which every sense can be expressed, without having an idea how and what each word means – just as one speaks without knowing how the single sounds are produced. Colloquial language is a part of the human organism and is not less complicated than it (Wittgenstein, 1922, § 4.002).

This is a typical character of Wittgenstein naturalism: the «general facts of nature» (Wittgenstein, 1953, I, § 141) are as instinctive as logical: «654. Our mistake is to look for an explanation where we ought to regard the facts as 'proto-phenomena.' That is, where we ought to say: *this is the language-game that is being played*» (I, § 654). Such a naturalism implies more a stance than some specific thesis. A "naturalism" according to which human behavior is to be faced as any other animal phenomena.

4. Children, Cocks and Cats

The problem of language origin is not different from the problem of how a child acquires the capacity to name an object or a "mental" state. In both cases, the problem is not to acquire a new cognitive ability, rather to be trained in new actions. Wittgenstein frequently stresses this point: language acquisition is a matter of training more than teaching. From this point of view, a comparison is possible between human language and animal language:

> We say: 'The cock calls the hens by crowing' − but doesn't a comparison with our language lie at the bottom of this? −Isn't the aspect quite altered if we imagine the crowing to set the hens in motion by some kind of physical causation? But if it were shewn how the words 'Come to me' act on the person addressed, so that finally, given certain conditions, the muscles of his legs are innervated, and so on – should we feel that that sentence lost the character of a *sentence*? (Wittgenstein, 1953, I, § 493).

What is the difference between a cock's catchword and the human sentence? When the cock calls, the hens approach it; when the teacher calls the student, she approaches her. The difference does not consist in the "internal" mechanism, which would produce a «physical causation» in the cock's case, while a completely different one would operate in the human case (that is, the difference is not that causes operate in animals, while reasons in humans). Because if one day it will be discovered that in human language a «physical causation» operated too, such a discovery would not deprive the words "come to me" of the *sentence* character: «Animals come when their names are called. Just like human beings» (Wittgenstein, 1994, p. 73). What turns into a sentence the sounds produced by a human's voice, is not a special mental characteristic, but their actual use in a «language game». "Come to me" is a sentence when it represents a permissible move in the classroom situation, for example. The meaning of "Come to me" is not inside these words, but in the relations they entertain with all other words that could have been occupy (or not) their place: «to imagine a language means to imagine a form of life» (Wittgenstein, 1953, § 19). If all the huge net of the other possible moves is lacking, then "Come to me" is no more a sentence.

Such a naturalistic perspective allows Wittgenstein to compare the cock call to the teacher's words. The difference between them consists in the very different range of moves that are at disposal of the cock and hens compared to the teacher and the pupils. That is, a cock can do very little with its calls, while a human being can perform many different actions with her words:

> It is sometimes said that animals do not talk because they lack the mental capacity. And this means: 'they do not think, and that is why they do not talk.' But − they simply do not talk. Or to put it better: they do not use language − if we except the most primitive forms of language. −Commanding, questioning, recounting, chatting, are as much a part of our natural history as walking, eating, drinking, playing (Wittgenstein, 1953, I, § 25).

The cock has at its own disposal «the most primitive forms of language» only. It is apparent that animals have the capacity to communicate. The point here is not to trace a sharp dividing line between ourselves and other animals. We never find in Wittgenstein's work any pompous declaration about the alleged superiority of the human species over all the rest of animal world (like we can find in Heidegger [1929/1930] 1983, for example). Wittgenstein's naturalistic stance about human language presupposes a continuous comparison to animal languages and behaviors. At the same time, what interest him are – as usual – the differences between the various forms of animal communication. This naturalistic approach allows him to make unusual but illuminating comparisons between animals, such as between children, dogs and cats (Cimatti and Vallortigara, 2015). In a passage of

Brown Book, Wittgenstein asks himself how a child acquires the capacity to give a name to a new object depicted in a picture book. What Wittgenstein is interested in here is how the capacity to name an object is included in a larger form of life:

> The pupil will now be encouraged to make use of the new picture and word without the special training which we gave him when we taught him to use the first table. These acts of encouragement will be of various kinds, and many such acts will only be possible if the pupil responds, and responds in a particular way. Imagine the gestures, sounds, etc., of encouragement you use when you teach a dog to retrieve. Imagine on the other hand, that you tried to teach a cat to retrieve. As the cat will not respond to your encouragement, most of the acts of encouragement which you performed when you trained the dog are here out of the question (Wittgenstein, 1958, p. 90).

While the cat is a very recently domesticated animal (Driscoll et al., 2009), the dog is the first animal humans lived with together (Job et al., 2011). That is, the dog's form of life has many characteristics in common with the human one, while the same does not apply to cats. This is a very important point, which demonstrates how Wittgenstein took into account the biological constraints that make human language development possible. That is, according to Wittgenstein, non-linguistic biological prerequisites are necessary for language to develop (Gallese, 2007). The necessity of such prerequisites is particularly evident when a child learns how to name a so-called "mental" state. This is a critical moment in language development, because from now on completely new forms of action became possible:

> Suppose someone explains how a child learns the use of the word "pain" in the following way: When the child behaves in such-and-such a way on particular occasions, I think he's feeling what I feel in such cases; and if it is so then the child associates the word with his feeling and uses the word when the feeling reappears. −What does this explanation explain? Ask yourself: What sort of ignorance does it remove? −Being sure that someone is in pain, doubting whether he is, and so on, are so many natural, instinctive, kinds of behaviour towards other human beings, and our language is merely an auxiliary to, and further extension of, this relation. Our language-game is an extension of primitive behaviour. (For our language-game is behaviour.) (Instinct) (Wittgenstein, 1981, § 545).

A child hits her knee against the corner of a table. She begins to cry. An adult attends to the scene, and while he assists and consoles her, he says to her a new word, "pain," which she immediately associates with what she is feeling in that moment (Markman, 1994). The possibility of a new and complicated behavior has appeared. How did the adult correctly guess what had

occurred in the child's body? In fact, it is not a true inference, because the adult did not need to *think* about what the little girl was experiencing. They share a common non-linguistic and non-conceptual space (Gallese et al., 2004), which allows them to participate in a unitary behavioral and affective state. Such a state is a common ground just because one cannot explain it, because: «instinct comes first, reasoning second. Not until there is a language-game are there reasons» (Wittgenstein, 1980, § 689). When there are no more reasons, one arrives at the non-linguistic ground (Moyal-Sharrock, 2013). This the natural ground of language, which is groundless exactly because it is the ground; if another ground could be founded for such ground, then it should not be considered a ground: «Justification by experience comes to an end. If it did not it would not be justification» (Wittgenstein, 1953, I, § 485):

> To what extent can the function of language be described? If someone is not master of a language, I may bring him to a mastery of it by training. Someone who is master of it, I may remind of the kind of training, or I may describe it; for a particular purpose; thus already using a technique of the language. To what extent can the function of a rule be described? Someone who is master of none, I can only train. But how can I explain the nature of a rule to myself? The difficult thing here is not, to dig down to the ground; no, it is to recognize the ground that lies before us as the ground (Wittgenstein, 1967, § 31).

5. What Is Human Language?

On the one hand, Wittgenstein's description of human language is completely naturalistic; on the other hand, however, it is a naturalism quite different from what would be considered naturalism nowadays. The major difference is that when the natural ground of language has been recognized, then Wittgenstein maintains that our (philosophical) research has to stop. Wittgenstein is not interested in the phylogenetic causes of our behavior, because when behavior is described through the causes that (maybe) determine it, then it is no longer behavior. Notwithstanding his attention to natural sciences, what Wittgenstein is interested in is what is rule-governed, that is, «language games». Under these rules there are the «very general facts of nature» (Wittgenstein, 1969, § 209) which place themselves outside our investigation: «Psychology connects what is experienced with something physical, but we connect what is experienced with what is experienced» (Wittgenstein, 1977, § 234).

Take the case of the child who acquires the capacity to speak of her "internal" states. As we have previously seen, such a capacity presupposes a non-linguistic biological capacity that allows human beings to be attuned to

and resonate with the affective state of others (Iacoboni, 2009). The point is that once such a non-linguistic capacity is made possible, the role of language development is spent. Now the language game "functions" on its own:

> How do words *refer* to sensations? –There doesn't seem to be any problem here; don't we talk about sensations every day, and give them names? But how is the connexion between the name and the thing named set up? This question is the same as: how does a human being learn the meaning of the names of sensations? −of the word "pain" for example. Here is one possibility: words are connected with the primitive, the natural, expressions of the sensation and used in their place. A child has hurt himself and he cries; and then adults talk to him and teach him exclamations and, later, sentences. They teach the child new pain-behaviour. 'So you are saying that the word "pain" really means crying?' –On the contrary: the verbal expression of pain replaces crying and does not describe it (Wittgenstein, 1953, I, § 244).

The key passage of this quotation is in the last line: the just acquired word "pain" *replaces* the «primitive» expression of the sensation; it does not simply describe or paraphrase it. This would be the case if the primitive cry were the cause of the language game. On the contrary, when the child learns to say "pain," the child is acquiring a brand new set of possible actions, which in the previous condition were not possible. It is incorrect to consider the word "pain" as a simple synonym of the primitive cry. They belong to two very different language games, and what is appropriate in one case is not appropriate in the other. Once the language game comes into action, it is no longer governed by the causes (biological, psychological) that bring it into existence. At this point language is regulated by itself, that is, it is the groundless ground: language represents the nature of the animals – *Homo sapiens* – that can only live within language. From this point of view, it is equally correct to say that language is arbitrary – because it does not depend on others but itself – and to say that it is natural, because it is the biological ground:

> 496. Grammar does not tell us how language must be constructed in order to fulfil its purpose, in order to have such-and-such an effect on human beings. It only describes and in no way explains the use of signs.
> 497. The rules of grammar may be called 'arbitrary,' if that is to mean that the *aim* of the grammar is nothing but that of the language (Wittgenstein, 1953, I).

Take the case of a bird, a swallow. A swallow's life and behavior is completely marked by its body, in particular by its sleek wings. The wings allow the birds a great maneuverability and a very efficient flight. Swallows eat flying insects, and build mud nests under the eaves that allow them to take flight easily. If someone would ask what comes first, the flying body or the

aerial habitat they live in, that would be quite a strange question. It is evident that a swallow's body is perfect to fly, but it is also evident that there are plenty of other birds whose bodies are not that perfect as the swallows'. That is, swallows are aerial animals, that is all. Flight is the swallows' nature. If someone asks us why swallows fly, that is quite an odd question. An obvious but stupid answer would be that they fly because they have wings; but what would a swallow be without wings? The point is that there is no possibility to even imagine a non-flying swallow. Swallows fly, this is their nature. Wings are not a useful instrument which swallows use to fly: no wings no swallow. Wings are not an instrument swallows use to fly; it is not possible to separate wings from swallows, both form a unitary life form.

The same applies to the relationship between language and the human animal. If someone asks us what is language, usually she will receive two answers: language is mainly a communicative instrument (Pinker, 1994), or language is mainly a cognitive instrument (Vygotsky, 1962). The problem is that one can always dispense with a simple instrument: a *sapiens* without a hat is always a *sapiens*. However, a *sapiens* without language is not a member of *Homo sapiens* species (clearly this does not apply to someone who loses the capacity to speak; this is a biological not an ethical statement; we *consider* human a body which is not able to speak, for example an infant or a wolf child). That is, language is not an instrument; language coincides with human nature. Language is utterly inseparable from all activities that characterize human life *qua* human life:

> Here the term 'language-game' is meant to bring into prominence the fact that the *speaking* of language is part of an activity, or of a form of life. Review the multiplicity of language-games in the following examples, and in others:
> Giving orders, and obeying them –
> Describing the appearance of an object, or giving its measurements –
> Constructing an object from a description (a drawing) –
> Reporting an event –
> Speculating about an event –
> Forming and testing a hypothesis –
> Presenting the results of an experiment in tables and diagrams –
> Making up a story; and reading it –
> Play-acting –
> Singing catches –
> Guessing riddles –
> Making a joke; telling it –
> Solving a problem in practical arithmetic –
> Translating from one language into another –
> Asking, thanking, cursing, greeting, praying (Wittgenstein, 1953, I, § 23).

The more evident characteristic of all these activities is that language is completely interwoven with the actions it makes possible. That is, we use language also when we are not aware of using it: «this is simply what we *do*. This is use and custom among us, or a fact of our natural history» (Wittgenstein, 1967, I, § 63). Despite the differences between human language and non-human languages, at the very end *all* of them are *animal* languages. The most striking similarity is our unconscious confidence in language, like the confidence between a bird and its own language: «Wouldn't it be possible for me to know the use of the word and yet follow it without understanding? (As, in a sense, we follow the singing of birds)» (Wittgenstein, 1974, pp. 65–66). Here animal language is not only a term of comparison for understanding human language; it seems much more an ethical model of life.

6. Conclusion

According to Wittgenstein, human language is nothing more but an animal language. This means that the normative character of human language does not represent an exception inside the natural world. However, the fact that human language pertains to natural world does not at all imply that its normative character has to be ruled out. This is the specificity and untopicality of Wittgenstein naturalism: a behavior can be both normative and natural. According to Wittgenstein, a phenomenon is natural when it is instinctive and spontaneous; when it shows itself without ratiocination or calculus. A natural fact is such a fact that acts like the ground of a "form of life." A natural fact *is* the ground. Therefore, what is natural is neither what material is, nor what biological is: «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'» (Wittgenstein, 1953, I, § 217). "What I do" is what a human animal does without explicit thought or intention; it is her own life. At the very same time, such a state is not simply a biological condition, as if the ground of human behavior were biology. A natural state is both biological *and* logical: «But this, of course, is not simply a question for physiology. Here the physiological is a symbol of the logical» (II, § 232). It is apparent how Wittgenstein naturalism is different from the modern one. A natural behavior is such a behavior that does not need any further foundation; a behavior that stands by itself. Such a naturalism makes possible and useful a comparison between human and animal language, because are both animal languages. However, such a similarity does not prevent to take into account the specific normative character of human language. Humans do not stop being animals even if they are normative beings. For this reason, Wittgenstein can speak of language in such an oxymoronic way: «Our language-game is an extension of primitive behavior. (For our *language-game* is behavior.)

(Instinct)» (Wittgenstein, 1981, § 545). For modern poor naturalism or a behavior is natural or is normative: according to Wittgenstein, human language (life) is both natural *and* normative. This is the reason why human language is an animal language.

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COMPOSITIONALITY AND BELIEVING THAT

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ABSTRACT. This paper is about compositionality, belief reports, and related issues. I begin by introducing Putnam's proposal for understanding compositionality, namely that the sense of a sentence is a function of the sense of its parts *and of its logical structure* (section 1). Both Church and Sellars think that Putnam's move is superfluous or unnecessary since there is no relevant puzzle to begin with (section 2). I will urge that Putnam is right in thinking that there is indeed a puzzle with a discussion of translation and belief individuation (section 3). Later Salmon (2001/ 2007) reinforces Church's position, but I will argue that it is still possible to make my case by clarifying the nature of my proposal, i.e., understanding explanations of action from the third-person point of view (section 4). Now, Fine (2007) agrees with Putnam that there is indeed a puzzle to be solved, but he argues that Putnam's solution of it is problematic, and that his own semantic relationism is a better view. In response to this, I will recast the notion of compositionality based on a certain conception of belief individuation, namely that the semantic content of a sentence is a function of the semantic contents of its parts *and of the structure of intensional discourses* (sections 3 and 5). Finally the paper will end with a reconsideration of the recalcitrant Kripke's puzzle about belief (1979/1988), since it might seem to put some pressure on my account. It turns out that my understanding of this puzzle is again different from Fine's perspective (section 6).

Keywords: compositionality; belief report; synonymous; logical structure; translation; puzzle about belief

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"The propositional attitudes are dim affairs to begin with."
– W. V. Quine, "Quantifiers and Propositional Attitudes"

1. Compositionality and Believing That

In his Locke Lecture, Kit Fine proposes a unified solution to three related puzzles: Frege's Puzzle about identity, Russell's Puzzle about the antinomy of the variable, and Kripke's Puzzle about belief.[1] Despite its originality and ingenuity, however, its "allusions to moves in the literature are not always flagged…Articulating a theory is often not enough – it is also important to locate it within the space of the other, similar proposals," as Gary Ostertag (2009) emphasizes. One of the aims of the current paper is to fill in this crucial lacuna. Decades ago, Hilary Putnam (1954) proposed a similar view in a different but related context, and this view has been under serious attacks from others, as we shall see presently. Therefore, to evaluate Fine's view more thoroughly, a closer look at the controversies concerning Putnam's proposal becomes necessary. Thus the present paper can be seen as an indirect engagement with Fine's relationist proposal.[2]

We sometimes say that other animals – such as bees and dolphins – have languages. This can be granted, provided that we acknowledge a stricter sense in which only *Homo sapiens* have languages. In philosophy of language and mind, we often regard "compositionality" as the mark of the linguistic in this stricter sense. To say that a language is compositional is to recognize that in that language the meanings of complex expressions are built up from the meanings of simpler expressions with varieties of compositional rules. Compositionality helps us explain many other linguistic phenomena, such as "productivity" and "systematicity."[3] Although this characterization is not entirely uncontroversial, it cannot be denied that the notion of compositionality has been central for philosophical studies on language and mind since the late 19th century. For example, Frege's context principle (1884) has sometimes been taken as the starting point of contemporary philosophy of language. A century later, albeit with the opposite direction, Jerry Fodor and Ernest Lepore (1992, 2001a, b, 2007) use it to argue against many so-called "meaning holists," including David Lewis (1974), Donald Davidson (1984), Ned Block (1987), Paul Horwich (1999), and Robert Brandom (2001), among others. Needless to say, those holists need to show that they can in effect accommodate compositionality, and thereafter the relevant literature has grown immensely. That being said, it is not as if nothing interesting happened before this explosion of literature. Right between Frege and Fodor, Putnam made his debut by proposing what I shall call "Logical Compositionality:"

(LC) The sense of a sentence is a function of the sense of its parts *and of its logical structure* (Putnam 1954/1988, p. 154, original italics).

This formulation is supposed to be contrasted with and, indeed, an improvement on what can be called "Standard Compositionality:"

(SC) The sense of a sentence is a function of the sense of its parts, including the way in which the parts of the sentence are composed (ibid., p. 153).[4]

The crucial difference lies in the amendment that logical structure should also play a role in determining the sense of a sentence. In this paper, I am going to propose still another version of compositionality: although I believe Putnam is right in thinking that something more is required in the formulation of compositionality, LC is not sustainable due to a certain consideration that I will introduce below. My positive case will rely on a specific reading of sentences with recurrence in indirect context, a reading that takes propositional attitude verbs and other operators with similar status more seriously. The shape of this solution, however, cannot be clearly seen until more notions are introduced.

Soon after Putnam's proposal, Alonzo Church (1954) and Wilfrid Sellars (1955) independently developed a similar criticism of him. I shall focus on Sellars's version first, since unlike Church's paper the Sellars one targets Putnam directly. I will then turn to Church. After answering the Church-Sellars objection, I will further bring the original discussions into wider and more contemporary contexts. To anticipate, both Church and Sellars think that Putnam's move is superfluous or unnecessary, since there is no puzzle concerning compositionality at all at the very beginning (section 2). I urge that Putnam is right in thinking that there is indeed a puzzle (section 3). Later Nathan Salmon (2001/2007) reinforces Church's position, but I argue that it is still possible to make my case (section 4). Now, Fine (2007) agrees with Putnam that there is indeed a puzzle to be solved, but he argues that Putnam's solution of it is problematic. In response to this, I will recast the notion of compositionality based on a certain conception of belief individuation (section 3 and 5). The paper will end with a reconsideration of the recalcitrant Kripke's puzzle about belief (1979/1988), since it might seem to put some pressure on my account (section 6). Before addressing all these details, let's start with the original debate between Putnam and Sellars.[5]

2. Putnam, Sellars, and the Alleged Superfluity of LC

Here is a reconstruction of Putnam's line of thought (Putnam 1954/1988, pp. 151–154). Suppose we use "dihydrogen monoxide" (DM) and "H_2O" as synonymous.[6] Then according to SC, "All DM is DM" and "All DM is H_2O" are synonymous. By the same token,

(A) Whoever believes that all DM is DM believes that all DM is DM.
and
(A') Whoever believes that all DM is DM believes that all DM is H_2O.

should be synonymous. However, it seems that no one will doubt (A), but someone might doubt (A'). It follows that

(B) Nobody doubts that whoever believes that all DM is DM believes that all DM is DM.
and
(B') Nobody doubts that whoever believes that all DM is DM believes that all DM is H_2O.

have different truth values, and therefore cannot be synonymous. But according to SC, (B) and (B') should be synonymous, given that "DM" and "H_2O" are synonymous. However, since we have established that (B) and (B') cannot be synonymous due to different truth values, one must renounce either SC or the synonymy of "DM" and "H_2O." Putnam thinks that to give up the latter would be too drastic, since it amounts to holding that no two terms are ever synonymous. He thereby concludes that it is SC that is at fault.

This is where Putnam's positive story comes in. One needs to have an explanation of why (B) and (B') are not synonymous, and his answer to this is that they have different *logical structures*, as stated in LC. Since SC does not have anything like this (i.e., logical structures), it lacks the resources for the putative discrepancy of meaning between (B) and (B'). Now a natural move for the proponents of SC is to insist that (B) and (B') are actually synonymous, and this is what Sellars does. He remarks:

> The key to the puzzle is the initial stipulation: 'suppose *we* use 'Hellene'…as a synonym for 'Greek' (Putnam 1954/1988, p. 152).' All right, suppose *we* do – Putnam, myself and the rest of us. It follows, of course, that
>
> (1) George is Greek.
> and
> (2) George is a Hellene.
>
> *asserted by us*, necessarily have the same truth value (Sellars 1955: 119, original italics).[7]

Why is Sellars's objection at least initially plausible? Let's go back to our own example. Suppose for *me*, DM and H_2O are synonymous. Suppose that there is a miserable student MS who was absent when Salmon introduced this synonymy (see footnote 6 above), and thereby lacks this piece of belief. Then I assert both:

(γ) MS believes that DM is DM.
and
(λ) MS believes that DM is H_2O.

According to Sellars, Putnam is wrong to think that γ and λ are not synonymous. Given that it is *for me*, γ and λ are simply synonymous, since *I*

believe "DM" and "H_2O" are synonymous. But if this is the case, then LC is unnecessary, since it is proposed to solve a puzzle that is presumably derived from SC. However, if Sellars is right, the puzzle does not arise in the first place (recall "The key to the puzzle…," p. 119). Here we can see why Church says that Putnam's solution is "superfluous" (Church 1954/1988, p. 162): since there is no puzzle whatsoever, any proposed solution would be superfluous.

3. Church, Translation, and Belief Individuation

No one can sensibly deny that it is better to dissolve pseudo-puzzles than to be under the illusion that they deserve solutions, but in this particular case, I do not agree with Sellars's Wittgensteinian diagnostic treatment.

Recall this passage from Putnam quoted by Sellars: "suppose we use 'Hellene'…as a synonym for 'Greek'" (Putnam 1954/1988, p. 152). Sellars thinks that this starting point involves a crucial mistake, the mistake between object language and meta-language, between use and mention (Sellars 1955, p. 119). But I think Sellars reads too much into Putnam at this point. Synonymy seems to be a widespread phenomenon, but, when it comes to real examples, philosophers disagree. That is why Mates, Church, and Putnam all have their own favored examples. I think that in the quoted sentence Putnam just intends to propose his own example, implying that "if you are not satisfied with this one, just use your own favorite." Synonymy, as a semantic notion, should be independent of any individual language users. We can of course take some pair of expressions as synonymous, but we can be wrong. To speak of "synonymy for individual speakers" is conflating epistemology and metaphysics of meaning.[8]

Church's similar move based on the notion of translation might seem more plausible than Sellars's variant. I follow Salmon (2001/2007, p. 345) in calling it the "Translation Argument" (henceforth TA; see especially Church's 1954/1988 paper, pp. 162–165). The idea is quite simple. A test for synonymy is to translate the two terms into another language and see whether we can translate them into the same expression. In Church's example, both "fortnight" and "a period of fourteen days" can be translated into German as "*einen Zeitraum von vierzehn Tagen*." If that is so, it follows that the translations of γ and λ would be identical as well. So, like Sellars, Church concludes that there is no reason to accept LC, since, contra Putnam, there is no puzzle to be solved from the very start.

Some might think that Church's move here begs the question. A Putnamian would deny that the synonymy of γ and λ follows from the translation move, since one needs to assume SC to deduce that; that is to say, one needs

both SC and TA to say that γ and λ are synonymous, but SC is exactly what is at stake here. If SC has already been assumed, then it is not clear what the present discussion is all about.[9]

This worry helps us see the dialectic more clearly. Recall that SC is the *standard* formulation in this context, which means it occupies what philosophers sometimes call the *default position*. Now Putnam comes along and poses a challenge to it. What should the proponents of SC do? Since they insist on SC, whatever they add in their position, the new element cannot be part of the formulation of compositionality. For Church, it is TA that does the work. For those who do not accept SC, what is needed would be a refutation of TA, plus a positive account of how compositionality should be formulated. This will be the main task of the second half of this paper.

One aspect Church's response that might be superior to Sellars's one is that it does not involve the problematic "synonymy for individual speakers" idea. It instead invokes the notion of translation – an idea seems to be much more innocuous at least in this context.[10] Now let's reconsider these two crucial sentences:

(γ) MS believes that DM is DM.
(λ) MS believes that DM is H_2O.

If Church is right, we can then find a translation for "DM" and "H_2O," and thereby show that γ and λ are synonymous. But can we? For the sake of argument, we of course assume that we can find the translation in question. The crux is whether we can thereby show that γ and λ mean the same thing. Suppose we ask the miserable student whether he believes DM is DM. He might naturally reply, "sure, but what on earth is DM exactly?" He believes that DM is DM out of his belief in logical truths. If we ask him instead whether he believes DM is H_2O, he might reasonably reply that "since I have no idea what DM is, I cannot say I disbelieve it, but I cannot say I believe it either." Aren't these avowals enough to show that γ and λ are not synonymous?

Church might respond as follows: the reason one tends to say that λ and γ are different in meaning is that the result is counterintuitive. But if that is so, so much the worse for intuitions. Philosophers always disagree about the role of intuition in philosophizing, and there is no reason to favor the pro-intuition side at this point. If the opponent cannot find fault in TA, then we must conclude that intuitions in this case do not help us find the truth. Furthermore, MS's reports should not be taken too seriously, since lay people might be confused about what they really have in mind, and wary theorists are often in better positions to get clear about the situations.

Therefore, my rejoinder cannot rest on the faith in intuition and first-person reports. What I am going to argue is that TA does not work *in indirect*

contexts with recurrence, including belief reports. For simplicity, let me focus on the case of belief. We ascribe certain propositional attitudes to subjects by means of belief reports. Believing is a cognitive relation between the subject and a proposition. The *fact* that two terms can be correctly translated to one term in another language is quite another matter. If the subject in question lacks the relevant belief of synonymy, then substitution *does* change the meaning of the belief report. Let me elaborate more on this contentious point.

The basic idea is that beliefs are essentially action-guiding. Suppose MS is an international student whose native tongue is not English. When he prepared for the graduate record examination, he missed the synonymy of "lawyer" and "attorney." He believes that attorneys are attorneys, even if he has no idea about that word. But he does not believe that attorneys are lawyers (out of his laziness or inadvertence). Now, if Sellars and Church were right, MS would believe both propositions (given TA), but that cannot be the case. Suppose that in correctly answering one particular question, test takers need to know that "attorney" means "lawyer," unless they simply guess. MS does not believe that attorneys are lawyers, so he has to guess. Now, *guessing* is an intentional action. How can we explain this action if we follow Sellars and Church in attributing to him the belief that "attorneys are lawyers"?

Beliefs guide actions; explanations of actions guide individuations of beliefs. The Church-Sellars view has an extremely economical picture of our webs of beliefs. The problem, however, is that the view is too meager to explain our miscellaneous actions. Consider again our lawyer-attorney example. MS has no belief of this piece of synonymy, but I have. Both of us have some legal problems and need to find a lawyer. MS walked down a street, noticing a signboard with the word "attorney." He did not go upstairs, since he does not believe that attorneys are lawyers. When I passed by, I went upstairs out of my belief that attorneys are lawyers. What explains our different actions? According to TA, since MS believes that attorneys are attorneys, and "attorney" and "lawyer" are synonymous and hence have the same translation in certain other languages, it follows that MS believes that attorneys are lawyers. But if so, why didn't he go upstairs, just as I did? The failure of explaining actions betrays the poverty of mental economy in the Church-Sellars view.

My point can be put with the distinction between referentially *opaque* and *transparent* from Quine (1960, pp. 145–155). There is no denying that indirect reports can be read either way for different purposes, but I urge that for the purpose of understanding a subject by belief attributions, only the opaque reading is legitimate. The reason, put simply, is that believing is a cognitive relation between the subject and the content. If we violate this regulative ideal of opacity, then no wonder we cannot explain the subject's actions with his cognitive states.[11]

How about biting the bullet? Church and Sellars might insist that MS *does* believe that attorneys are lawyers, though he does not know that he has this belief. This seems to be possible, since we do not have omniscient knowledge of all of our own mental states; to suppose otherwise seems to commit ourselves a bad Cartesian picture.

I am not convinced for the following three reasons. First, the belief in question is quite simple and straightforward; when we (correctly) say that we have no access to many of our beliefs, the beliefs in question are often much more complicated (e.g., some of them are logical consequences of conjunctions of some simpler beliefs). Secondly, even in cases in which we do not have access, those beliefs still often guide actions. That is why sometimes we need to infer that we ourselves have such and such beliefs out of our actions. A belief cannot be idle all the way out. If MS does believe P, then P should manifest itself in his actions at some point. Given the scenario above, it is reasonable to say that he holds no belief attitude towards the proposition in question, and this shows the falsity of Church's move here.[12] Last but not least, by biting the bullet they commit themselves to the view that

(γ') MS knows that he believes that DM is DM.
and
(λ') MS knows that he believes that DM is H_2O.

are not synonymous, since they have different truth values. But this plainly contradicts their own position, for their view is that, given SC and TA, γ' and λ' are synonymous. I thereby conclude that TA does not succeed in preserving SC.

4. Missing Church or Meeting Salmon?

In "The Very Possibility of Language: A Sermon on the Consequences of Missing Church" (2001/2007), Salmon reinforces Church's Translation Argument.[13] Here I shall try to meet some aspects of his considerations. He first ask us to consider the following two sentences:

(1) Chris believes that the earth is round.
(2) Chris accepts "The earth is round."

The envisaged opponent proposes (2) as a semantic analysis of (1). As Salmon reminds, the word "accepts" is only schematic; we can replace it with "is disposed, on reflection, when sincere and non-reticent, to assent to some sufficiently understood translation or other of" (Salmon 2001/2007, p. 347), or with other similar locutions. Now consider translating both (1) and (2) into French:

(1') *Chris croit que la terre est ronde.*
(2') *Chris accepte* "The earth is round."

The key point here is that the proper translation for (2) is not

(3') *Chris accepte* "*La terre est ronde.*"

This last sentence mentions a particular French sentence not mentioned in (2), while lacking any mention of the English sentence mentioned in (2). It is thus (2') rather than (3') that captures the literal meaning of (2)' (ibid., p. 348). This is an application of Church's TA. I think this application is a good one, but I am not going to justify this claim here. Let's assume its correctness, and see whether it will threaten my proposal.

The first thing to be noted is that the envisaged opponent is arguing for something quite different from my present concern. In my case there is certain recurrence (e.g., "attorney" appears twice) following the "that clause," and that is exactly where I find TA inapplicable. I have no quarrel with other applications of TA, at least for the present purpose.

But this does not mean that this application of TA cannot be extended to rebut my proposal. I quote myself: "[i]f we ask [MS]…whether he believes DM is H_2O, he might reasonably reply that 'since I have no idea what DM is, I cannot say I disbelieve it, but I cannot say I believe it either.'" My view seems to hinge on whether the speaker *accepts* the sentence in question, but if so, haven't I committed to the view that (2) is the correct semantic analysis of (1)?

Not at all. Recall that I also emphasized right away that my view is not based on the speaker's first-person report, i.e., his own opinion about whether he holds a certain belief or not. My strategy is rather based on the explanations of actions, and that is entirely a third-person enterprise. We, as theorists, set out to explain the subject's relevant actions by attributing various beliefs to him. Maybe sometimes the subject's self-reports do fit our third-person explanations, but that is not essential to my proposal. What is crucial for me is that TA is inapplicable in indirect discourses with recurrence; I do not think that TA is fallacious across the board.

5. Reformulating Compositionality

Although my counterarguments against the Church-Sellars picture and Salmon's reinforcement may not be conclusive, I believe it has given us reasons to think that Putnam's move, at least in broad outline, is not altogether pointless. There is indeed a point to hold that something more is required in the formulation of compositionality, or we cannot have a satisfactory account of actions and belief individuations.

Then why not just accept Putnam's original version? Recall that he thinks:

(LC) The sense of a sentence is a function of the sense of its parts *and of its logical structure* (Putnam 1954/1988, p. 154, original italics).

At this point, I would like to consider a recent objection to LC from Fine (2007). Unlike Church and Sellars, Fine's objection targets Putnam's formulation itself. According to Fine,

> The advocates of 'logical form'…will argue that the phenomenon is *pre-semantic*. The difference between the pairs of names 'Cicero,' 'Cicero' and 'Cicero,' 'Tully,' or between the identity sentences 'Cicero = Cicero' and 'Cicero = Tully,' is one of *logical form*; and it is only once the logical form or 'syntax' of the sentences has been determined that the question of semantics comes into play (Fine 2007, p. 41, my italics).

Fine further points out that the idea of logical form cannot be right, "[f]or what is it for the logical form of 'Cicero = Cicero' to be 'a = a' rather than 'a = b'?" (ibid., p. 41). What is at stake when it comes to compositionality should be *semantics*. Both SC and LC introduced above invoke the notion of sense, and it is semantic if anything is. If one does not want to commit to senses, one needs to supply some other things, provided that they are semantically relevant. To submit "logical form" as an answer seems to be "seriously off-track" (ibid., p. 41), as Fine suggests.

That is why in my own proposal there is nothing pre-semantic involved. According to the proposal,

(Q) All DM is DM.
and
(R) All DM is H_2O.

might be synonymous, since my proposal applies only to indirect contexts. I want to leave open, for the moment, whether Church's TA is applicable in this case. Fregeans might object that (Q) and (R) cannot be synonymous, since they are cognitively different. I think that whether cognitive differences entail semantic differences is still a lively debate between the Fregeans and the Millians, and I do not take sides on this occasion. What I insist is that

(γ) MS believes that DM is DM.
and
(λ) MS believes that DM is H_2O.

are *not* synonymous, since, if they were, then we would not have resources to account for some different actions. On the present proposal, what are at work are the notion of belief and, relatedly, the notion of action. They are semantically relevant, in the sense that they are *intentional*. This protects my

view from Fine's objection based on the distinction between syntax and semantics.

There is a huge literature on the nature of propositions – for example, whether they are Fregean, Russellian, or Lewisian (sets of possible world). I do not pretend that I have offered anything substantially new in this area. As I just mentioned, my proposal keeps silent about Q and R, and this means that I do not take sides in the debate between the Fregean, the Russellian, and the Lewisian. What I am doing is rather humble: simply to consider those belief reports and to see which ones we are willing to use to ascribe propositional attitudes to the subject in question. What I want to distill from the above discussion is a new, and I believe more sensible, formulation of compositionality, as follows:

(IC) The semantic content of a sentence is a function of the semantic contents of its parts (including the way in which the parts of the sentence are composed) *and of the structure of intensional discourses*.

Several comments are needed. First, the idea of sense is replaced by a more neutral idea of semantic content. Secondly, I intend the formulation to cover all the indirect discourses. For example,

(α) It is necessary that all DM is DM.
and
(β) It is necessary that all DM is H_2O.

should not be taken as synonymous, though there is no denying that they have the same truth value. According to TA, they are synonymous. But I shall not enter into the details concerning modal contexts on this occasion.[14] Finally, the proponents of SC might contend that IC adds nothing new to the standard version, since "the sense of its parts" in SC of course includes the senses of propositional attitude verbs and other terms with similar status, such as modal operators. Fair enough. The trouble is that too often defenders of SC do not respect this fact, even if their wordings are loose enough to encompass it. Therefore, I propose to include the idea of *intensional discourse* explicitly in the formulation in order to preempt relevant confusions.

6. Kripke and the Contradictory

Before closing, I would like to relate the present proposal to the knotty puzzle about belief from Kripke. It is relevant since it also concerns belief reports and translation, and it might seem to threaten my proposal, as I shall explain. I do not pretend, to be sure, that I am able to solve or dissolve this difficult puzzle on this occasion.

Kripke discusses two cases, Pierre and Peter. I will focus on the case of Pierre, since only his case involves translation. Once upon a time, Pierre was an absolute monolingual of French. He heard (in French) nice things about London, and "he is inclined to think that it is pretty. So he says, in French, '*Londres est jolie*'" (Kripke 1979/1988, p. 119). It seems to be innocuous to conclude "Pierre believes that London is pretty." Later, for some reason Pierre moved to an unattractive part of London. He picked up English basically through radical translation, and he did not realize that "*Londres*" and "London" refer to the same city. Since his experiences there are so unpleasant, he comes to "assent to the English sentence: 'London is not pretty'" (ibid., p. 119). Now, consider the following three sentences:

(X) Pierre believes that "*Londres est jolie*," before and after.
(Y) Pierre believes that "London is pretty," before and after.
(Z) Pierre believes that "London is not pretty," after picking up English.[15]

Instead of discussing Kripke's own take on the matter, I will explain how my proposal above might be taken to deliver paradoxical consequences here and try to dampen that worry. I reject Church's translation maneuver in belief contexts, so it seems that I am forced to regard Y as false. But this is problematic, since it would render explanations of actions in different languages impossible. Suppose that I do not know a word of Mandarin but I want to make sense of the political situation between Taiwan and Mainland China. I say, "The President of Taiwan recently signed many important financial contracts with China, since he believes that China has softened its relevant policies." Now suppose that the present President of Taiwan has no knowledge of English. If, the train of thoughts continues, we do not allow translation in belief contexts, then the above rationalization becomes impossible, but this has disastrous consequences: it simply makes inter-language understanding impossible, and this is falsified by the fact that people always have inter-language understandings, in person, on the phone, on the Internet, and so on.

To avoid the problem, we need to notice that what I am against is certain application of the Translation *argument*, not translation *per se*. In cases that we have considered, we have synonymy pairs "DM," "H_2O" and "attorney," "lawyer." What I am proposing is that when it comes to belief contexts, synonymy pairs should not be translated into the same term, since it would deprive us of the resources of explaining actions. Of course, we can still translate those belief reports, provided that our translations preserve the original beliefs. Now, in the case of Pierre, there is no synonymy pair *within any belief*: for example, we do not have "*Londres* is London." So my proposal does not prevent us from regarding X and Y as having the same truth value.

So, my case against TA in belief contexts does not force me to say that Y is false. Indeed, I think all of the three sentences are true. An immediate

objection, however, is that Y and Z plainly contradict each other. People can have contradictory beliefs only when the contradiction is not obvious. But isn't the contradiction here quite obvious? "London is not pretty" just means "it is not the case that London is pretty," and it takes only a negation to get "London is pretty."

I submit that it is not at all obvious from Pierre's perspective. Pierre has no belief that "*Londres* is London," so, even if we can translate X into any language we like, it does not follow that Pierre would be aware of those results of translation. Since he is not aware of that, he is in no position to detect the contradiction between Y and Z. Unbeknownst to him, he holds contradictory beliefs. My point of explaining actions also chimes well with the present account. Out of his belief that "*Londres est jolie*," Pierre strongly urges his family to visit there, and he wants to be there as well. Out of his belief that "London is not pretty," Pierre strongly urges his family *not* to visit him, and he wants to leave for some other place as well. These two sets of action are in conflict, because they are results of a pair of contradictory beliefs. Pierre does believe that London is pretty, and this explains why he urges his family to go there. He is just not aware that this belief of his can be put into English this way.

In his paper Kripke considers four possible solutions, and my proposal is one of them. Kripke finds this maneuver problematic:

> [S]urely anyone…is in principle in a position to notice and correct contradictory beliefs if he has them. Precisely for this reason, we regard individuals who contradict themselves as subject to greater censure than those who merely have false beliefs. But it is clear that Pierre…is in no position to see, by logic alone, that at least one of his beliefs must be false. He lacks information, not logical acumen. He cannot be convicted of inconsistency: to do so is incorrect (ibid., p. 122).

The argument seems to be this. Contradiction is a more serious mistake than mere falsity, so it deserves greater censure. But since Pierre lacks information, he is not in a position to see the contradiction in his case. *Ergo*, to convict him of inconsistency is incorrect on our part.

This argument seems to be based on a conflation of facts and values. True, contradiction is a more serious mistake than mere falsity; true, since Pierre lacks information, he is not in a position to see the contradiction in his case. But why are all these relevant to censure? It is true that in this case we do not want to censure Pierre, but that is not because he commits no inconsistency but because he is not in the right contexts, for example, moral, legal, or logical. What we should say is that he contradicts himself due to the lack of information; the fact that we do not want to censure him is simply another matter.

In developing his overall account of semantics, Fine also talks about and rejects my maneuver. Here are his relevant remarks:

> Implicit in the formulation of the puzzle is the assumption that we cannot correctly attribute a pair of contradictory beliefs to a rational person and this had led some philosophers to doubt whether this is indeed true under the intended understanding of the belief reports. However, the question of what a rational person might believe is not really at issue (Fine 2007, p. 91).

Fine goes on to say that "[w]hat is really at issue is a question of *coordination*" (my italics), which is "the very strongest relation of synonymy or being semantically the same" (ibid., p. 5). Now, "coordination" is Fine's technical term, and to enter into it is far beyond the scope of this paper. As I mentioned above, I am not here proposing a solution to or dissolution of Kripke's puzzle about belief, so I am not obliged to compete with other proposals on this occasion. What I want to stress is that Fine seems to owe us an explanation of why the possession of contradictory beliefs is not at issue. I think it is exactly what is at issue, and I have made explicit my commitments concerning the puzzle and tried to relate it to my point that explanations of actions guide individuations of beliefs. There is no denying that Kripke's puzzle deserves a much more full-fledged treatment, but I defer this task to future occasions.

Compositionality has been a central theme in philosophy for quite a while, and the literature has become extremely rich. However, one strand of this theme – the exchange between Putnam and Church – seems to be largely forgotten nowadays or be relegated as a quite specific problem in philosophy of language. What's more, the connection between this strand and contemporary themes – such as the discussions of Fine's semantic relationism – has been lost. On this occasion, I dispute many points of Church's, Salmon's, and Fine's. But even if I am wrong about them, I hope this piece can nevertheless serve to remind people of this important thread: no matter who stands with the truth, what should not be denied is that this strand can still teach us much about compositionality, indirect discourses, and much more beyond.[16]

NOTES

1. The materials have been further developed in his later Brown Lecture and subsequently published as *Semantic Relationism* (2007).

2. This paper belongs to a larger project that contains a more direct engagement as well, but I cannot include them here for space limit. To be sure, Putnam's proposal is far less developed than Fine's, but the parallel can still be seen. The crucial difference between them will be discussed in section 5.

3. For example, see Fodor (1998) and various related writings. Since they are not my main themes on this occasion, I shall not go into the fine details here. In effect,

compositionality and those related phenomena are important not only for philosophy, but also for psychology, linguistic, and cognitive science in general. For a nice indication of this, please see *Oxford Handbook of Compositionality* (2012).

4. This formulation, at least in spirit, can be traced back to Frege. Those who do not buy the idea of sense should replace "sense" with "semantic content" or whatever captures their intuitive idea of meaning. My argumentation below will not hinge on any specific theory of the ontological status of content. Zoltán Gendler Szabó (2012) formulates this standard version like this: "The meaning of a complex expression is a function of the meanings of its constituents and the way they are combined," and he comments (rightly) that it is "theory-neutral." If one takes a look of Szabó's paper, one gets the sense that though the exchange between Putnam and Church is old and there is no denying that relevant discussions have been very much developed since then, the issue being tackled here is still around today.

5. Although my title is reminiscent of his paper on relevant issues, I deliberately omit Davidson's proposal on this occasion, since I take it that he is offering an entirely different framework, one which is originated by Quine. Consider Davidson's remarks that the Church-Sellars view "is a solution only if we think there is some way of telling…what is owed to the *meanings* he gives his words and what to his *beliefs* about the world. According to Quine, this is a distinction that cannot be drawn" (Davidson 1968/1984, p. 102, my italics). If Quine and Davidson are right, then the whole exchange between Putnam and Church-Sellars might be pointless. Here I am *not* assuming that the Quine-Davidson framework is wrong; rather I take myself to be answering a conditional question: *given* that the distinction between meanings and beliefs can be drawn, how should we formulate compositionality in response to the challenge posed by indirect reports? Similar considerations apply to other drastically different frameworks, such as the unstructured possible world approach. There are also new developments concerning compositionality that I do not discuss here, such as Napoletano (2015), Unnsteinsson (2014), Smith (2014), Starr (2014), and Wellwood (2015).

6. This example is from Salmon. I agree with him that this example is acceptable, since chemistry can help us anchor the meanings to some extent, but of course readers may use their preferred ones. Another way is to follow Benson Mates (1950) to use an abstract example, such as D and D'.

7. "Hellene" and "Greek" are Putnam's original examples.

8. I do not spend too much space on Sellars, since I find his criticism of Putnam rather unclear. Given that Sellars himself acknowledges that Church's argument "reaches the same (or similar) conclusions by a slightly different route" (Sellars 1955, p. 117) and that this is also the consensus of the subsequent literature (e.g., Davidson 1984, p. 101), in what follows I shall exclusively deal with Church's argumentation.

9. This potential objection is raised by Ted Sider in discussion.

10. But see footnote 5 for my qualification concerning the Quine-Davidson approach.

11. Perhaps Russellians would disagree, for example Braun (2000). In this paper I do not engage this line of argumentation.

12. Church makes a distinction between propositions about the world and propositions about propositions (1954/1988, p. 164; these are not his terminologies). According to his picture, MS does believe that DM is H2O; what he does not believe is that the word "DM" is used as a synonym of "H2O." But if this were the case, it seems that MS's actions should be able to be explained by his belief that "DM is H2O." Church's consideration seems not to be responsive to my proposal that explanations of actions guide individuations of beliefs.

13. Unlike Salmon, many others do not take TA seriously. Prominent examples include Peter Geach (1972), Michael Dummett (1973), and Tyler Burge (1978). Gareth Evans (1982, p. 75) seems to agree with Church, but it is hard to tell the reason from his rather short footnote. In a more recent piece, Salmon targets Fine's semantic relationism directly (2012), but the basic line of thought is the same.

14. A short comment would be that while α is at *de dicto* level, β is a case of *de re* necessity (in Kripke's sense), and therefore empirically substantial; they seem to be too different to be synonymous.

15. I change slightly the wordings of Kripke to suit my purpose here. "Before" means "before he became a bilingual," and "after" means "after he became a bilingual."

16. A relevant passage from Burge is illuminating: "The question of what substitutions are admissible on purely logical grounds in oblique belief contexts presents no mere exercise in formal semantics. Dealing with it forces one to consider issues about the relation between language and mind, the community and the individual" (Burge 1978, p. 119).

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THE POSTCOLONIAL UNIVERSITY

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ABSTRACT. Derrida is, perhaps, the foremost philosopher of the humanities and of its place in the university. Over the long period of his career he has been concerned with the fate, status, place and contribution of the humanities. Through his deconstructive readings and writings he has done much not only to reinvent the Western tradition by attending closely to those texts which constitute it but also he has redefined its procedures and protocols, questioning and commenting upon the relationship between commentary and interpretation, the practice of quotation, the delimitation of a work and its singularity, its signature, and its context – the whole form of life of literary culture, together with textual practices and conventions that shape it. From his very early work he has occupied a marginal in-between space – simultaneously, textual, literary, philosophical, and political – a space that permitted him a freedom to question, to speculate and to draw new limits to *humanitas*. Derrida has demonstrated his power to reconceptualize and to reimagine the humanities in the space of the contemporary university. This paper discusses Derrida's tasks for the new humanities (Trifonas & Peters, 2005).

Keywords: Derrida; contemporary university; humanities; deconstruction: representation

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I

An appreciation of Derrida's work can shed light on the growth and clash of fundamentalisms and on the new moralizers who based their authority on an unforgiving literalism and humanism. The spirit of this paper is directed against the new moralizers be they fundamentalist of any persuasion (Christian, Muslim or Jewish), old unreformed classical liberal humanists, new humanists, secular or Christian, still searching for a theory of human nature

on which to hang their sermons, or simply those neoconservative humanists who having rallied against an amorphous and unnamed nihilistic "post-modernism" falsely attributing the doctrine to Nietzsche or to his heirs. The new moralizers constitute a revival of an exclusive and foundational humanism demonstrating all the political and spiritual dangers of a set of essentialist beliefs in human nature – a unified theory or theology of our spiritual origin – from which is derived the "who" and what "we" are, the moral code "we" should follow, and both who belongs to the "we" and how those who belong should treat non-believers. In the USA, UK and elsewhere, the term "the new moralizers" has been consistently applied to the social conservatives that have brought a new vision of morality based on a view of human nature and made it central to public policy, making determinations of individual virtue fundamental to welfare entitlement (Super, 2004). This shift in public policy paradigm has also been accompanied by the growth of conservative politics that has drawn upon the politicization of fundamentalist Christian groups going back to Ronald Reagan's administration.

The term "fundamentalism" itself originates in the late nineteenth century as a movement by evangelic Christians, against modernism, to affirm a set of "fundamental" beliefs, namely "the five fundamentals" – the inspiration of the Bible by the Holy Spirit, the virgin birth, the belief that Christ's death was an atonement for sin, the bodily resurrection and the historical reality of Christ's miracles. The new fundamentalism in American politics began with Robert Grant's Christian Cause in the mid 1970s and Jerry Falwell's Moral Majority in the 1980s. Fundamentalism now has been used to describe both Islamic fundamentalism and Jewish fundamentalism (Shahak & Mezvinsky, 1999; Ruthven, 2004; Sim, 2004). In each case, these fundamentalisms are a reaction to an atheistic modernism and advocate a return to Christian, Islamic, Judaic values, law, beliefs and practices. In each case also this implies a set of literalist convictions in relation to scripture or sacred texts and a belief in the unmediated truth of the word. Literalism has a privileged place in these belief systems: language is always taken in a non-figurative sense. In its strictest sense scriptural literalism is a denial of allegory, parable or metaphor. On this basis fundamentalism often implies a set of beliefs in an onto-theological story of creation, man's nature and place, and the biological and social roles of men, women, and children. Scholars have applied the notion also to non-secular groups such as the militant animal rights activists, fundamentalist nationalisms or ethnicities such as Le Pen's National Front in France, and even, neo-liberals as "market fundamentalists" (Sim, 2004; Thompson, 2006).

Derrida, both the man and his work, represents an ongoing struggle against all fundamentalisms, against all easy definitions, dogmas, and literalisms that proclaim truth and universalism on the basis of religious and supernatural

explanations of the origins of the world. His own background born into a Sephardic Jewish family near Algiers immediately calls into question his own identity as "French" and "Jewish." He experienced anti-semitism in the French Algerian school system still under Vichy laws; the marginalization and "feeling of nonbelonging," as Brian Reilly (2006: 498) points out, "would come to affect all areas of his life." Reilly (2006: 498) continues:

> With the tools he acquired while living in the margins of identity, Derrida offered radical critiques that challenged the stability of origins; he displaced and transgressed border by refusing exclusive definitions.

His historical formation and self-understanding stands all against all fundamentalisms and foundationalisms. He recognized with Nietzsche the inescapable autobiographical elements that insinuates itself into interpretation marked by the author's signature.

II

How does one represent Derrida and his writing? The linguistic notion of representation is central to Derrida's work and to his critique of Western metaphysics. He is suspicious of the view that language represents the world, at least in any straightforward sense. But "representation" is also important to him as a political principle indicating the ethical and political stakes in presenting an argument or representing a people, a text, an image, or (one's relation to) another thinker – the so-called "politics of representation." Not least, the word "representation" captures his concerns for the genres of autobiography and confession, of philosophy as a certain kind of writing, of the "personal voice," and of the signature. Derrida is also careful of journalists and tends to refuse most invitations for interviews, especially by the popular press. Paradoxically, *Points … Interviews, 1974–1994* (Derrida, 1995a), a collection, consisting of twenty-three interviews given over the course of the last two decades, provides a good introduction to Derrida (see especially his "The Work of Intellectuals and the Press").

Perhaps, more than any philosopher before him, and from his earliest beginnings, Jacques Derrida (1995b: 218) has called attention to the form of "philosophical discourse" – its "modes of composition, its rhetoric, its metaphors, its language, its fictions," as he says – not in order to assimilate philosophy to literature but rather to recognize the complex links between the two and to investigate the ways in which the institutional authority of academic philosophy, and the autonomy it claims, rests upon a "disavowal with relation to its own language." (His doctoral thesis based on an investigation of Joyce purportedly investigated "The Ideality of the Literary Object.")

The question of philosophical styles, he maintains, is itself, a philosophical question.

"Deconstruction," the term most famously associated with Derrida, is a practice of reading and writing, a mode of analysis and criticism that depends deeply upon an interpretation of the question of style. In this Derrida follows a Nietzschean-Heideggerian line of thought that repudiates Platonism as the source of all metaphysics in the West from St Paul to Kant, Mill and Marx. Where Heidegger still sees in Nietzsche the last strands of an inverted Platonism, tied to the metaphysics of the will to power, and pictures himself as the first genuinely post-metaphysical thinker, Derrida, in his turn, while acknowledging his debt, detects in Heidegger's notion of Being a residual and nostalgic vestige of metaphysics. He agrees with Heidegger that the most important philosophical task is to break free from the "logocentrism" of Western philosophy – the self-presence, immediacy and univocity – that clouds our view and manifests its nihilistic impulses in Western culture. And yet "breaking free" does not mean overcoming metaphysics. Deconstruction substitutes a critical practice focused upon texts for the ineffable or the inexpressible. It does so, not by trying to escape the metaphysical character of language but by exposing and undermining it: by fixing upon accidental features of the text to subvert its essential message and by playing off its rhetorical elements against its grammatical structure. Heidegger's strategy for getting beyond "man" will not do the trick: Derrida suggests that "a change of style" is needed, one which will "speak several languages and produce several texts at once," as he says in an early essay, "The Ends of Man" (Derrida, 1982).

Derrida's work reflects and engages with the tradition of Western metaphysics going back to Plato promoting an understanding of the critique of *phallogocentrism* as a response to the Western metaphysical tradition. Derrida systematically engages with the Western tradition with a humanity, passion, generosity and with patient and stunning scholarship. Phallogocentrism (along with logocentrism and Eurocentrism) refer to the privileging not just of European culture over all others but more deeply to the Western metaphysical tradition that holds to a hierarchy of values sustained by a binary logic that cannot do otherwise than privilege one term over another (reality/appearance, speech/writing, presence/absence, identity/difference, life/death). It is the general economy of an inherited humanism propping up all the ideological remnants of Man in his essence and all of the substitutions played out since Nietzsche that deconstruction seeks to destabilize, unmask and undermine. Deconstruction, going beyond *Abbau* and *Destruktion*, works to undo "the metaphysics of presence" which holds that thought and speech (the *logos*) is the privileged center through which all discourse and meaning are derived.

Gott ist tot (God is dead) is the shorthand that Nietzsche uses to proclaim this deepening of humanism. The "madman" in *The Gay Science* pronounces:

> God is dead. God remains dead. And we have killed him. How shall we comfort ourselves, the murderers of all murderers? What was holiest and mightiest of all that the world has yet owned has bled to death under our knives: who will wipe this blood off us? What water is there for us to clean ourselves? What festivals of atonement, what sacred games shall we have to invent? Is not the greatness of this deed too great for us? Must we ourselves not become gods simply to appear worthy of it? (Section 125).

God can no longer act as a source or foundation for moral authority so what now can conceivably anchor the system of values? Nietzsche's observation heralds a new secularism in Europe and the end of the effective history of the Church. At least, this is how Heidegger interprets it. The proposition "God is dead" as he says "has nothing to do with the assertion of an ordinary atheism. It means: The supersensible world, more especially the world of the Christian God, has lost its effective force in history" (Heidegger, 1985: 485). What would it mean to talk of Europe without God, or that the Christian God had become unbelievable, especially after the experiences of the WWI and WWII? On what could a replacement code be based? Moral law derivable from our own rationality? The beginning of liberal humanism and the turn to subjectivity with Descartes and Kant? A kind of naturalism advocated by Hume, that is, a natural sympathy for others? Or should one give up on the search for foundations altogether and deny that moral codes and beliefs have any objective foundation? Can they only be explained psychologically?

III

Nietzsche's legacy is still very much a part of the contemporary intellectual landscape and he generates diametrically opposite appropriate of his work that define the context for the present debate about the role and status of the humanities. All the works of major philosophers have their "right" and "left" interpreters and defenders – this is true of Kant, Hegel, Nietzsche and Wittgenstein (indeed, of Plato himself). The modern quarrel in the humanities has been read often as a struggle over Nietzsche by a "right" Leo Strauss and a "left" Jacques Derrida. Peter Levine (1995: xviii–xix), for instance, argues that "Strauss and his followers are essentially duplicitous writers, holding an exoteric, conservative doctrine for the herd, and an esoteric, postmodern position for their *übermenschlich* readers." He argues that Alan Bloom and the Straussians are not genuine conservatives for they do not hold that the Western canon contain the accumulated wisdom of the Western tradition. By contrast, Levine argues that Derrida occupies the opposite end of the spectrum,

a thinker who "saves" Nietzsche from Heidegger's reading of him as the "last metaphysician" only to herald Nietzsche as the first non-metaphysical thinker who helps to fashion Derrida's deconstructive practice recognizing that logocentrism or "the metaphysics of phonetic writing" is "a contingent but inescapable value" (p. 169).

Nietzsche is certainly central to the "quarrel" in the humanities today and in a real sense we can take Strauss and Derrida as representing opposite ends of the spectrum. Allan Bloom was drawn increasingly to criticize deconstruction not only on the basis of its interpretation of Nietzsche and to develop a conception of literature that differed from Derrida's. Bloom (1987: 379) described deconstruction as a "predictable…fad" based on a "cheapened interpretation of Nietzsche" and as "a dogmatic, academic nihilism of the Left" (Bloom, 1990: 28). In this connection we should not forget that Nietzsche, Derrida and deconstruction, Foucault, and "postmodernism" were at the very heart of American debate surrounding the humanities during the chairmanship of the National Endowment for the Humanities by Lynne Cheney (wife of the Vice President) from 1986 to 1993. *American Memory: A Report on the Humanities in the Nation's Public Schools* (Cheney, 1987) warned about the failure of schools to transmit knowledge of the past to future generations, and *Telling the Truth* (Cheney, 1996) examined the alleged effects of postmodernism and relativism in academia and politics.

Nietzsche's critique of morality and in particular his attack on prevailing conceptions of moral agency based on notions of free will, self-transparency and moral sameness (one code applying universally to all), begins to work historically to erode the moral certainty that invests fundamentalist forms of Christian humanism and acts as a source of critique for those theorists who wish to expose the illusion of bourgeois morality or the thin veil of ignorance that cloak religious teachings. Existentialism, in Sartre's famous phrase, is a humanism, and many who followed Nietzsche and/or Kierkegaard tended to give up on an objective or universal account of moral law or behavior to embrace a mode or way of being. Meaning is a product and outcome of existence so no formal account can be given in advance and certainly not an account derived from the *nature* of human beings or indeed any pre-given framework of ideas. Human existence cannot be approached in the same way as we approach things in terms of concepts or categories that we apply to understanding the external world. The question of self-description or self-examination or self-interpretation is crucial such that I cannot be dissociated from an account of what I am.

I present Derrida as a *profound* humanist, who committed to the value of truth and the promise of humanity endeavors to steer us away from its easy ideological fabrications that ultimately only supports a very tawdry and temporary cultural image of ourselves in one particular historical period. I

present him so because he stands in a tradition not only within both contemporary modern traditions influence by Nietzsche-Heidegger nexus and the immediate French tradition dating from Kojève's lectures on Hegel but also in terms of the immediate inheritance from Sartre and his associates as well as Levinas, Blanchot, Althusser, and his many contemporaries including Deleuze, Lyotard, Kofmann, and Foucault. Clearly, one has to say also the modern tradition from Descartes and Kant, and, indeed, the tradition all the way back to Plato. I do not want to suggest a unity or origin of tradition but perhaps sustaining threads of a complex skein and we must then also embrace the Hebraic tradition and various modern literary movements as well as those in the European avant-garde. By calling Derrida a profound humanist I mean to indicate that Derrida engages directly and systematically with the question of humanism – what it is to be human and its limits and boundaries in technology and animality – and with its continuance by some means. Thus, a continuance through its encompassing of new extensions and mutations of rights in international law, in democracy to come, in the right to philosophize, in the author/writer/reader, in tasks for the new humanities, in an ethics of the Other – of hospitality – in the changed conditions for scholarship and media, in the promise of Europe in providing an alternative vision for world institutions and the governance of globalization.

IV

The American reception of deconstruction begins with the essay "Structure, Sign and Play in the Discourse of the Human Sciences" Derrida delivered to the International Colloquium on Critical Languages and the Sciences of Man at John Hopkins University in October 1966. It was a prestigious event involving the participation of renowned French thinkers such as Jean Hyppolite, Jacques Lacan, Roland Barthes, Tzvetan Todorov, Lucien Goldman, Georges Poulet and others. In the Preface to the proceedings, the editors Richard Macksey and Eugenio Donato (1970: x), describe the conference as "the first time in the United States that structuralist thought had been considered as a cross-disciplinary phenomenon." Of the proceedings, only a paragraph in Macksey's Concluding Remarks signals the importance of Derrida's "radical reappraisals of our [structuralist] assumptions" (p. 320).

In the now classic essay "Structure, Sign and Play in the Discourse of the Human Sciences" Derrida (1978: 279–280) questions the "structurality of structure" or notion of "center" which has served to limit the play of structure. He writes:

> . . . the entire history of the concept of structure . . . must be thought of as a series of substitutions of center for center, as a linked chain of determinations of the center. Successively, and in a

> regulated fashion, the center receives different forms or names. The history of metaphysics, like the history of the West, is the history of these metaphors and metonymies. Its matrix . . . is the determination of being as *presence* in all senses of this word. It could be shown that all the names related to fundamentals, to principles, or to the center have always designated an invariable presence – *eidos*, *arche*, *telos*, *energeia*, *ousia* (essence, existence, substance, subject) *aletheia*, transcendentality, consciousness, God, man, and so forth.

He suggests that conceptual resources for the "decentering" of structure, of the transcendental signified, can be found in Nietzsche, Freud and Heidegger and he distinguishes two interpretations: one, Hegelian in origin and exemplified in Lévi-Strauss' work, "dreams of deciphering a truth or an origin which escapes play and the order of the sign" and seeks the "inspiration of a new humanism;" the other, based on "Nietzschean *affirmation*, that is the joyous affirmation of the play of the world and of the innocence of becoming, the affirmation of a world of signs without fault, without truth, without origin which is offered to an active interpretation," passes beyond man and humanism (Derrida, 1978: 292). As he explains "The *paradox* is that the metaphysical reduction of the sign needed the opposition it was reducing. The opposition is systematic with the reduction" (Derrida, 1978: 281). By defining itself against the philosophies of consciousness (e.g., existentialism), structuralism participates in shaping itself in relation to those philosophies and can never succeed in surpassing them (see Poster, 1975).

V

It is not entirely surprising that at the beginning of the twentieth first century two towering figures dedicate themselves to defining the meaning of humanism and attempt to renew humanistic scholarship: Jacques Derrida, an Algerian "French" Jew, and Edward Said, a Palestinian Christian. Both immensely literate men are responsible, though in different ways, for altering the course of scholarship in the humanities and for introducing a new set of critical practices that mark out a philosophical extension and ethical revitalization of the meaning of literature, philosophy, and criticism. Through "orientalism," a concept that laid bare the ethnocentrism of Western assumption about the East, Said at once extended the work of Foucault and Derrida into the arena of post-colonial theory, demonstrating how exoticized and romantic images disguised the imperial basis of colonial rule. He argued how orientalism functions to harbor a persistent Western bias and prejudice against Arab Islamic peoples and their cultures. In essence his work exposed the systematic alliance between the Enlightenment and colonialism while embracing a

secular humanism himself that denied comfort to fundamentalists of all persuasions.

When asked "What humanism is possible?" Said (2001) responded:

> the difficulty to begin with is that humanism in many ways is discredited. It has participated in, for example, systems like apartheid and colonialism that were exported to the non-European world by European thinkers and powers who thought they were doing humanism's work – civilizing the natives and bringing the benefits of Western technology to the peripheries. And of course in this process they brought racial discrimination, racial hierarchies, and systems of exploitation, which were established in the interests of a humanism that said, 'We are the bearers of an advanced culture and we should have the benefits of that even if it means subjugating lesser people.' The whole concept of 'lesser' civilizations and so on is, unfortunately, one of the burdens that humanism has to bear.

In his posthumous work, *Humanism and Democratic Criticism*, Said defines humanism in a deconstructive way as "the practice of participatory citizenship" whose "purpose is to make more things available to critical scrutiny" and thus disclose its "human misreading and misinterpretations of a collective past and present" (p. 22). Said confirms that a form of humanism is still possible and his radical humanism draws on a form of democratic criticism based on self-knowledge, self-criticism, and the attempt to emancipate, enlighten and educate.

Derrida, by comparison, also took on political work even although his detractors painted him as someone removed from the world of political action. Said himself dismissed Derrida's playfulness and insisted on the historical embeddedness of the text. Perhaps, Said was more committed to the rationalist tradition, to the individual, to philology, and to Vico's notion of self-knowledge and rhetoric. Yet both were displaced and both experienced the colonial condition early on. Both agree that humanism is not only still possible but imperative that we must search for viable forms that revitalize the humanities and reclaims for it an more active role in the public sphere.

There is no doubt that the humanities need new tasks and Derrida has sought to provide a programmatic picture. That the humanities must also contextualize itself, escaping its local origins and trajectories, and broaden its account to take in the radical pluralism that exists as part of a new globalism that also recognizes the claims of local autonomy made by first peoples, indigenous peoples, sub-state cultural minorities, international religious movements, youth cultures, gender groups, and all sorts of political associations. Here the question of self and other looms large, as do questions revolving centrally around notion of ethics and politics. Derrida provides us

with the rejuvenation of ancient concepts of friendship, the ethics of hospitality, forgiveness, the gift, the invitation, that outlines his account of responsibility to the other.

VI

For Derrida the unconditionality of the university *without conditions* is deemed to have close links to the "humanities" to the extent that relates to two historical ideas: the rights of man (human rights), and crimes against humanity. The university without conditions does not exist, but it presupposes a place of critical resistance, a form of dissidence. This is its strength and also its vulnerability, what enables it to be bypassed or recuperated by instance of power. Within the university, professors profess, perform acts of profession. Derrida relates profession to confession in terms of the general structure of any performative – promising, witnessing, etc. – and in order to relate professing to an act of faith, which in turn relates to the structure of literary fiction that takes the form of a performative than a constative set of utterances, as well as to what he calls a "politics of the virtual." He also alludes to the proliferation of forms of confession currently evident in public and private discourse.

The task of the humanities to come would be "ad infinitu, to know and to think their own history in terms of professing, the theology and history of work, knowledge and faith in knowledge, the questions of man, of the world, of fiction of the performative, of the 'as if', of literature, and of the oeuvre, etc." He advances seven programmatic (and telegrammatic) tasks for the humanities:

> 1. The history and figure of what is proper to man (e.g., especially in terms of the traditional opposition between man and animal), via the rights of man and the idea of crimes against humanity;
> 2. The history and style of sovereignty – that of the humanities themselves, but also questions of international law, the limits of the nation-state, relations between man and woman;
> 3. The history of professing and the profession (and confession) as it relates to democracy;
> 4. The history of the concept of literature, its links with the performative 'as if,' oeuvre, author, signature, national language, etc.
> 5. The relation of professing to the profession of faith and the production of performatives and 'oeuvres;'
> 6. The history of that very relation between performative and constative, to begin with via Austin, but also in terms of the limits of the Austinian distinction.
> 7. Note a sabbatical! To let arrive 'the very thing that, by arriving, revolutionise, overturns, and puts to rout the very authority that is attached, in the university, in the humanities, to a) knowledge, b)

> the profession and profession of faith, c) the performative putting to work of the 'as if'. Where there is a performative, an 'event' cannot arrive; only the impossible can arrive. This idea has been discussed in terms of invention, the gift, forgiveness, hospitality, justice, friendship, etc. in recent work, and is not without relation here to the 'perhaps' or 'as if' of professing of/in the humanities to the extent that that implies an exposure to the unforeseen limit, outside, future: 'if this impossible that I'm talking about were to arrive perhaps one day, I leave you to imagine the consequences. Take your time but be quick about it because you do not know what awaits you.'

I take it that the legacy of Nietzsche's critique of modernity for Derrida is to point us towards recognizing the twin dangers to the university and to understanding German idealism and the Kantian idea of the university in a critical sense within a context transformed by global capitalism. This theme is creatively explored in terms of the performative acts of profession and the humanities as the site and production of performative "works" in the sense of *oeuvres* rather than *travail*. Nietzsche's critique also, I think, impels us to analyze the different nationalist forms and historical models of the university in their own native traditions, not least in order to understand their colonial and post-colonial manifestations. Perhaps, more affirmatively, Nietzsche's legacy offers some signposts for the future by steering us back, against the anti-traditionalism of modernity to ruminate over and question our historical sources of cultural renewal – not only Oxford, Paris and Bologna, but also Athens and Alexandria – that we might in future define different institutions upon a re-evaluation of old values, or new institutions out of different values.

In this look back it is important to take stock of the contemporary discourse of *Internationalization*. Internationalization is a set of processes in search of a theory and/or concept of internationalism yet to be articulated. Internationalization most often figures as a discourse of strategy with an emphasis on "how to" questions rather than a reflective discourse examining political ends or purposes. Yet internationalization as a set of processes has changed over time, most recently reflecting changes in the political economy of higher education and the global economy. There are different forms of internationalization that differ according to colonial past, geopolitics, and global position so we should talk of "internationalizations" (in the plural). In this respect we might talk of internationalization *before* globalization. Internationalization took place in the ancient world with first academies in Pakistan, India, Egypt, China and Persia (*Takshashila, Nalanda, Al-Azhar, Yuelu, Gandishapur*) in the 7th and 9th centuries BC that attracted students from all over Asia and Middle East. The Academy was established by Plato in 387 BC (but remember also Kos, Rhodes and Alexandria) and traveling "itinerant" scholars – Sophists (Protagoras, Gorgias, Prodicus, Hippias)

wandered about Greece teaching rhetoric. First wave of internationalization took place in Europe during the period of the establishment of the medieval university (Magnaura, 849; Salerno, 9th century; Bologna, 1088; Paris, 1100) and cathedral schools established by papal bull.

Translation can be considered as a form of internationalization with spread of texts into Arabic during the "Golden Age" (750–950) of Muslim scholarship and into Latin with great revival of Greeks texts fueled by proliferation of texts from the East in 15th century Italy exerting an influence on 16th century Britain. A history of internationalization in the ancient world needs to take into account a complex set of movements that emphasize the interrelationships between trade, conquest and traveling scholarship, including, for example, at the following moments: the Hellenization of Syria and the foundation of Gandishapur as a center of learning (how Greek science passed to the Arabic world); Christianity as a Hellenizing force and Christian Syriac writers, scholars, and scientists; the Nestorians and the Monophysites; the Indian influence, Alexandrian science, the sea route to north-west India and Buddhism as a possible medium spreading west; Khalifates of Damascus and Baghdad (762) and early Arabic translators (*Abu Mahammad Ibn al-Muqaffa', Al-Hajjaj Ibn Yusuf Ibn Matar Al-Hasib, Yuhanna Ibn Batriq, 'Abd al-Masih Ibn 'Aballah Wa'ima al-Himse, Abu Yahya al-Batriq, Jibra'il II, Abu Zakariah Yahya Ibn Masawaih*) who translated Buddhist and Greek texts, including Euclid's *Elements*, Aristotle's *Poetica*, Ptolemy's *Tetrabiblos*, Galen's texts etc.

At the same time we must take account of the complex processes of colonization based on the export of the form of the university, resistance to the colonial form, and later not only indigenization of the university but also the indigenous university.[1] How might the development and humanization of the new humanities – which grows out of a Eurocentric culture – and now is modulated according to the new keys of digitialization and virtualization (even as Derrida says "mondialization"), make room for the humanity of other cultures? How might such unconditionality of the university restyle the concept of man, add to the history of truth, and contribute to producing new events to transform the colonial and post-colonial university into places of resistance?

NOTE

1. I am thinking of the "Zapatista" University near San Cristobel in Chiapas I visited briefly in 2006 and also the Maori universities in Aotearoa/New Zealand. See, for instance, *Te Whare Wananga o Awanuiarangi* that carries a *Mihi* on its website with the following "We commit ourselves to explore and define the depths of bicultural knowledge in Aotearoa – to enable us to rediscover ourselves, to know who we are, to know where we come from and to claim our own place in the

millennium ahead. We take this journey of discovery, of reclamation of sovereignty; establishing the equality of Maori intellectual tradition alongside the knowledge base of others. Thus, we can stand proudly together with all people of the world," http://www.wananga.ac.nz/.

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SPECULATIONS ON THE ORIGINS OF LANGUAGE

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ABSTRACT. The paper is premised on the assumption of a radical gradualism in the emergence of language in opposition to catastrophe theories advocating its sudden birth. On this hypothesis, the paper argues against the view that the evolution of language has meant a loss of iconicity. Instead, I claim that while iconicity has been eliminated from the arbitrary signifier it has been retained and refined at the level of the motivated signified. In support of this claim I place *imaginability* at the hub of language, as the human capacity for the mental variation of perception and an indispensable component of the linguistic sign. The main vehicles of iconicity are shown to be *aboutness* and *voice*, with *protosyntax* functioning as a forerunner to linguistic syntax. Only once we acknowledge that language is not a symbolic system but rather a *heterosemiotic hybrid*, with a capacity to accommodate symbolicity, the paper concludes, will we be in a position to do justice to the emergence of language from its nonverbal precursors.

Keywords: radical gradualism; iconicity; motivated signified; catastrophe theory; protosyntax; imaginability

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1. Introduction

Given the speculative nature of the topic of language evolution, whichever way we approach it, our findings can be no more than tentative suggestions. And yet, the topic has proved temptingly fascinating (Bickerton 2009; 2007; 1995; 1981; Botha 2008; Botha and Knight 2009; Burling 2005; 2000; Corballis 2009; 2002; Crain 2012; Falk 2004; Fitch 2011; 2010; 2009; Greenspan and Shanker 2004; Hurford 2007; McMahon and McMahon 2012; MacNeilage 2009; 2008; McNeil 2012; Wildgen 2004). There are good

reasons for caution in undertaking such work, not least because of the paucity of empirical evidence (Botha 2003). Foremost has been the idea of language as an object of scientific inquiry, ushered in by the banishment of language evolution as a topic by the Linguistic Society of Paris in 1866 and the Philological Society in London six years later, a direction which received a major boost towards the end of the 19th century by research in logic, philosophical semiotics, and linguistics. Gottlob Frege's seminal paper "Über Sinn und Bedeutung" (1892), Charles Sanders Peirce's analysis of language as part of semiotic systems (between 1867 and 1914) and Ferdinand de Saussure's focus on language as *langue* in his *Cours linguistique générale* (1916) are three well-documented moments in this development. The retrospection towards language origins hidden in hominid prehistory has been largely irrelevant to such investigations. Yet another reason for skepticism was the conviction, strongly represented in Saussure's *Cours*, that prior to the arrival of language hominids had no more than a "nebulous" grasp of the world (Saussure 2005, p. 155); another, the belief that language and animal communication had nothing to do with one another in principle (e.g., Chomsky [1966] 2009). Lastly, the *ex nihilo* assumption in French structuralism that language "could only have been born in a single stroke" on the dubious grounds that "objects couldn't just start to signify progressively" (Lévy-Strauss in Kristeva 1989, p. 46; Gans 1981) has had a discouraging effect on speculating about the communicative actions that are likely to have preceded language, transformed into language, and perhaps survived in some form *in* language as we now know it. This is why I will base my arguments on the premise of a radical gradualism, that is, the assumption that language as we now know it evolved over millions of years as being gradually distilled from a range of nonverbal forms of communication. It the heart of this distillation I place the idea of what knowing a language consists in.

What constitutes knowing a language is however highly contested, in particular with respect to its central concern: how linguistic *meaning* occurs. After all, what we know of language is a function of the kind of philosophical, psychological, linguistic, or semiotic position we happen to hold, which poses methodological problems almost as serious as the paucity of empirical evidence itself. For which of the many strands of inquiry should we favor in our speculation of language in its emergence? In order to sidestep this conundrum, I propose a "thick" description of language capable of allocating a place to other more specialized approaches. I do so by highlighting what I regard as the salient constituents of language, features that permit us to capture as many components as possible amongst those that may have played a vital role in language evolution. In light of my previous work on the metasemantic conditions of natural language, I sum up my approach under the heading of *imaginability*, argued to function as nonverbal ground of

human communication (Ruthrof 2011b; 2013; 2014). But before I present my case in favor of the retention of iconicity at the level of the motivated signified, a brief glance at a variety of proposals for the likely origins of language will provide the background against which I will be able to argue the paper's hypothesis to be presented in Section 3 below.

2. Speculations on the Origins of Language

Amongst the discarded theories on the presumed origins of language, perhaps too readily discarded, are the "bow-wow theory" proposing that language emerged out the imitation of natural sounds of which onomatopoeia is a remnant, the "ding-dong" or harmony theory of language that sees linguistic origins in hominid responses to the salient features of objects, "la-la theory" which privileges the sounds of love, song and play, the "pooh-pooh theory" focusing on the expression of pain, surprise and emotions, and the "yo-he-ho" theory which regards the grunts and groans of exertion as likely candidates for the emergence of language. For a while, language organ theories proved popular, especially in the form as was proposed by Noam Chomsky in his stipulation of a "language acquisition device" as a module in the brain which would explain our assumed innate disposition for learning natural languages (Chomsky 1965). The LAD theory argues from the poverty of stimulus in contrast to the rich output from an early stage of language acquisition. The theory has recently been modified by Anderson and Lightfoot (2000) by redefining the "language organ" in a functional sense without positing an anatomical localization. The main successors to this work can be found among geneticists who study the neurogenetic pathways that are thought to be responsible for the human capacity for natural language. Part of this research also addresses the likelihood of genetic disposition as having played a significant role in language evolution (Dediu and Graham 2014; Cartmill, Roberts, Lyn, and Cornish 2013). One finding along these lines that excited the imagination of researchers for a while was the discovery of the FOXP2 gene thought to distinguish humans from non-languaging animals. Unfortunately, the FOXP2 gene has since also been found in the humble *murus musculus.*

A very different path to arguing the origins of language has been to stipulate song as a likely candidate. This line of reasoning can be found in Condillac, Rousseau and Darwin, and has recently been revived by Richman (1993), Skoyles (2000), Egnon and Hauser (2004), Fitch (2010) and Miyagawa, Ojima, Berwick, and Okanoya (2014). It was famously supported by Charles Darwin who wrote that "Some early progenitor of man, probably first used his voice in producing true musical cadences" (1871: 133). The strengths of the song theory of language origins lies in its expressiveness

conveyed by melody, rhythm, stress, syntax and intonation, argued to foster cultural and individual identity and social bonding. On the other hand, the weakness of theory is clearly in its relative poverty of *aboutness*, of which reference is a special case. A variant of the song theory is the "musilanguage" thesis proposed by Steven Brown (2001), according to which a protolanguage called musilanguage is proposed as a common precursor of both music making, including song, and speech. Brown tries to overcome the referential weakness of music by placing the accent on lexical tones, combinatorial phrase formation and expressive phrasing. The theory is critiqued for instance by Botha (2008) who favors the thesis of the "ornament" origins of speech. In *The Cradle of Language*, Botha and Knight (2009) make a strong case for shell beads discovered in the Blombos Cave in South Africa as providing empirical evidence for a degree of social reciprocity that would of necessity have to involve language. This kind of argument is akin to the broader thesis of early cave art as evidence of complex human forms of communication that is likely to have included speech. Neanderthal caves in Spain of up to 40,000 years old are said to predate the arrival of early humans and suggest that language may be a good deal older than assumed so far. This hypothesis is based in particular on the symbolic representation in caves of southern France not only of lions, bisons, horses, rhinos, mammoths, and bulls, but also of symbolic representations of squares, triangles, circles, semicircles, angles, crosses, dots, parallel lines, and tectiforms. It has been argued that if Cro-Magnon people were able to communicate in written symbolic forms, then language must have preceded that stage by a long shot (Petzinger 2012).

The structuralist thesis cited above that "language could only have been born in a single stroke" and that "a passage was effected from the stage where nothing made sense to another where everything did" not only flies in the face of the very notion of evolution, but also entails the claim of the sudden birth of syntax. (Levi-Strauss, quoted in Kristeva 1989: 46) This kind of synchronic reasoning can be subsumed under the "catastrophe" theories of language origins. As such, it encourages the belief that syntax should be regarded as the original, main driver in the birth of language, as argued by the early Derek Bickerton (1981, 1990, 1995), Tomas Schoenemann (1999) and C. C. Lin (2002). The theory has been critiqued, persuasively in my view, by Jackendoff (2002) and Burling (2005) as an unwarranted, a-historical scenario. One could add that the *ex nihilo* emergence of syntax entirely neglects forms of nonverbal sequences that had to have been in place for a very long time before language emerged as an economizing matrix, a point I will return to below in my discussion of a likely *protosyntax.* Suffice it here to claim that *aboutness* must have come first, with syntax gradually undergoing refinement.

An intriguing argument in the structuralist tradition was put forward by René Girard (1972; 1978) and elaborated in *The Origin of Language* by Eric Gans (1981) as the "transcendental hypothesis." Accordingly, the acceleration of mimetic gestures must have led to imitative competition and conflict, resulting in the murder of a marginal figure, or "emissary" victim. The subsequent transformation of violence into quietude is then argued to have led a ritual reproduction of the process and so to representation. Communal death ritual is thus seen as the birth of the central signifier-signified relation. While the social emphasis in the transcendental hypothesis is persuasive, to single out death experiences as the mono-causal origin of language is less so. Is it not much more likely that a range of remarkable social situations, including heroic deeds, the experience of birth, instances of survival, sexual attraction and associate rituals, meetings with other clans, trading, and many other memorable social events gradually began to gel into clusters of nonverbal forms of communication demanding sorting and abbreviation?

A strong case for the thesis of the gestural origin of language has been made by Michael Corballis, resuming Condillac's idea that manual gestures rather than vocalization are likely ancestors of natural language, critiqued for instance by J. R. Hurford (2007). In *Hand to Mouth* (2002) Corballis supports the gestural thesis by arguing that sign languages have reference, syntax, prosody, generativity, as well as pointing; that apes learn sign language easier than speech; that chimp gestures are context-independent; and that the mirror system in primate brains favors gestures. Vocalization, according to Corballlis, comes later. What one can say about the gestural hypothesis applies to the majority of the theories of language origins, namely that discipline based approaches tend to favor merely *partial* hypotheses. It would seem that gradualism in hominid evolution is better argued in comprehensive terms, so that a broad spectrum of social activities can be considered as contributors to the emergence of language, such as hunting, mating, birthing, food gathering, preparation and consumption, as well as leadership and group organization. In addition, and perhaps most importantly, we need to address the social evolution of *reciprocal imaginability* and how what can be imagined can be conveyed in nonverbal and verbal communication.

3. Hypothesis: The Centrality of Iconicity in Language

Perhaps the biggest hurdle to the study of language evolution is the widely held assumption that natural language is a symbolic system. But if PASCAL, FORTRAN, Boolean logic, and chemical formulae are symbolic systems, then the inclusion of language is problematic. Indeed, a broadly conceived analysis reveals that language is a *heterosemiotic hybrid*, partaking as it does of schematized iconicity, indexicality, and symbolicity (in Peirce's sense), a

finding confirmed also from a phenomenological angle which encourages a view of language as an *ontically heteronomous construct* (Ruthrof 2014, p. 238). While it is true that language has lost iconicity at the level of the *signifier* (Corballis 2009; Ruthrof 2000, pp. 85–97; Burling 1999) this loss, I have argued, is more than made up for by the schematically iconic character of the *signified* (Ruthrof 2014; 2013): "At the level of the signified we are iconic beings" (Ruthrof 2000, p. 152), a position that must not however be confused with an image theory.

While our current discourses on language all contribute to the overall mosaic that is language, given their premises, they are not on their own well suited to a speculative search for its likely origins. I list some of these theories for the reader's orientation: *externalist* methods focusing on the *observables* of language, including the Wittgensteinian "language as use" program; *formal* approaches, such as in network semantics, the chess analogy, or *hyper-intensional* semantics; the *applied calculus* analogy; *syntactocentrism*; *LOT*; brain language research; or the *musilanguage* approach. An exception would seem to be cognitive linguistics (e.g., Evans 2013; 2009; Popova 2005), were it not for its visual bias placing an unwarranted constraint on schematized iconicity (Fauconnier and Turner 2002; Finke 1990; 1989; Johnson, 2005; 1987; Kosslyn et al. 2006; cf. also Dretske 1995). Specialized paradigms of language study, I suggest, can be fruitfully subsumed as partial theories under the broad umbrella of *imaginability*. Placing the accent on *imaginability,* though, is not a research enterprise without constraints. Given my ontological commitments to the heterosemiotic character of language, its ontic heteronomy, and my conviction that preverbal iconicity has been absorbed by the conceptually regulated signified, some form of *intersubjective mentalism* proves unavoidable.

In light of these preliminaries, I will attempt to corroborate the following hypothesis. *In the evolution of language, preverbal iconicity has gradually been disembodied into arbitrary signifiers, while it has at the same time been absorbed by and refined in the conceptually regulated, motivated signified in the form of schematized, mental resemblance.* This is why I stipulate *imaginability* as the common precondition of both language and hominid preverbal communication, which is shared by both as *aboutness* (of which reference is a special case) and *voice* (understood broadly as manner of utterance), the former transformed in language into *indirectly public*, conceptually regulated, *motivated signifieds*; the latter into *implicit deixis*. Furthermore, imaginability has also been an important factor in the transformation of a preverbal *protosyntax* into linguistic syntax. In the following I will deal with each of these claims in turn, beginning with an elucidation of the notion of *imaginability.*

4. Imaginability

The term "imaginability" was introduced into analytical language philosophy via the translation of Wittgenstein's *Vorstellbarkeit*, where he reluctantly contemplates the "lack of clarity about the role of *imaginability* in our investigation. Namely about the extent to which it ensures that a sentence makes sense" (*PI* §395). I define imaginability as "the organism's ability to vary perceptual input," a concept that marks the gradual transition from hominid existence identifiable as animal being to a stage where perceptual actuality could be mentally modified as a socially guided, evolving capacity in the service of survival. We could regard the notion of "prospection" introduced by Richard Crisp as a specific application in modern humans of the general concept of imaginability (Crisp 2015: pp. 99–112). Applied to natural language, the imaginability thesis returns us to a folk-psychological perspective. It can be simply put as "If you can *imagine* what I am talking about, and the manner in which I do so, there is meaning; if not, not." And *vice versa*. A number of things can be noticed in this formulation: an accent on linguistic *meaning* requiring intersubjectively shared *mental processes* as necessary components, language as communicative *speech*, imaginative *reciprocity*, *aboutness*, *voice*, and *implicit deixis*. With respect to language, then, I use the term in two senses: (1) as a human, neurally based and socially constrained capacity for the production of nonverbal, mental, realist resemblance relations and their imaginative modifications; and (2) as a structural feature of natural language informing the contents and conceptual regulation of the motivated signified. While imaginability in the first sense must have been shared by hominids well before the gradual emergence of language, in the second sense it fundamentally informs the way language works. For without schematized iconicity language would be no more than meaningless sounds. This claim can be tested by learning the pronunciation rules of a foreign language and reading one of its dictionaries. All we will achieve is a performance of signifiers without meanings. For meaning to occur, we must be able to *imagine* what the signifiers are *about*, which has to be learned as a social activity via pedagogy. At the core of *imaginability* I place schematized *iconic resemblance* which provides natural language with content (cf. Zlatev 2013; 2005). This distinguishes nonverbal imaginability from propositional "conceivability" (cf. Chalmers 1996; 1998; 2002; 2010).

The focus on imaginability dictates a redefinition of the linguistic sign, such that the native speaker has been trained to activate arbitrary signifiers by motivated *signifieds* at high speed (<250ms per word and simple phrase) in habitual speech (Pulvermüller et al. 2009, p. 81). I have elsewhere referred to the shutter-speed association of arbitrary signifiers and motivated signifieds as the *linguistic linkage compulsion* (Ruthrof 2011b, p. 168). Speed of comprehension typically conceals the complexity of the motivated

signified as consisting of two components, mental iconic resemblance relations and their conceptual regulation in terms of directionality, quality, quantity, and degree of schematization. To avoid the charge of subjectivist mentalism as well as the Lockean paradox of not being able to reconcile public discourse with private *Vorstellungen*, understood as mental modifications of perceptions, I stress the role of pedagogy. In this respect, Wittgenstein's notion of *Abrichtung* is instructive, characterized as it is as a strict form of training, a term usually applied to the training of animals and in the military (Wittgenstein 2009, §§5f., 86, 146, 151f., 189, 320).

However, Wittgenstein could not approve of my use of his term. After all, what is being so trained in the picture I am advocating is precisely what he wanted to eliminate from linguistic meaning, namely *Vorstellung*. The reason I eschew his and other forms of *externalism* is that they cannot account for many of the essential characteristics of natural language, such as *intention-reading* and other features entailing *reciprocity* (Husserl 1973, I §7; Tomasello 2003, pp. 3ff.). Suffice it here to conclude this short-cut glance at the imaginability thesis by mentioning that the demand for meaning identity is dropped in favor of what Quine called "domestic" meanings (Quine 1993, pp. 53ff.), and that truth-conditional arguments are regarded as supervening on *imaginability* and replaced by the more relaxed concept of *sufficient semiosis* (Ruthrof 1997, pp. 48f.; 2014, p. 233f.). In agreement with these principles, then, natural language can be defined as a "set of social instructions for imagining, and acting in, a world." In light of this minimal description of the imaginability thesis, I pose the question, "If language has lost iconicity at the level of the signifier, and if without iconicity language cannot *mean*, how has *imaginability* been transformed from its function in preverbal communication and absorbed by language?" My answers claim to be no more than tentatively exploratory suggestions.

5. Aboutness

From the perspective of *imaginability*, two features that radically distinguish natural language from symbolic systems are *aboutness* and *voice*. Applied calculus, such as a measuring tape placed on a slice of world, though having limited aboutness, fundamentally lacks voice, understood as the manner of utterance. In natural language *voice* alters *aboutness*, radically so by ironic illocution. I suggest that aboutness and voice are two essential features of language which are likely to have been inherited from its nonverbal precursor systems. Given its prominence in language, *aboutness* deserves special attention. It is what speakers of a language have been trained to imagine on the cue of signifiers. If we are directed towards a specific object or state of affairs, we speak of *reference*, which I regard as a special case of aboutness

(cf., e.g. Evans 1982). Signifiers such as "green" or "running" evoke mental impressions for which the term *reference* does not strike me as appropriate. But the most important characteristic of *aboutness* is that it captures what the bulk of language is about: the world *in absentia*. Even technical language relies on imaginable scenarios. Consider welding instructions in the office. "Continuous welding on the upright. Remember to leave a gap for the flange." Of course, aboutness does not only cover realist mental scenarios; intentional objects have their counterparts in potentially infinite variations of realist mental staging in the projection of *purely* intentional objects (Meinong 1983; Raspa 2013; Ingarden 1964/5; cf. also Rizolatti and Craighero 2004; Zlatev 2007; 2005).

Only for the speaker of a language, then, do resemblance relations and their variations play the role of providing content for the motivated signified on the cue of arbitrary signifiers. Wittgenstein amused his readers by relegating the iconic, mental ingredients of language to the incidentality of the *Vorstellungsklavier* and so externalized his notion of meaning as use (Wittgenstein 2009, §6). Yet, if we do not insert *Vorstellung* into *use* we are unable to escape the threatening regress of words being seemingly explained by ever more words, sentences by sentences, without ever constituting meaning (Ruthrof 2011a). Words and sentences do not *mean* by themselves; "locution" is a non-semantic distillation, a worry Austin himself has raised (Austin 1962, p. 103n1). Yet even the broadening of the research frame to pragmatics is no guarantee of capturing the fundamentals of language as long as we conceive it in a reductive propositional manner (Ruthrof 2014, pp. 193ff.). In order to stop the verbal regress we must exit the circularity of arbitrary signifiers and look for a nonverbal anchor that can stop the buck of infinite semiosis at least temporarily for a meaning event to occur. It is at this point, that Charles Sanders Peirce comes to the rescue by declaring that "every assertion must contain an icon or a set of icons, or else must contain signs whose meaning is only explicable by icons" (Peirce 1974, *CP* 1.158).

The futile circularity of non-semantic signifiers can be avoided by making one sign system *mean* by way of another. Now the arbitrary signifiers of natural language can be made semantic via a system of iconic resemblance relations constituting an imaginable world anchored in perceptual actuality. Two further moments in Peirce's writings can be used to shore up arguments in favor of the likely role that *iconicity* has played in the evolution of linguistic communication. One is to point to the indirect iconicity of linguistic *indexicality*. A third moment shoring up aboutness is Peirce's three-step generalisation of the *hypoicon*, as mirroring (image), abstraction (diagram), and displacement (metaphor) (Peirce 1984, *EP* 2.273). Even in its most abstract form, the *hypoicon* in language never quite loses its iconic resemblance relation. Similar support for the presence of iconic aboutness in

language can be gleaned from Husserlian phenomenology, especially from such concepts as "semblance acts," "nonessential typifications," "exclusive directionality," "quasi-perceiving," "appresentation," "as-if-modification," or "graded similarity" (Ruthrof 2014, pp. 72ff.). Important for my arguments here is not only that iconic mental scenarios play a crucial part in natural language, but also that they make the methodological assumption of *inter-subjective mentalism* mandatory. Without it, I suggest, we are unlikely to make much headway in our speculations about the origins of language.

6. Voice

An obvious difference between symbolic systems and natural language is that in the former the manner of utterance, or *voice*, is irrelevant. For if there is no aboutness, nothing can be modified and, second, even if aboutness is present, as for instance in applied calculus, it is definitionally determined by units of measurement rather than by the phenomenal world and so impervious to modification by *voice.* In contrast, in language *voice* is decisive. This is less obvious the more technical the expressions, but vital in the bulk of social intercourse. The fact that *aboutness* can be turned into its opposite by an ironic tone of voice reveals only the tip of the iceberg of submerged or *implicit deixis*, a much undertheorized notion at the heart of makes natural language *natural* (Ruthrof 2011b, p. 173). I want to stress that the specific voicing of every signifier, including function words, makes a contribution to *aboutness.* The standard accounts of deixis address reference to the speaker mainly when it is *marked* or *explicit.* This tends to leave out the continuous presence of *voice* as the presentational manner which accompanies all speech, requiring imaginative reconstruction in face-to-face communication, exchanges over the phone, as well as in the meaningful activation of written texts. In the production of meaning in natural language, then, *aboutness* and *voice* always work together.

Yet they do not do so symmetrically. There is a distinction to be drawn between *voice* as the vehicle of standardized, public word sounds and *voice* as a modifier of *indirectly public* meanings, the former a part of the signifier, the latter affecting the motivated signified. This double function results in an asymmetry between voice and aboutness, such that voice appears to be a more important component of language than is aboutness. No wonder then that the Darwinian idea of privileging the sounds of natural language and especially birdsong as likely sources in the evolution of language has been revived in some recent research (Fitch 2010; Mithen 2005; Brown 2000). What makes this work attractive is its explanatory force with respect to a number of features of language, such as its expressiveness, the role of sound in tonal languages, the function of intonation, the role of modulation of *voice*

in the production of fine-grain meaning differentiation, emotional nuances, individualized emphasis, and the potential for the radical alteration of *aboutness.* Pitch and volume alone can convey coarse-grain meanings of aggression or appeasement, refinable by verbal specification.

In spite of all this, one shortcoming of this kind of theorization seems to me that by putting all the eggs into the basket of *voice* we tend to favor a mono-causal description at the expense other possible evolutionary avenues. Another flaw of *musilanguage* research seems to me that birdsong and other *cries naturels* foreground presentational codes over representational codes, the former being primarily self-referential, drawing attention to the performance of the utterer while undervaluing the main function of language, which is resemblance relations of a representational kind, in short *aboutness*. The song of a magpie identifies the utterer as a member of a species in competition with other performers rather than producing a representational text that functions as an independent message for others about something else. While the presentational, self-referential function is always part of language, unlike in birdsong, it serves a secondary purpose, which suggests that *musilanguage* was a likely contributor rather than the main source of language. Another objection to biologically oriented approaches, for instance that by Fitch (2010), has been raised on the grounds that they tend to play down the all-important social dimension of language (Enfield 2010).

7. Protosyntax

Having earlier rejected the catastrophe theses of a linguistic explosion, I see no good reason for thinking that syntax should have suddenly appeared as a consequence of the birth of language (Bickerton 1981; 1987). Not only is it likely that the syntactic structures which we now encounter in different languages are refinements of earlier, simpler syntactic, linguistic constellations, I also propose that language has probably inherited basic sequencing from its nonverbal precursors. This would be in agreement with the emphasis so far in this paper on the predominance of *aboutness.* It would also accord with the rejection of *syntactocentrism* argued by Ray Jackendoff (Jackendoff 2002, pp. 7ff.; cf. Chomsky 1957; 1965; Fitch 2011). While syntax contributes to meaning, "words do more" (Burling 2005, p. 4). And if "words must have come first," so does aboutness, including its imaginative modifications (Burling 2005, p. 19).

At the same time, we cannot conceive of language without syntax. So whence does it come? Instead of regarding it as a consequence of language, is it not more likely that syntax in a rudimentary form was initially dictated by biology and the perceptual world? The survival of the species suggests that, contrary to Saussure, the world had to appear as consistently ordered.

Perceptual and gestural sequencing could thus be taken as a kind of *proto-syntax*, reinforced over time by the need for the repetition and increasing predictability of nonverbal utterances. The animal perceptual order appears to be dictated by nature in the double sense of the perceiving physiognomy of a species and the world as it can be perceived by the organism. In this sense, we could speak of a *perceptual protosyntax*. Beyond perception, gestural communication had to be socially constrained to allow for recognizable repetition and consistency of application. The gestural communication which we can assume would have made hunting sequences ever more efficient probably evolved attuned to a social and biological program within environmental constraints (Kendon 2009; 2004). Together, I suggest, perceptual protosyntax and gestural protosyntax are likely to have provided a significant structuring input into the evolution of language.

However, not everyone agrees on the assumption of gesture as a forerunner of language (McNeill 2012). And yet, without the stipulation of bodily communication initially shared with the animal world and refined into gestures, it is difficult to understand how hominid communication could have evolved to the point where communicative complexity, including that of *imaginability*, could have favored, or perhaps even necessitated, the gradual emergence of language. This claim finds strong, even if indirect, support in arguments in favor of the evolution of the intrinsic monitoring control progressively exerted by neuron networks over perceptual input (Fitch 2008).

Imaginability, as the socially constrained, mental variation of realist scenarios must have played a decisive role in the emergence of language not only in its inheritance of aboutness and voice, but also in the way the world and hominid social behavior appeared as *ordered* rather than random. Preverbal *protosyntax* well before the emergence of language would make sense as a reflection of this sense of order. If this is so, then a rapidly increasing capacity of *imaginability*, I argue, must have been a precondition for being able to mentally vary aboutness, voice, and protosyntactic sequencing. But what is the advantage of mentally varying the given perceptual world? Why multiply the *Wahrnehmungswelt* by a potentially infinite series of *Vorstellungswelten*? Put simply, being able to imagine the leopard behind foliage and warn fellow hunters of the danger would have been a great improvement over being jumped by one unawares. The imagined leopard must have been a huge evolutionary step favoring survival. If the ontogenesis of language in any way reflects its phylogenesis, then Vygotsky's remark is pertinent to the question of the role of *imaginability* in language evolution: "The child prefers the real apple to the imaginary one," yet "it is the *imagined* apple that will play the crucial role in linguistic meaning" (Vygotsky 1987a, p. 63). On the assumption, then, that imaginability must have reached a high degree of complexity well before the emergence of language, we must address

its social side. After all, if imaginability were to be essentially private, it would have no value in human communication, verbal or nonverbal. So I suggest that central to imaginability as a component of language lies socially informed, mental *reciprocity*.

8. Mental Reciprocity

A major breakthrough in recent research on human communication is Michael Tomasello's discovery of empirical evidence for mental *reciprocity* as a necessary component of the ontogenesis of language in children. Mental states, so Tomasello, must be involved in "intention-reading," goal recognition in others, "pattern finding" beyond single utterances, and the kind of processes we cannot but infer in order to make sense of the child's ability to develop communicative motivation. It is precisely "this mental dimension that gives linguistic symbols their unparalleled communicative power." As a result of such mental activity, "linguistic symbols are fundamentally *perspectival*." But only for speakers of the language, I want to add. At the core of Tomasello's enterprise is the conviction that a crucial event in the evolution of modern humans, as in child development, occurred when "human beings understood one another for the first time as intentional and mental agents – which then led them to attempt to manipulate one another's intentional and mental states for various cognitive and competitive purposes" (Tomasello 2003, pp. 8, 12). This emphasis is reminiscent of what Husserl pointed to as *introjection* in his description of the acts we are bound to perform in communication by language, comprising "all acts that a hearer may introject into a speaker" (Husserl, 1973, I §7).

Mental reciprocity as a necessary social component of communication, verbal and nonverbal, involves awareness and self-awareness. And while in a certain sense consciousness is an illusion (Kandel et al. 1991), as far as we are not aware of the neural computations that are involved in mental processes (Barsalou 2012; Pulvermüller 2010), in another and more important sense, consciousness as awareness is not only vital, it is also, as David Chalmers has persuasively argued, the only thing we can be absolutely certain of (Chalmers 1996: pp. 26ff.). Accepting Chalmers' explication of consciousness in the sense of "conscious experience" as a philosophically "hard problem" and yet unavoidable fact, together with Husserl's description of imaginative, mental acts (Husserl 2005) and the empirical evidence assembled by Tomasello, I am satisfied that the methodological commitment to a form of *intersubjective mentalism* in the description of language and its precursors is justified (cf. also Favareau 2002). The necessary presence of mental reciprocity in my view strongly corroborates the *imaginability thesis* and hypothesis stated early in the paper.

Conclusion: Language as Refinement

When Wittgenstein wrote, "Language – I want to say – is a refinement, *im Anfang war die Tat*," he endorsed a research enterprise which he himself was not prepared to undertake (Wittgenstein 1976, p. 3). One important refinement is the compensation that language has accomplished for the loss of iconicity at the level of the signifier (Corballis 2009), its "disembodiment" (Ruthrof 2000, pp. 85–97) and "conventionalization" (Burling 1999), by a massive reinvestment of iconicity at the level of the motivated signified. *Aboutness*, conveyed in preverbal society by the communicative employment of the human body (stance, facial expression, gestures, voice), is no longer *directly* given in language by arbitrary signifiers, but *indirectly* by conceptually regulated signifieds. Pedagogy from the cradle to the grave guarantees the association of word sounds and meanings as social, conceptual regulation.

Having taken *imaginability* as the fundamental condition without which *public* signifiers could not be transformed into *indirectly public* meanings, the mental, schematic iconic resemblance relations provided in olfactory, tactile, gustatory, gravitational, thermal, aural, proximic, kinetic, visual, and emotional readings of the world, with which we activate arbitrary signifiers in the event of linguistic meaning, must therefore be granted a privileged place in language. In this sense, the nonverbal gesture of hominid pointing reappears for the speaker of a language as distributed over the user's lexicon. It is hardly an accident that the German term for meaning is *Bedeutung* (consisting of the active prefix *be-* and *deuten*, to point). Pointing can be regarded as fundamental to communication, both in hominid groups as amongst other animals, even if directionality is expressed differently in different communication systems. Pre-linguistic concepts can be thought to have been transformed into linguistic units by the gradual *refinement* of the conceptual boundaries of the mental material of signifieds. The preverbal manner of utterance could be reconstructed as a precursor of the function of *voice* in language in the modification of *aboutness* by *deixis*, especially in its *implicit*, pervasive form. Much the same I suggest applies to the transformation of perceptual and gestural *protosyntax* into the linguistic syntax we are now familiar with. Above all, one thing that characterizes the preverbal and verbal mental performance of imaginable scenarios is its *social* origin. *Reciprocity* in intention-reading and other intersubjective mental acts are most likely inherited from nonverbal, precursor communication and greatly refined and so specified by language. None of these complexities can be resolved at the level of the signifier and on the assumption that language is a symbolic system. Only once we take seriously the heterosemiotic character and ontic heteronomy of language will we be in a position to offer promising descriptions of its evolution.

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ORGANIZATIONAL SOCIAL CAPITAL AND PERFORMANCE MANAGEMENT

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ABSTRACT. The mainstay of the paper is formed by an analysis of the character and effectiveness of links and the communication flows in which people and organizations are entrenched, the significance of social relations in organizational contexts, the circumstances in which social capital can thrive in organizations, and social media's role in improving organizational knowledge. The theory that I shall seek to elaborate here puts considerable emphasis on the antecedents and mutual results of organizational social capital, social capital as an intra-organizational event, the impact of the entire social relationships on worker's mutual approach towards the organization, and the decisive socialization practices of new employees in entities.

Keywords: social capital; organization; performance; socialization; communication

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1. Introduction

Financial limitations and growing citizen demand for first-rate public services (Nica and Potcovaru, 2015a, b, c) have stimulated public administrations to enforce performance-management practices. Social interplay, trust, and shared objectives are extremely significant (Petcu, 2015) if organizations aim to further performance information utilization. Decision-makers in public entities tend to use performance information for steering, controlling, and learning goals if the managers and workers on various organizational levels 1) have the chance to often interact, 2) share trust in each other, and 3) are dedicated to the same objectives. Organizational social capital is significant to make performance management systems function. (Tantardini and Kroll, 2015)

2. The Character and Effectiveness of Links and the Communication Flows in which People and Organizations Are Entrenched

As newcomer learning is an essential element in socialization, the incorporation of cognition is decisive to comprehending the impacts of social relations (Popescu, 2015a, b) and network relationships on newcomer learning throughout the socialization process. The participants in various network positions have distinctive access to resources and can supply distinct chances and resources to newcomers as they attempt to harmonize with the group. In opposition with the bureaucratic organization of social networks (Devine, 2015), the relational aspect comprises the links among persons in the group. An apparent and relevant component of the socialization process is mastering to do the task in a manner that is consonant with the other components of the entity. Connections have a massive impact on what they can do (operation) and how they perceive (contentment) toward the entity. The consequences of the somewhat imperceptible social systems on persons are significant moderators that facilitate and confine the performance of the organization. (Korte and Lin, 2013) The continuance of organizational social capital furthers the employment of standard performance information. The structural feature of organizational social capital makes data acquirable and promotes the exchange of performance data among the components of an entity (Bondrea and Ștefănescu-Mihăilă, 2014a, b), therefore boosting its utilization for managerial decision making. If workers team up across departments and communicate on a constant basis, performance information tends to become a component of these cooperation and communication patterns rather than just being announced and categorized. (Tantardini and Kroll, 2015)

For the purpose of advancing social capital and actualizing its advantages, workers have to grasp, count on, and reciprocate social capital. The latter, with its incontestable benefits to workers, is instrumental in employees' sense of duty (Nica, 2015a, b) to reward the synergetic and concerted working climate. It is workers whose undertakings eventually establish the degree of social capital in an entity and via whom entities can gain from social capital. Workers' perceptions concerning stability and cohesion impact their assessments of social capital in their entity. Social capital is vulnerable to unpredictability. (Parzefall and Kuppelwieser, 2012) Communications between entities within a social field assist in advancing perceptions and prospects shared by the organizations. As the social interplay develops, trust between an entity and its arrangement of entities grows: organizational interactions can assist in configuring trusting connections with other entities. The cognitive aspect of social capital entails shared values (Mihăilă et al., 2016) and common visions between entities. Enhanced social capital between entities makes it more reasonable for entities to participate in knowledge management

proposals and more effortless for workers to take part in them. As far as social capital furthers organizational knowledge management, entities should consider it as a useful resource, and deliberately capitalize on it. Structural capital is basic to effective knowledge management and essential asset to organizational knowledge management endeavors. (Bharati et al., 2015)

3. The Impact of the Entire Social Relationships on Worker's Mutual Approach towards the Organization

As relevant features of the task may not be apparent, newcomers depend on other individuals in the group to assist them in understanding the manner things are done. The re-disposing of newcomers from outsiders to insiders is considerably affected by the relevance of the connections and altruism (Constantin, 2015) advanced between the newcomer and the supervisor and fellow workers. Handling the advancement of work connections by newcomers and fellow workers is a tough process because beginning newcomers cannot grasp the structural, relational, or cognitive features of the group. It is the duty of the newcomer to grasp how to harmonize, but it is also key for the other individuals in the work group to appreciate wholeheartedly and help the newcomer as a component of the group. (Korte and Lin, 2013) Performance assessment frequently entails supervisors to hold workers responsible contingent upon data supplied by precisely these workers. From a principal's view, if there is confidence, performance information tends to be regarded as correct, and less resources should be used in confirming and checking data arising from performance assessment procedures. Cognitive social capital concerns the capacity and inclination to characterize collective objectives (Popescu Ljungholm, 2015) and having a collective language that assist the entity to perform those aims conjointly. The mainstay of performance assessment is the incorporation of indicators into a strategic scheme determined by an entity's long-run prime concerns. (Tantardini and Kroll, 2015)

In the circumstances of expected change, workers may suspect that the entity is ineffective in handling change successfully or that their concerns are not being dealt with, and become prudent regarding their investments in that precise entity and its components. Not only will the sensed probability of change be suspected as it trashes beneficial relationships (Mihăilă, 2011), but also workers' disposition to invest in shared undertaking may decrease when there is unpredictability concerning the cohesion of the current connections. Workers require the time and energy to both take part in, and gain from, networking (Popescu and Predescu, 2016) and continuing social connections with their fellow employees. When workers perceive that their workload is excessive, they merely have less time for tasks that are decisive

to producing and preserving social capital. (Parzefall and Kuppelwieser, 2012) A more relevant degree of structural capital should further knowledge management. Electronic relationships on which the social media are constituted can further confidence and establish connections between communicating partners. Consumers adjust themselves to the technical characteristics of communication media over time, eluding their limitations and capitalizing on their strong points. By reconciling the temporal and space gulf, social media expands the chances for workers at various entities to involve each other and to team up with each other: companies that are communicating by employing social media tend to advance a shared grasp. Social media thoroughly impacts social capital and organizational knowledge management (Popescu, 2016; 2014; 2013), eventually bringing about better organizational knowledge quality. The improved organizational stress on knowledge management generates long-term enhanced knowledge quality aside from the betterment produced by social capital. (Bharati et al., 2015)

4. Social Capital as an Intra-organizational Event

A component of the difficult task intrinsic in the operation of socialization entails the advancement of newcomers' proficiencies and dedication to the organization. The process of identifying their position in the entity, harmonizing with the relational structure (Lăzăroiu, 2013; 2012; 2011), and grasping the suitable manners of considering and working is demanding if left up to the newcomer to acquire how to harmonize. The latter and her fellow workers and supervisor reciprocally establish grasping and incorporating into an entity: newcomers are not in a situation to grasp and incorporate into the entity on their own. Furthering interpersonal connections among employees has important consequences on how well newcomers incorporate into the entity. A relevant matter concerning the socialization of newcomers is to better grasp the impacts of social capital on the incorporation of new fellow workers into a group. (Korte and Lin, 2013) If components of an entity appreciate the same objectives, performance data will be extensively regarded as relevant reaction concerning the degree to which these objectives have been accomplished. If performance data can be associated with collective objectives which count enormously for an entity (Bratu, 2015), this information will matter and can be employed to stimulate and manage workers. Higher or lower operation should be recompensed or penalized similarly, furthering openness and procedural justice. Grasping organizational social capital will assist in carrying out performance management proposals more successfully. (Tantardini and Kroll, 2015)

Employees' workload, job security and requirements of organizational change affect the degree to which workers grasp organizational social capital.

Affective commitment is important from both the person's and the organization's views. Perceived social capital somewhat moderates the connections between its three antecedents (job security, the probability of organizational change and workload) and its result (affective commitment). An entity's security, soundness and resources influence affective commitment thoroughly (Popescu and Ciurlău, 2016), while on the contrary heavy workload, organizational change and job insecurity weaken it. Perceptions of probability of organizational change, level of job security and high workload impact the degree to which workers grasp social capital in their entity. Workers' understandings of social capital (Nicolaescu, 2015) are thoroughly related to affective commitment. Social capital has a moderately mediating function in the connections between job security, anticipated organizational change, workload and affective commitment. (Parzefall and Kuppelwieser, 2012) Social media employment can further organizational knowledge management endeavors and the advancement of social capital: it assists in boosting social interplays that foster increased communication between entities, generating a higher degree of social capital (Mircică, 2014), and pave the way for the development of collective grasp shared by entities, advancing cognitive capital. Consumers expand understandings of capacity and kindness of their fellows in other entities via interplays and teamwork (Nica et al., 2016), which successively generate the constitution of confidence toward other entities. Organizational absorption of social media assists in advancing social capital between entities, which further knowledge management endeavors in entities and afterwards bring about organizational knowledge of superior quality. (Bharati et al., 2015)

5. Conclusions

Workers who think that they perform in a safe and lasting setting and who are not overcommitted with job duties tend to typify their workplace in relation to significant social capital. Organizational social capital is of a bonding character (Nica, 2016; 2013), demanding closed and tight arrangements between members of the organization. Individual workers may autonomously relate to massive and loose arrangements and profit from them (Lăzăroiu, 2015a, b), but without strength, security and enough resources, social capital does not typify social connections in the organization. Employer conduct and endeavors that indicate dedication to participate in first-rate relationships both improve social capital and display the kind of mutuality that is wanted. Employment practices that moderate workers' workloads and further soundness their connections and arrangements can assist in preserving social capital. (Parzefall and Kuppelwieser, 2012)

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ON THE REALISM–CONCEPTUALISM DEBATE ABOUT THE ONTOLOGY OF LINGUISTIC OBJECTS: THEORETICAL AND EPISTEMOLOGICAL CONSEQUENCES

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ABSTRACT. In this paper we will critically analyze the foundational claims of biolinguistics, situating it in the context of the realist-conceptualist debate on the ontological foundations of linguistics (Chomsky, 1966; Behme, 2015), an argument that is both abstractly philosophical and empirical. While summarizing both proposals pointing out shortcomings at the theoretical level (primarily), we will consider alternatives in order to prove that logically consistent systems are attainable outside the artificial polarization the formal field has suffered, without falling into either of the apparently binary terms. In the second part of the article, we will carefully revise the main claims of conceptualism and realism and look for logical inconsistencies in their own terms in order to demystify the allegedly exclusive "debate" and generate awareness of the need of new, superating alternatives. While the paper does not propose a framework itself (but refers to existent alternatives), its main aim is to stress the necessity of alternative theories, thus desmistifying the polarization of Linguistics; and programs for the development of the field focusing on interdisciplinary studies. As a result, we will show that consistent alternatives that do not fall into the labels of "realism" or "conceptualism" are not only possible, but also desirable.

Keywords: realism; conceptualism; metalinguistics; linguistic ontology; biolinguistics

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1. The Biolinguistic Enterprise

The term "biolinguistics" was coined, according to Chomsky (2005a), by Massimo Piatelli-Palmarini in 1974, under the influence of Lennenberg's recent (1967) *Biological Foundations of Language*. At that time, however, it was not clear whether we were in presence of a sub-branch of linguistics or a field on its own right. It was also not clear what its scope, aims and methodology were: one of the founding questions, very much alive today, was whether principles that appear unique to language are in fact shared by other cognitive domains, and if so, in which manner. This also led to ask to which extent we can find a principled explanation for emergent properties of language as a state of the speaker's mind, ultimately, a "property of matter" in Darwin's terms.

This inquiry has led to the so-called "Minimalist Program," in the methodological and substantive effort to simplify not only the theoretical apparatus (methodological minimalism) but also the extra-theoretical entities that are to be accounted for (ontological minimalism), including elements in representations and steps in derivations. Whether the enterprise has been successful is still to be discussed (and not just assumed), but there is a wider question in hand, which has been systematically wiped under the rug in most of the vast recent literature on the topic (see, for example, Di Sciullo & Boeckx, 2011; Di Sciullo, 2012; Chomsky, 2005a, b, 2007, 2010; Boeckx, 2010), namely: is the principled explanation of linguistic phenomena to be found in biology? The aforementioned authors, with different degrees of convincement, seem to think so. This belief, which is actually an axiom of the theory,[1] implies a whole view of the natural world and its foundations (even if the scope of the works under the label "biolinguistics" are usually much narrower) which is, needless to say, not innocent. We will discuss such a view, and then present some alternative proposals which relativize the role of biology in language studies, as well as the plausibility of some biolinguistic claims.

1.1 Language from a biological point of view or biology from a linguistic point of view?

The title of this section reflects a growing tendency in current studies on "biolinguistics:" that of forcing concepts, not methodology and thus get mixed approaches with very limited scope (see Poeppel & Embick, 2005, for a criticism of such approaches). Consider, for example, the claim that language is a part of cognition (for a recent reference, see Boeckx, 2010: xiii). Such a claim limits the horizon of linguistics to that of cognitive science, and there are only some marginal works which attempt to go beyond (understanding linguistic structures within the context of wider mathematical or physical theories, for instance; see Graben et al., 2008; Piatelli-Palmarini and

Vitiello, forthcoming; for examples of such a view). Some examples of the role of language in cognition and cognition in language (with the curious methodology of not defining any of them in unambiguous terms[2]) often come from the side of structurally or lexically ambiguous sentences (e.g., [flying planes] are/is dangerous), or gestalt-like figures. Such examples surely show that there are more general issues involved in language comprehension and generation, but it does not provide any evidence to restrict the scope: it may very well be the case that instead of a faculty of language interacting with external systems (as in Chomsky's 1995 et. seq. architecture) we have general underspecified (i.e., object-neutral) algorithms that activate whenever necessary, thus eliminating the need for a specific mental-biological organ "Faculty of Language" (a weak, dynamic interpretation of Fodorian modularity). The second option has only been pursued from "alternative" / "outsider" approaches, like Survive Minimalism (Stroik & Putnam, 2013) and Simpler Syntax (Culicover & Jackendoff, 2005) within (non-mainstream) Generative Grammar. Most often than not, these approaches have been confused with (or attempted to be reduced to) the claim that there is a general learning mechanism, in a Piagetian way, presumably in the hope to make them fail in the same mistake Piaget allegedly did, and which was pointed out, among others, by Chomsky.

Perhaps the most salient characteristic of the orthodox approaches is the attempt to force concepts and patterns into the data and, from there, the architecture of the cognitive system. Notice that the reasoning is the mirror image of Carnap's (1966) model: axioms are forced into the data and there, an alleged explanation is claimed to have been found. Let us see a clear example: the notion of antisymmetry. Quite trendy since Kayne's (1994) highly influential Linear Correspondence Axiom (which maps c-command relations in 2-D tree-like X-bar theoretic representations onto phonological precedence relations), the concept has been both adopted and adapted within a biolinguistic framework. Let us confront two proposals regarding a(nti)-symmetry, namely, Jenkins' (2011) and Di Sciullo's (2011), to clarify the scenario. Jenkins claims that asymmetry is to be found at many levels in the natural world (though limiting himself to biology on both extremes, we could easily extend his perspective if we accept Uriagereka's 1998, 2002, 2012 findings on mathematical structures far beyond what biology can *empirically* test), and a plausible line of inquiry is to ask whether the asymmetry effects we see actually arise from a principled asymmetry or from an independent source. This is the key concept in Jenkins' methodology: he does not stipulate asymmetry as a principle organizing the Universe (actually, if string theory is correct, it would be quite the opposite: the Universe would be ruled by supersymmetry), but he finds certain effects (like brain lateralization and

neural wiring optimization, also following Cherniak's, 2009 non-genomic nativism) and proposes the following, as a plausible line of research:

> "*Since many linguistic systems exhibit asymmetric properties one should always ask whether these may have arisen from the general principles of symmetry that we find operative in physics and the other sciences*" (Jenkins, apud Di Sciullo & Boeckx, 2011: 126).

It is strange to see that this is precisely the line of inquiry that is not only not pursued, but rejected: universality theories of the kind pursued in physics (e.g., M-theory; Quantum Field Theory…) are systematically rejected in linguistics. Instead of integrating (some aspects of) the generative approach to syntax (which is by no means exclusive of Chomskyan linguistics, consider, for example, Systemic Functional Linguistics' "system networks" as a cognitively plausible, on-line generator) on a more general scientific framework including findings from neurology, physics, and cognitive science; the road taken seems to be that of ostracism. Consider, for example, the frequent leap from linguistic considerations, often involving highly theory-specific stipulations (feature valuation mechanisms, for example) to biological considerations often involving the FOXP2 gene having little support when considering linguistic structure. So, instead of a reasoning of the form "there is asymmetry in language, language is part of nature, let us see whether asymmetry can be subsumed to more general properties of natural systems, like physical systems" (Jenkins' proposal, and our own), Di Sciullo (2011) takes the inverse, "linguisticocentric" path: "language is part of nature, then all characteristics we find in language are to be found in biological systems." In that way, we go from the necessity to eliminate uninterpretable/unvalued features [*u*-F] from representations driving the syntactic derivation (as operations must check / value / erase uninterpretable elements before semantic interpretation) to an attempt to justify the feature valuation process (stipulated in Chomsky, 1998 as a way of getting rid of the problem of the property of displacement in natural languages) from a biological point of view. Feature valuation (the process via which dimensions are mapped onto values in local relations to features – i.e., valued dimensions-) is at the very heart of the system, and asymmetry follows from the fact that there is a local relation between two instances of a feature, one valued and one unvalued, at structurally related positions in a tree representation. That pervasive system is implemented at all levels of morphosyntax. Should this approach be correct, however, the system of variation exposed by Di Sciullo would be very elegant and parsimonious, although its biological plausibility (i.e., how do we understand biologically the nature of an [*u*-V] –unvalued categorial verb- or [*u*-D] –unvalued categorial nominal- feature? What, if any, are their neurological bases? Is there any difference that can be seen in an fMRI, for

example?) would still need further clarification, not to be taken on faith. Merge, Agree, Transfer, etc. are part of the formal vocabulary of linguistics, not of biology or genetics (despite what many biolinguists / ethological linguists / evolutionary linguists write, see e.g., Murphy, 2015; Di Sciullo, 2015 for very recent examples). If biolinguistics is conceived of as the *techné* of shifting fields while maintaining terms, then the whole enterprise is doomed to failure on methodological grounds.

Kayne (2011) follows the same path as Di Sciullo, and they both rely on Chomsky's notion of a "third factor" in language design, which has remained undefined since Chomsky (2005b). Non-specific properties of a computational system could follow from deep biological principles, but they can also have arisen as a result of more fundamental physical constraints, or as the optimal resolution of a generation/implementation tension (as in Uriagereka's 2012, 2014 CLASH model). The working hypothesis for Kayne is that anti-symmetry is a human-specific characteristic. Let us bear in mind that the concept of anti-symmetric relation as introduced in Kayne (1994) was applied to phrase structure, more specifically, to the concept of c-command with linearization purposes. A general definition of anti-symmetry would be as follows:

1) A relation between A and B is anti-symmetric *iff* it holds for A → B but not for B→ A.

This formulation rules out the possibility of having "mirror" trees (i.e., tree representations that are mirror images of each other), and gives major importance to the "side" of the tree in which an element appears, in the line of what Di Sciullo (2011) has posited for Merge. The tree diagram is, then, more than a model, it becomes more a(n allegedly) substantively correct representation of mental content and process. This is a claim that underlies Kayne's work, and one that might undermine its biological plausibility, as it is highly unlikely that humans actually have bi-dimensional trees in their minds to be materialized via a uniform *c-command-onto-precedence* mapping, mainly because of processing issues (consider first the hundred step rule that applies to linear Turing-like generators, or Markovian processes, and then the whole amount of operations the human brain – at most, a PDA+ automaton, when it comes to linguistic processing, see Uriagereka, 2012 – must coordinate in less than a second), but also because of mathematical principles determining possible physical instantiations: if mathematics is *n*-dimensional (and there are even many mathematical models for different dimensions, that is, we do not study a Calabi-Yau figure with the same tools that we use to study an Euclidean triangle), why should all physical systems be homogeneously $\mathbb{N}$-D (where $\mathbb{N}$ is a theory-convenient fixed natural number)? Is there

a possibility that the human mind works with more than 2 dimensions dynamically (*contra* Kaynean fixed binarily branching tree diagrams, which in turn guarantee an unambiguous system of projection for the theory)? If so, would it imply a computational advantage? This does not mean each physical system has a dimensional system of its own, but rather than we should not assume a strong *regularity*[3] thesis instead of a strong *universality* thesis: the first claims all systems are the same in all respects, the second, that there are underlying generation patterns which configure the deep structure of the Universe, with a range of variation allowed by physical laws at several levels of matter organization. In our opinion, mainstream "naïve" biolinguistics (with due notable exceptions, like Jenkins, 2011; Uriagereka, 2012; Stroik & Putnam, 2013; Smolensky & Legendre, 2004; and to some extent Jackendoff, 2002) has taken the first hypothesis as valid without even considering the second alternative, equally valid and internally consistent.

1.2 Non-mentalist biolinguistics

So far, we have seen that one of the main claims of biolinguistics is that the knowledge of a language is describable as a state of a speaker's mind, the latter in turn "a property of matter," that is, of the neural substrate. This view relates to what is called "mentalism" or "sub-personal approaches" (in a more pragmatic tradition, see Carston, 1998): what linguists are really analyzing are mental objects, internal, individual and intensional, thus getting what has been called "i-linguistics". Everything else is, to this view (expressed at its best in Chomsky, 1986), epiphenomenal, external. "i-linguistics" thus opposes to "e-linguistics," a label that groups functional approaches as well as Saussurean structuralism (recall that Saussure defined *langue* as something social, as opposed to the *parole*, which was an individual act of will and intelligence): everything externalized is parasitic on the generative engine, and the interest of Chomskyan biolinguistics, heavily based on psychology, is to study the mind, not the externalization of the computations. The restricted equation "only i-linguistics = biolinguistics" follows quite straightforward. On this line, Mendívil Giró (2006) explicitly delimits biolinguistic approaches to internalist theories, rejecting proposals like Deacon's (1997) that language is like a "virus," existing "outside brains" and evolving in a continuous tendency towards optimality in order to be learnt. In this view, universals would not be a priori as in the Chomskyan view, but a posteriori, the result of an evolutionary process that affects language just as it affects species. Darwin (1871) already pointed out that "(…) *the formation of different languages and of distinct species, and the proofs that both have been developed through a gradual process, are curiously the same* (…)," and Deacon takes the parallel between languages and species to the next level. Deacon's perspective, even if "biologically based," is not considered "biolinguistics." Why is that so?

Because he assumes that languages exist outside the minds of the speakers (an anti-psy take on language), a position that is closer to what has been called "realism" or "platonism" by Katz & Postal (1991), in contraposition to Chomsky's "conceptualism" or "cartesianism" (see, however, Behme, 2014 for a very well informed take on what *Cartesian linguistics* really means). The very foundations of the current (bio)linguistic enterprise are affected by this debate: is language an *external* object or an *internal* object? Does it have any existence *outside* the speakers' minds? And if so, is it worth studying these external manifestations of language, and to what extent? In the next section, we will analyze the realism-conceptualism opposition, in order to try to clarify this issue and see if, and to what extent, a "realist biolinguistics" is possible and desirable. To do so, we will have to review the most important claims of both realism and conceptualism, to have a complete a picture as possible and see if the problem is fully defined by those two positions or there is logical room for, say, third or even fourth alternative/s.

2. Realism and Conceptualism in Linguistics

It has been recently argued (Postal, 2003; Katz & Postal, 1991) that the object of study of Linguistics is a "real" object (what has been called the "realist view," or "platonistic view," in Postal's terms), in contraposition to the Chomskyan (1965, 1986, 1988, 2002) allegedly more "cartesian" view of language as a purely abstract construction (see Chomsky, 1966). We will argue that neither pure conceptualism nor Katz & Postal's "naïve" realism provide an accurate account of the ontology of linguistic objects, even though both make good points in different domains. Most importantly, neither can be subsumed to the other, nor do they preclude the arousal of logically consistent alternatives, different from both realism and conceptualism. To this end, we will revise the arguments of both sides and then provide our own take on the matter.

2.1 The Conceptualist Enterprise

Conceptualism in Linguistics can be taken as the idea that objects have only a *formal* entity, being observable counterparts only epiphenomenal. This claim is not exclusive to Chomskyan linguistics, but it is essential to other frameworks, like Construction Grammar (Goldberg, 2006), which claims (contrarily to the GB tradition) that constructions exist, like templates, in the mind of speakers, and those templates, and the constraints upon their well-formedness, are the object of language learning. Structure, in this framework, is inherently meaningful, a claim we will share but mainstream Minimalism rejects. Crucially, in the context of generative linguistics, formal (in the sense of exclusively syntactic) entails biological: language is a biological object,

which has no entity apart from its mental representation (Chomsky, 1972). The object of study is then an innate "faculty," which provides the substrate for language to develop and display the main characteristics that concern Chomskyan studies: *recursion* and *displacement*. Both are taken to be properties of mental objects, ultimately part of human biology if psychology is considered a proper subset of biology, as Chomsky has explicitly done over the years (e.g., Chomsky, 1987: 6). The framework we have described is in line with Chomsky's (1965) claims on *strong* vs. *weak* generation procedures: strong generation was (and, we will show, is still) taken to be the generation of structural descriptions via phrase structure rules (PSR) of the type $X \rightarrow Y$, configuring a Σ, F grammar where Σ is a finite set of initial symbols and F a set of terminal strings. Even though Chomsky claims that his enterprise is to account for the unconscious knowledge of an ideal speaker, it is clear that the object to be explained (the domain of the generative *function*) has been fixed beforehand:

> *"We must require of such a linguistic theory that it provide for:*
> *(i) an enumeration of the class S1' S2', … of possible sentences*
> *(ii) an enumeration of the class SD1, SD2, … of possible structural descriptions*
> *(iii) an enumeration of the class G1, G2, … of possible generative grammars*
> *(iv) specification of a function f such that* $SD_{f(i,j)}$ *is the structural description assigned to sentence* S_i*, by grammar* G_i*, for arbitrary* $_{i,j}$
> *(v) specification of a function m such that m(z) is an integer associated with the grammar G, as its value (with, let us say, lower value indicated by higher number)"* Chomsky (1965: 31).

This is the first formal description of a strongly constructivist system, which we have formulated in a summarized way as follows (Krivochen, 2012a, b):

2) Given a generative system Σ, and a finite set $S = \{\alpha_1 \ldots \alpha_n\}$ of well-formed formulae, Σ generates S and crucially **no** α such that $\alpha \notin S$.

Notice that S is in fact predefined in (i) and (ii), and even the possible class of generative procedures is determined a priori in (iii). Such a constructivist system, in which no "ill-formed" object is generated by Σ, be Σ phrase structure rules or Merge. Let us go deeper in this respect: what exactly is the difference between these two kinds of generative procedures and the objects they generate?

PSR are rewriting rules, of the kind $X \rightarrow Y$. They are recursive, in the sense that it might be the case that $X \in Y$. More generally, any system in which (3) holds is recursive in this early Chomskyan sense:

3) $\forall(x), \exists(y) \mid y \in x \wedge x' \in y$.

We use the prime (x') notation for different *tokens* of the same structural *type* (see Krivochen, 2015b for a detailed account). For example:

4) a. S → NP, VP
   b. VP → V (S').

Needless to say, the embedded S' is not the same as the matrix S, as (5) clearly shows:

5) [$_S$ [$_{NP}$ The boys [$_{VP}$ claim [$_{S'}$ that [$_S$ [$_{NP}$ the boys] [$_{VP}$ claim [$_{S'}$ that…]]]]]].

If x ≡ x', then we have infinite embedding, which is computationally possible but neurologically impossible, because there must be a halting algorithm for interpretation purposes: a syntactic object featuring infinite embedding is simply not parseable due to limited memory issues. This problem of mathematical structures has been already spotted by Tegmark (2007),[4] among others, and we have proposed a solution for mathematical structures embodied in cognitive systems in Krivochen (2012b) which lies precisely on interpretation: if interpretative systems have access to the generative engine, then they determine what counts as a legible unit (necessarily finite) and thus the problem of deriving a halting algorithm for mental computations (in which there is always interpretation involved) reduces to the already existent problem of formulating the input conditions of interpretative systems.

Even considering the condition in (3), the reasoning of Chomsky's early conceptualism is circular in the following sense: the formulae imply, from the very first step, the final object. Then, there is no point in developing the rewriting formula as it will not add any information to the first object, namely, S. Rules are not consequent but subjacent: rule A applies if and only if rule B applies (that is, A is subjacent to B), which implies but does not define a derivational diachrony. Notice that (4b) only applies to the output of (4a), if and only if (4a) applies. There is no explanatory adequacy whatsoever in PSR as the Standard Theory presented them.

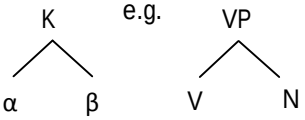
Minimalism brought an *aggiornated* generative algorithm, called Merge (see Chomsky, 2013 for a recent take on the matter from an orthodox position). The operation Merge, applied to two distinct objects X and Y, as defined in Chomsky (1995) and Kitahara (1997) is precisely based on this derivational diachrony, as Epstein et al. (1998: 18) point out:

> "*It looks as if a category enters into C-command relations with other terms only* ***when*** *it is merged […] X C-commands all and only the terms of the category Y with which X was paired/con-*

catenated by Merge or Move in the course of the derivation"
(highlighted in the original).

C-command is the fundamental relation in phrase structure with relation to hierarchy, enough proof of this should be Binding Theory and its extensions (the ECP, for example, considering traces are categorized as either anaphors, pronouns or R-expressions). The application of an operation that takes A and B and forms K ⊃ (A, B) is sequential, bottom-up in traditional accounts and manipulates only one element at the time. Kitahara (1997: 5) presents Merge in a way that, to our knowledge, combines both PSR and the *diachrony* of Merge:

6) Input: α, β
Concatenate α and β, forming K
Output: K (the label of the object)



This can be seen as an "inverse" PSR: instead of developing a structure, Kitahara's Merge version makes it analytical, so that K is logically equivalent to (α, β) for the purposes of further computations. In any case, the label K (which is also the structural description of a syntactic term) is projected because a further instance of Merge-to-the-root will occur, therefore anticipating future operations.

The question to be asked now is: is there any difference as to the ontology of the resultant objects? We will argue there is not. Both Merge and PSR generate (in different senses) symbolic abstract objects, describable in set-theoretical terms. Both formulations, also, neglect the physical dimension of the operation and the resulting objects: which physical configuration of matter licenses the properties that are ascribed to the assumed computational system? This is not trivial, since, for example, the binary-branching character of syntactic trees, adjudicated by Kayne (1984) to unambiguous paths requirements for connectedness and dependencies in Binding Theory (BT), are the result of certain assumptions regarding the mechanical basis of the system, basically a Turing machine (an assumption shared by Katz & Postal's "realism;" see also Watumull, 2013 for some discussion about the compatibility of Turing-computability and realism). Such a computational system works in a bi-directional way within a 2-D dimensional space, which is already a limitation: in the theoretical realm, we would need a particular stipulation to determine that generation is constrained to binary branching, uniform projection, etc. (see Boeckx, 2010 for some discussion). The generative system is divorced from its physical instantiation, that is, the *implementational level* of Marr (1981) has, in our opinion, not been achieved.

This gap between the formal properties of the generator and its alleged psychological reality is precisely one of Katz & Postal's (1991) arguments against "conceptualism." It is true that the implementation of the Chomskyan machinery within a biological framework has not lead to the results the "triumphalistic rhetoric" (in Newmeyer's 2003: 586 terms) of some theoreticians would lead us to expect, particularly if we are to pay attention to methodological aspects: it is indeed hard to attribute *psychological* (let alone, *biological*) reality to, for example, features and their respective values (see Di Sciullo, 2011 for such an attempt and Kosta & Krivochen, 2012 for a comment on the outcomes of the enterprise), which have been considered actual explanatory devices within Chomskyan minimalism. Perhaps the greatest flaw of so-called "conceptualism," particularly in its "biolinguistic" version, is precisely this: *to attribute by force biological entity to formal tools*, in order to establish a univocal relation between what are, in our opinion, really *three* different sets of entities; from a purely meta-theoretical (and thus, theory-neutral) perspective:

a. Objects of the phenomenological world, independent of a perceiving mind.
b. Propositions about those objects, presupposing a (modal) subject.
c. Propositions about propositions about objects, also presupposing a (modal) subject.

The first set contains *Bedeutung*,[5] which we will symbolize with square brackets [ ]. The second comprises their corresponding *Sinn*, which we will symbolize with inverted commas " ". The third set contains Sinn which take the objects of the second set as Bedeutung (which we will symbolize with angled brackets < >). We follow Frege's (1892) proposal, then developed by Russell (1905) – among many others –, that a proposition can appear in either primary or secondary occurrence. Let us, then, take an example:

7) [What did you think John bought?] (P for short).
"P is an interrogative sentence."
<"P is an interrogative sentence" is a descriptive proposition>.

Notice that we have added no object, crucially. Only predicates, but no arguments in either of the levels. That is:

8) Descriptive(Interrogative(P)).

To the third of our sets belong logical/philosophical notions like analytic, synthetic, tautology, among others. Notice that those notions apply to propositions, that is, to Sinn, but not to mind-external objects, that is, Bedeutung. An object of the phenomenological world is neither analytical nor synthetic, neither true nor false. The same holds for electrons, rocks and linguistic

expressions (sentence-types) considered without a context of utterance: all three exist as part of set (a).

Which is the place of linguistic theory in this scenario? Let us take a classic claim from Chomsky (1987: 6):

> "*I will assume that one of the 'mental organs' of the human mind-brain is a language faculty which allows various possible specific realizations, the specific human languages*."

Chomsky & Lasnik (1995: 14) elaborate on this:

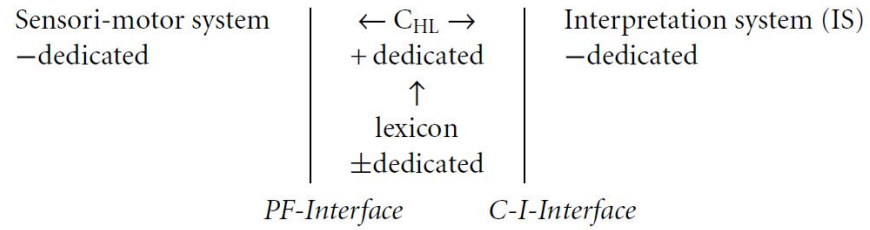
> "*We are concerned, then, with states of the language faculty, which we understand to be some array of cognitive traits and capacities, a particular component of the human mind-brain. The language faculty has an initial state, genetically determined; in the normal course of development is passes through a series of states in early childhood, reaching a relatively stable steady state that undergoes little subsequent change, apart from the lexicon.*"

These claims, and many others that have been made since *Aspects* to this day, belong, we think, to set (b). Moreover, the corresponding Bedeutung is simply stated, presupposed even if no theory-independent evidence is presented in its behalf: a so-called *Faculty of Language* (FL).[6] We could work with FL belonging to set (b), as a purely methodological abstraction, but Chomsky's claims (to take the most representative) seem to have a different aim: there is a theory of this initial state of FL, called Universal Grammar (UG). So, if there is a theory of FL, then either FL belongs to set (a) and UG to set (b), or FL belongs to set (b) and UG to set (c). If the latter case is correct, we have pure Sinn, but ultimately no Bedeutung: a situation that has already been largely studied in the logical tradition with sentences like "The present King of France is bald". Can we have a theory of something that is in itself a theory? Yes, we sure can (e.g., meta-mathematics), but our understanding of the ultimate object will not grow much if the object itself is not addressed at some point beyond the level of metaphor or analogy (consider, for instance, the case of tree-like phrase markers, which historically went from being *models* to being the *actual object*, otherwise, the Kaynean antisymmetric enterprise makes no sense). Now, let us assume FL belongs to set (a). How could we prove it? The answer that comes to mind is that we should be able to find independent arguments for FL that do not belong to sets (b) or (c) and, moreover, that *cannot* be accounted for with a "non-existence" hypothesis (that is, holding the null hypothesis that there is no FL). To our knowledge, two different sets of arguments have been raised in favor of UG, let us briefly examine some examples of those arguments in turn and see if they pass our test.

Argument 1: Reuland (2009, 2011), Hauser, Chomsky & Fitch (2002).[7]

Reuland (2011: 202), from the core of generative linguistics, attributes the recent interest on language evolution on the advent of the Minimalist Program, and its assumptions. He argues that there are two defining characteristics of UG: unboundness (i.e., recursion[8]) and "desymbolization" (i.e., dissociation of form and function). The reasoning is as follows: if there is UG, there is unboundness and desymbolization. Language displays both characteristics, therefore, there is UG (and, therefore, FL). The logical structure is fallacious insofar as it affirms the consequent in a syllogistic structure. It may very well be the case that language, whose nature and ontology is left mysterious in this account, displays the aforementioned characteristics as a result of recombination of non-specific components, what Reuland calls "- dedicated" components. In his account, Merge (that is, $C_{(HL)}$ that guarantees infinite use of finite media) is "+ dedicated", as it is language-specific. And, it is language-specific because it is "+ dedicated." Nothing informative here, unless we can prove that there is no element outside language that displays characteristics that could only have been generated via Merge. Reuland's schema, following Hauser, Chomsky & Fitch (2002), among others; is as follows (2009: 206):

9)



Unboundedness is guaranteed, in his model, by the fact that $C_{(HL)}$ is marked as + dedicated, comprising *Merge* and *Agree* (a claim shared by Hauser, Chomsky & Fitch, 2002 for Merge, an article that is now considered almost a *locus classicus* by MGG). Let us consider each in turn. It has been already suggested (see, for example, Uriagereka, 1998; Jackendoff, 2002) that hierarchy is relevant in the organization of the sensorial information, for example, when distinguishing a figure from a ground in the visual apprehension of the world. Hierarchy in language is created by Merge; assuming that hierarchy in other systems is created by some other operation would be multiplying theoretical elements beyond necessity: the so-called "essential properties" of Merge, combination of two elements and labeling of the resulting structure for the purposes of further computations (Reuland, 2009: 206–207) are

actually epiphenomenal. It would take a special stipulation to restrict the power of the generative algorithm to binary structures (stipulations derived from the LCA or Binding Theory, in most cases, see Kayne, 1984, 1994), should we attempt to impoverish FL to get only the essential, binarity would certainly not be in this set. Two different answers have been proposed: either syntactic structure is not necessarily binary (see, for example, Culicover & Jackendoff's, 2005 *flat structure*; or finite-state proposals for adjunction, as in Uriagereka, 2005, 2012; Krivochen, 2015a) or it is indeed binary, but as a result of interface requirements, particularly semantic conditions on interpretation in a derivational system driven by the need to combine conceptual information (roots) and instructions as to how to manipulate that information, particularly restricting reference (procedural nodes, in Relevance Theoretic terms, Sperber & Wilson, 1995). Even if both these alternatives were proven wrong, the mere possibility that alternative formal systems can be built without the *axiom* of binarity, either because *n*-ary structures are allowed (*flat structure*, as in Culicover and Jackendoff, 2005) or because it is not an *axiom* but a *theorem*, generating no inconsistency is itself an argument against its essential character (Krivochen, 2015a). The proposal of Radical Minimalism (also shared with other approaches like Jackendoff's Conceptual Structures, Survive Minimalism's architecture, and Uriagereka's CLASH model) is that Merge can be better expressed as an *n*-ary *concatenation* operation applying dynamically to objects of varying complexity in an *n*-dimensional workspace, all constraints (including binarity when existent, see Krivochen, 2011, 2012a, b, 2015a) being determined by conditions over interpretation: finite-state and "recursive" (in the Chomskyan sense, phrase-structural / self-containing / embedding) constructions co-exist in linguistic expressions. Thus, conceptual structures (of the kind Moss et al., 2007; Taylor et al. 2011 describe) are hypothesized to be built by means of a very simple generative algorithm applying to conceptual representations (not unlike Boeckx's 2010 "concepts," if the reader wants; but most definitely closer to Jackendoff's 2002 proposals) within a mental workspace, which represents the phenomenological world that is to be "understood" and somehow projected in the mind, using Jackendoff's terminology. Phonological structure (i.e., linearized phrase markers), in turn, is possibly Markovian in its computational nature (see Idsardi & Raimy, in press, for discussion), the elements manipulated being discrete; something particularly noticeable in music (conceptual structure being arguably absent), where we have a finite set of elements with which we can generate infinite structures. Variation also arises, like in language, not because of the generator function but because of the characteristics of the "lexicon:" in this case, the occidental system based on 100 cents difference between two immediately adjacent notes of a chromatic scale and the oriental system, with a threshold of 50 cents. It is not absurd to visualize that

the possibilities of combination that arise in one system and the other are *comparable* to, say, the possibility of incorporating manner into motion as in Germanic or not, as in Romance. The discussion itself is far from settled (and in fact it would be nice to see it flourish), but we consider the admittedly very brief arguments presented here at least serve as a strong suggestion that Merge (or, in more general terms, a combinatory engine with the *potential* of generating recursive derivations; which are not to be confused with representational *embedding*) is *not* language exclusive. That leaves us just with Agree, which is in turn parasitic on the notion of feature valuation and (un)interpretability: Agree takes two instances of a feature, one valued, another unvalued, and relates them syntactically, thus valuing the unvalued instance and making it interpretable by the Conceptual-Intentional and Sensory-Motor performance systems. Even if such features and valuation process actually existed and were a necessary condition for language (against which we have strongly argued in Krivochen, 2011, 2012a, b; Krivochen and Kosta, 2013), it does not follow that Agree itself is necessary for language, additional stipulations have to be made, namely:

- Features come in four variants: valued-interpretable / valued-uninterpretable / unvalued-interpretable / unvalued-uninterpretable (see Pesetsky & Torrego, 2007; cf. Chomsky, 1999)
- A single feature must be present in two locations, namely, a "probe," in which it is unvalued, and a "goal," in which it is valued, locations which are related via asymmetric c-command relations in a purely syntactic account, which is semantics-insensitive. This justifies the feature value copy that makes the unvalued feature in the probe an inert element for interface purposes.

Orthodox Chomskyan linguistics is forced to make these assumptions (or equivalent) in order to have a consistent theory, but with a high cost: lots of new elements have to be introduced almost on a daily basis so as to maintain the machine working and providing "accounts" of the data (as substantive elements or sets thereof; see for instance Adger, 2013 for yet further complications of the Minimalist machinery, with lexical roots and labels configuring separate sets belonging to UG). The disadvantage we find here is mostly methodological, and this is something that has been more obvious since Chomsky (1998). He claims that language has the property of displacement, which means that objects are interpreted in different places from which they phonologically appear. However, displacement is seen as an "imperfection" of the language faculty, which is not to be admitted under so-called "Minimalist" assumptions. Therefore, Chomsky introduces the concept of "uninterpretable features," another "imperfection," and links both by claiming that uninterpretable features lead elements to "move" in order to value / check

those features, in short, to eliminate them from the syntactic representation. The problem is kind of solved, but, as we said, at a high cost: there is no independent reason why we should have features in the first place.[9] This is the main argument we will present here against proposals like Reuland's (2011): the fact that a property X can be accounted for via Y (for instance, *recursion* via the so-called Faculty of Languae in the Narrow sense) means neither that Y is a necessary or a sufficient condition for X (i.e., we could have recursion without FLN), nor that Y even exists outside a theoretical framework. Moreover, the search for answers in a single component of the so-called Language Faculty (the syntactic component) narrows down the scope of the whole enterprise, making it insensitive to progress made in related disciplines: if all answers about natural language lie in the syntactic component (a "syntacticocentric" stance, following Culicover & Jackendoff, 2005), why even bother to look at "- dedicated" components?

Argument 2: Chomsky (1980, 1986); Boeckx (2008, 2010); Hornstein, Nunes & Grohmann (2005).

The arguments these authors present, which are by no means restricted to them (just like Reuland's is just a representative take on the issue of the specificity of the language faculty – particularly, its generative engine – many others have followed and extended), is much simpler than Reuland's, but perhaps it has been accepted as a fundamental evidence in favor of the Chomskyan enterprise for many more years, going back to Chomsky (1980). The proposal can be summarized as follows: there is a set of fundamental questions about language, whose answer results in a plausible theory of language origin, structure and evolution. Chomskyan generativism can provide answers for these questions (none of them claims it has indeed provided fully satisfactory answers, though). Therefore, Chomskyan generativism is a plausible theory of language. Let us see the questions and then make our remarks on the methodology chosen to support the program (see, for example, Boeckx, 2008: 44; 2010: 12; Boeckx & Grohmann, 2007b: 1; Leivada, 2014: 54; and Chomsky, 1980 as the *locus classicus*)

10) (1) What is the knowledge of the Faculty of Language or language?
(2) How did this knowledge or faculty develop in the individual?
(3) How is that knowledge put to use?
(4) How is it implemented in the brain?
(5) How did that knowledge emerge in the species?

It is to be noticed that the aforementioned set of propositions do not always take the form of questions of the level of generality and vagueness (which allows the linguist to make presuppositions derived from the very formulation

of the problem, we will come back to that below), sometimes it is a set of "big facts" about language that has to be accounted for, and a long argument about how Chomskyan (bio)linguistics is the best way to deal with it (as in Hornstein, Nunes & Grohmann, 2005), all other alternatives being rendered as non-credible proposals (e.g., Chomsky, 2013: 34), without further discussion. More than theoretical or empirical, the flaws we find in this line of argumentation are *rhetoric* (taking Newmeyer's, 2003 terminology). Take question (12 (1)), for example: the equation of "knowledge" and "faculty of language" is not innocent. It is possible to think of knowledge of language without a faculty of language, moreover, if the goal of (bio)linguistic theory is to account for the existence of UG and FL, hardly could this goal be attained if we are presupposing the object within the inquiry. If all we should know about language is FL (that is, i-linguistics), then (1) is asking:

11) What is the knowledge [of language] or language?

which, as Postal points out, implies a confusion between an object and the knowledge of that object. In our terms, there is a confusion between an element from set (a) -objects of the phenomenological world, independent of a perceiving mind- and an element from set (b) -propositions about those objects, presupposing a (modal) subject-, assuming that the knowledge of language is a set of propositions referring to an independent object, a basic assumption in our approach. The mere mention of "knowledge" is problematic in itself, since "know" is actually a binary predicate, in conceptual terms, relating a "knower" and a "knowee." There are, we think, certain objects that are only defined by a "knowing" relation, like mathematical relations. Postal (2012) gives the example of "the square root of 169," and he says that square root is 13 "regardless of who knows it or whether anyone does." We think his position oversimplifies the problem on the opposite extreme of what Chomsky and Boeckx do. To be "the square root of" is a *relation*, not an *object*. As any relation, it is at least a dyadic predicate; triadic if one is to assume a Peircean analysis for these kinds of relations: a denotatum, a denotans and an interpreter (the terminology may vary, but the notions are the same). In any case, the very same object of inquiry is presupposed in the question, along with at least two properties:

- It is knowledgeable.
- It is in fact the knowledge about itself.

For starters, this is not good methodology. Notice that if the first question falls apart, all the rest do as well: what if there is no such a thing like "knowledge of language"? Not that we are actually saying that, but it is a possibility that has to be considered. Take, for example, functional approaches in which

language and knowledge of language are two completely different things, and the study of the evolution of language phylogenesis and ontogenesis is carried out from an externalist perspective, taking into account the social conditions in which language played a role (see DeLancey, 2001). The set of questions do not set an agenda for research, they are actually a manifesto which can be reconstructed from the presuppositions each partial interrogative generates, namely:

12) (1) There is a faculty of language.
(2) It develops in individuals.
(3) It is put to use.
(4) It is implemented in the brain.
(5) It emerged in the species in some manner (without it implying necessarily that it is species-specific).

(1) and (4) are actually *conclusions*, not departing points. Therefore, the inquiry that takes these "questions" as guidelines does little more than trying to prove itself. We thus reject this methodology, even if the results turned out to be empirically correct (there is no conclusive evidence as of now): there must be, we argue, independent ways to get to them without assuming conclusions as starting points.

2.1.1 A note on syntacticocentrism

One of the foundational stones of Chomskyan approaches to language is the claim that there is a Faculty of Language which allows a speaker to creatively understand and produce an infinite number of sentences. More recently, the advent of the Minimalist Program and research on the so-called "performance systems" Sensory-Motor S-M and Conceptual-Intentional C-I have led to a distinction between the "faculty of language in the narrow sense" (FLN), comprising only the phrase-structure-based computational system in charge of recursion; and the "faculty of language in the broad sense" (FLB), comprising the interpretative systems S-M and C-I as well (Hauser, Chomsky & Fitch, 2002: 1570–1571). In a word, FLN = Merge. However, it is not as simple as it looks like: recall that Merge is highly constrained in traditional Chomskyan theory, particularly by Agree issues that, while guaranteeing a constructivist system in which only well-formed formulae are generated, add both elements and operations to the theory in an undesirable methodological movement, which is absent in constraint-based (though also mentalist in nature) theories (see Culicover & Jackendoff, 2005; Borsley & Börjars, 2011 for an overview, including Construction Grammar, HPSG, and other non-transformational theories of syntax). Within the theory, however, the logic is flawless: all operations are feature-driven (Chomsky, 1998), Merge is an operation, then it must be feature-driven (see, particularly, the proposals of

Pesetsky & Torrego, 2007; Di Sciullo & Isac, 2008; Wurmbrand, 2014). If the flow of information is *unidirectional*, from the lexicon, through the syntax, to the external performance systems, this means that all the information that reaches the interface is already encoded syntactically, in the form of features or properties of lexical / functional elements. These instructions come in three varieties: semantic, phonological and formal. The latter are not interpretable by any system; consequently, they must be eliminated through Agree (involving, in early Minimalism, *search*, *copy*, and *deletion*). The question is: can all properties of a sentence be encoded in interpretable features? It is useful to see what Culicover & Jackendoff's (2005) Simpler Syntax program, a fully consistent alternative to orthodox Mainstream Generative Grammar (MGG), as they call it, has to say about the issue:

> *"Culicover and Jackendoff (2005) argue that the increasing complexity and abstraction of the structures posited by mainstream generative syntax up to and including the Minimalist Program has been motivated above all by the desire to encode all semantic relations in overt or covert syntactic structure, and that ultimately the attempt fails because semantic relations are too rich and multidimensional to be encoded in terms of purely syntactic mechanisms"* (Jackendoff, 2011: 7).

Indeed, it has been the case that the inventory of features has grown exponentially over the years, up to a point in which there are some nomenclatures that correspond to more than one feature.[10] We find two particularly important claims in Jackendoff's quote:

13) a) Semantic relations are multidimensional.
    b) Semantic relations cannot be encoded by means of purely syntactic mechanisms.

Of course, some further clarifications are in order. The term "multidimensional" is left undefined, and this undermines the proposal, since it can be interpreted in either a technical sense or an "everyday" sense: in the former, concepts are located in n-dimensional spaces, quite in the line of Wittgenstein's (1953) *logische Raum*. This is the hypothesis we have put forth in Krivochen (2012b) in the light of our geometrical model of syntax: roots √, which provide semantic substance, denote *n*-dimensional topological areas within the conceptual space and procedural elements (Time, Determiner, Preposition) restrict that space in such a way that the restricted reference of an entity can be specified as a finite set of coordinates, whose number depends on the kind of object we are dealing with: an event, for example, is, under the simplest assumptions, an ordered pair (space, time(√)) in the conceptual space. However, there is another sense (the "everyday" sense we

mentioned above) in which to interpret "multidimensional," which is simply to have different aspects of the same object. That is, multiple layers of meaning (for instance, explicatures, implicatures, presuppositions) are also referred to as "dimensions" in some works. Since the sense in which the term is taken is not specified we can make no judgment of Jackendoff's position, but it is internally consistent, and belongs to neither Chomsky's nor Postal's "theoretical pole."

The second point is a little more conflictive: if understood in a wide sense, it is (specularly) restating Chomsky's (1957) thesis of the independence of the grammar, insofar as "grammatical" cannot be equated with "meaningful" since they are defined on different grounds. Of course, Jackendoff has modeled a (cognitivist) semantic theory beyond anything that has even been proposed within Chomskyan linguistics, but the spirit is the same. Now, if understood in this wide sense, the claim is obviously false. That is because semantic relations like "be the agent/patient of," for example, can be read from the position of arguments in relation to the position of relational predicates (quite in the line of Hale & Keyser, 1997, 2002; Roberts, 1991, for both generativist and non-generativist proposals), with no need to adhere to strong static theories like Baker's Uniform Theta Assignment Hypothesis, which links univocally syntactic positions to theta-roles (something that would not work in an *n*-dimensional, dynamic model of syntax). For example, anything within the scope of P is interpreted as a Ground, while its periphery is interpreted as Figure, being within a locative domain but under the scope of an eventive node (see Mateu Fontanals, 2002 for discussion):

13) [VP event [NP [P [NP]]]].

Hale & Keyser (1997: 40) put this thesis quite clearly:

> "*While there is surely some truth in this* [cross-linguistic agreement on V classification]*, and while meaning it is a fine heuristic, its use is methodologically incorrect within the framework we are assuming here, not merely because meaning is slippery, a thin reed to lean on, but because we maintain that certain crucial aspects of meaning are dependent on the very structural features whose identification is at issue.* ***If we "knew the meaning," we would know the structure, perforce, because we know the meaning from the structure***" (Our emphasis).

Following this lead, Mateu Fontanals (2000b) proposes a very interesting principle ruling the syntax-semantics interface, in clear contraposition to the wide interpretation of premise (13 b) above:

14) *Meaning is a function of both (non-syntactically transparent) conceptual content and (syntactically transparent) semantic construal.*

Needless to say, the syntax-semantics mapping is not uniform (it would require identity between the systems to have uniform mapping, the operation thus resulting trivial), but this is not to say that there is no mapping at all. In fact, we have proposed (Krivochen, 2012a, 2015a, b; Krivochen and Kosta, 2013) that syntax is driven by the need to generate C-I convergent objects: in a word, syntax is *semantically driven*. In a non-trivial way, then, semantic relations are encoded in syntactic configurations because it is the only way to represent them all the way through a derivation in consonance with the Conservation Principle (Krivochen, 2011; see also Lasnik, Uriagereka & Boeckx, 2005)

15) *Conservation Principle*: information cannot be eliminated in the course of a derivation, but it must be instantiated in the relevant system in such a way that it can be read and it is fully preserved.

If the road to take is *conceptual structure* → *syntactic structure* → *semantic representation* (LF), a function relation between syntax and semantics is inevitable, which means that semantic functions must be encoded in syntactic relations.

The second sense in which we can interpret "syntactic mechanisms" is "substantive elements present in the syntactic workspace," instead of "relations created by means of syntax." In this second sense, premise (13 b) is a clear plea for Minimalism. Semantic relations like "being the agent/ patient of," if encoded via features (as in Hornstein's 2003 model), complicate the system in at least two ways:

16) a. New features must be added.
b. Agree mechanisms to value those features become ineliminable.

That, without even considering the possibility of argumental alternations, that is, the fact that a predicate can appear in different sentences with different argumental requirements, for example:

17) The ice *melted* (ergative, uncaused).
18) The heat *melted* the ice (causative, non-volitional).
19) The explorers *melted* their way through the ice (Path-of-Motion).

Notice that, if alternances were to be encoded as features, we would need at least two features: one for transitive alternations (which require an internal argument and an external argument) and one for intransitive alternations, with one or two internal arguments (for distinguishing ergatives from unaccusatives

respectively). Such a theory has been advocated for by Hornstein (2003), who considers that theta roles are features, which are checked in a Spec-Head relation between a nominal argument and a V. DPs must move to get theta-features, thus deriving the property of displacement from the need to get semantic interpretation and avoid superfluous elements in a syntactic representation (namely, unvalued features in a DP). This way of encoding semantic notions as syntactic substantive elements is clearly out of the spirit of Minimalism, and undesirable in a system that founds itself on principled reasons. These arguments argue against the very foundations of the feature-driven syntactic system as the locus of semantic relations, following premise (b). We see that even those approaches that present themselves as alternatives to mainstream Minimalism fall short when considering their basic claims in depth.

In the next section, we will deal with the so-called "realist approach," analyzing it as we have critically revised the "conceptualist" approach. In doing so, we will also present our own proposal, in permanent dialogue with Katz & Postal's realism as we have done with Chomsky's conceptualism.

2.2 The Realist Enterprise

The most recent summary of the realist enterprise, and at the same time, a review of the arguments Chomsky has systematically ignored over the decades is to be found in Postal (2012). Postal (2008) points out that the "biolinguistic ontology" is incoherent (see also Behme, 2015), and Postal (2012) extends this claim beyond the limits of the label to argue against the ontology of language Chomsky proposes. It would not be possible (although it would certainly be desirable) to talk about "debate" since it has been a one-sided discussion: Chomsky rarely addresses a criticism from outside the orthodoxy. However, even Katz & Postal (apparently in discomfort with the Chomskyan enterprise) present their position as the *only* alternative to conceptualism, which makes it a two-sided problem, independently of the (re)actions of the actors involved. Chomsky's "conceptualism," which claims without any demonstration or argumentation that grammars are "(…) *real objects, part of the physical world* (…)" (Chomsky, 1983: 156) is explicitly rejected, both by Postal – and ourselves –, insofar as there is no definition of "real" or, more importantly, of "the physical world." There is an irresponsible use of the word "physical," as it has led to great misunderstandings and shortcomings, incidentally also affecting Postal's stance. Postal's position, which he has made explicit in a number of works with J. Katz (particularly, their 1991 article) and some recent solo pieces, is that

> "(…) *Katz's work not only rejected NCs psychological/biological conception of NL but developed the distinct platonist view that* ***the***

> ***elements NLs are composed of, sentences, are abstract not biological objects***. *Moreover,* ***NLs, taken as certain classes of sentences, are clearly abstract objects and hence not biological entities***. *NL sentences share, under Katz's view, the ontology of mathematical objects, e.g. numbers, logical objects, e.g. propositions, musical objects, e.g. songs, etc.* (…)" Postal (2012: 4). Our highlighting.

Notice that the fundamental thesis is that sentences (in this fragment, clearly an intra-theoretical term, as we do not know whether it is referring to mental entities or mind-external entities) are not biological but abstract objects, without making it explicit what it means and implies: what exactly is an "abstract object"? We could picture "biological objects" from common sense assumptions (but with no theoretical foundations, since they are not provided in Chomsky's writings, and there are only vague references in most state-of-the-art books, like Di Sciullo & Boeckx, 2011) like, say, a cell. A species, for example, is not an object of our metatheoretical set (a), but, in any case, an abstraction of intensional characteristics belonging to the set (b): the species of the tigers, for example, can be described as the set of intensional characteristics any entity X must fulfill in order to belong to the set of "tigers." The ontology of so-called "abstract objects" in platonistic linguistics is far from clear, particularly as mentions to mathematics and physics enter the scene. In the excerpt above, three kids of objects are invoked as examples of "abstract objects:" numbers, propositions and songs. They are of little use, since those objects greatly differ from each other. The nature of numbers is still far from clear, see Frege (1884), and as we said in the previous section, it is not clear at all that mathematical relations like "be the square root of" are actually as independent from subjects as Postal claims, without providing any argument for it. Moreover, computer science has provided both upper and lower bounds for computability of certain expressions given, say, different memory capabilities: a simple Push-Down Automaton does not have the same computational properties as a Turing-Machine. Arguably, the differences rely on the software used to generate and process symbolic representations being dependent on the hardware: consider Hameroff & Penrose's OrchOR model for quantum consciousness, based on quantum vibrations in neural microtubules, which are in turn liked to processes in physics and cosmology (see Hameroff & Penrose, 2014 for a very recent presentation of the theory). If the software is a function of the hardware, the alleged *gap* between the two levels might not be such (see also Wilson and Golonka, 2013 for a more general view on embodied cognition).

Still, there is a more important problem in Postal's criticism of the Chomskyan version of linguistic conceptualism. While it is true that there is a gap in Chomskyan linguistics between formal tools and biological instan-

tiations, in such a way that the biological content in the arguments (e.g., most articles in Di Sciullo & Boeckx, 2011) seems alien to the linguistic argumentation and vice versa, Postal (2012: 5) takes the incompatibility to another level. He claims that:

> "*The reason for the incoherence of NC's foundational position is that (…) the nature of NL sentences has always forced NC to describe them in a way incompatible with their being biological (…). Anything biological would* ***exist in time and space****, would* ***have a cause****,* ***could cause things****, would* ***be destructible****, would* ***have mass or energy****, etc. (…). But NL sentences have no* ***physical*** *properties at all*." (highlighted in the original)

This paragraph shows a very naïve conception of what "physical" is. Notice that Postal is confusing "material" with "physical," which is only acceptable if one interprets "physical" in the everyday sense, but in a technical discussion about the foundations of the biolinguistic enterprise, such a slip must not be overlooked. Let us clarify the position we will take on this issue, following current theoretical physics. While it is true that anything biological exists in time and space; that is also true of anything physical. In fact, to clarify the idea, time is (bended) space (as special relativity has demonstrated, at least beyond the Planck scale), with which all we have is "anything biological exists in space," quite a trivial claim for the ends pursued by Postal. But the informative part comes afterwards: anything biological would also "have a cause." This is completely unclear to us, since "cause" is very different from "origin" (clear evidence can be obtained from lexical semantics cross-linguistically, see Kosta, 2011 for a thorough study). We can say a cell has an origin, has evolved, has changed and undergone several processes, but we can hardly say it has a "cause." On the one hand, because the argument would have a theological flavor we want to avoid (recall Thomas Aquinas' arguments for the existence of God based on the "uncaused causator"); on the other, because the implications of the notion of "causation" go way beyond the scope of biology: causation can entail volition or not, but the possibility is always there. We can hardly say that there is "volition" in biological change under the light of modern evolutionary theory. The third characteristic, "could cause things" falls apart with this very same criticism. Consider the following sentence:

20) The wind opened the door.

It is quite clear that we have a caused event, and the external force which caused it is [the wind]. However, it is not a biological "thing" in any relevant sense we can think of. Conversely, let us see what would happen if we tried to make a causative sentence with a universally accepted "biological thing:"

21) The gene caused her disease.

Most biologists would say the verb choice is at least inaccurate. A consequential relation between two events does not entail causation, as it can be seen in the following example:

22) It is cold because it is winter.

While we could say that the cold is a consequence of the winter, it would be at the very least odd to assert that the winter is the cause of the cold in a strict sense. Coming back to (22), while it is possible that a disease or an impairment (e.g., in language) may be related to a mutation in a specific gene, no reference we know of refers to Specific Language Impairment in terms of "causation."

The fourth and fifth characteristics are perhaps the most important for the purposes of the present discussion. Consider "be destructible" and "have mass or energy." This is actually true of biological "things," though it is not of species or relations, which also fall within biological studies. But let us go deeper in the final claim: "(…) *but NL sentences have no physical properties at all*." Either Postal is equating biological to physical, which would be a gross methodological and substantive mistake (physical magnitudes are not biological entities in any sense, and physical objects are not always biological "things": there are particles with no mass), or he tries to make Chomsky claim two – apparently contradictory – things: that language is at the same time biological and physical (perhaps, a straw-man fallacy). In any case, the only condition that would hold for physical objects would be to "have energy," and this would be valid (that we know) only to a certain extent (even mass is a property that physical objects might or might not have). Consider 1-dimensional strings, for example. It is not clear whether they have mass, let alone energy. They do vibrate, but the *source* of the vibration is yet unknown. Physical magnitudes have neither mass nor energy, and vectors, for instance, represent *forces* in *n*-dimensional spaces, but certainly not *mass*. What is more, mass = force / acceleration, and we can express force and acceleration effects (the latter, subsuming gravitational force in Einstein's conception of gravity) independently of mass. Under the light of the preceding discussion, Postal's claims against conceptualism are not better founded, particularly the notion of "abstract" as opposed to "physical." While it is true that Chomsky has obscured the ontology of his linguistic program and the set-theoretical notions on which he bases the syntactic representations he uses, it is not less true that Postal does the same with the vague opposition "physical" / "abstract," grounded on dubious notions as far as "physical" objects are concerned, as we have seen. Postal finds several "incoherences" in Chomsky's program, one of which is his use of set-theoretical notions,

particularly regarding Merge and the model outlined in The Logical Structure of Linguistic Theory to describe sentences, if these are actually biological objects. Postal claims:

> "(…) *physicists use abstract formal structures to characterize physical things, not abstract ones. The objects of description have temporal, spatial, causal, etc. properties*" (Postal, 2012: 7).

We have already argued that Postal's stance on physical objects does not take into account many powerful counterarguments from theoretical physics – the proposal of 1-D strings, the Higgs boson, among others – (arguments that a piece that mentions "physical things" cannot overlook), apart from the crucial fact that (physical) models and (physical) objects are well-defined within physics (thus, for instance, no one would think Lorenz's attractor *is* a chaotic system, but a *model* of a chaotic system; whereas climate *is* a chaotic system), and we find no such clear distinction in linguistics:[11] notice that Postal takes natural languages as "certain classes of sentences," without further clarification about which are those *classes* (not actually NLs) or which is the nature of those sentences (which would actually *be* NL). Postal's argument against Chomsky falls for its own weight: he talks about description, not explanation. And there is no principled reason why a biological object cannot be *described* or *modeled* set-theoretically, using natural numbers or whatever model the theoretician wants. Take an atomic model, for instance: it is a trace of pencil on a piece of paper used to describe the structure of the atom in an approximate way. Can we object to that? Certainly not, to the extent that the nature of the description is not equated to that of the represented object: X-bar theoretical trees, for instance, are not the *structure* of a syntactic object, or a syntactic object itself, but *representations* of the structure of a syntactic object. Even if we use a physical object to describe a physical object, or a formal structure to describe a formal structure (as in metamathematics), the distinction between our sets (a) and (b) prevents the model from criticisms like Postal's. In Chomskyan linguistics, set-theory has the status of a *metalanguage* (thus, our (b) set), as Chomsky himself acknowledges:

> *In the work that I've done since The Logical Structure of Linguistic Theory – which just assumes set theory – I would think that in a biolinguistic framework you have to explain what that means. We don't have sets in our heads* (Chomsky, 2012a: 91).

Chomsky continues by assuming that set-theory is not neurologically realizable and thus not a candidate for the actual structure of language within the mind, which is a controversial claim since no further argument is provided: the claim that there is a gap between mathematical structure and

physical reality, which both Postal and Chomsky share, is *not* unavoidable (the notion of emergence in a complex system could provide a useful bridge, but the possibility has been systematically overlooked), nor is the ambiguity with which the concepts of "physical" and "real" are used. Overlooking for the time being computational models for the human mind like the Turing Machine (a favorite of Chomskyan linguistics, see Watumull, 2013), consider modern models of the Universe within mathematical cosmology, like Tegmark's (2003, 2007):

> "*External Reality Hypothesis (ERH): There exists an external physical reality completely independent of us humans.*
> *Mathematical Universe Hypothesis (MUH): Our external physical reality is a mathematical structure*" (Tegmark, 2007: 1).

Notice that ERH is independent of MUH, it could very well be that there is an external reality (an anti-solipsistic statement) but that it is not a mathematical structure. But the crucial point here is that, contra both Postal and Chomsky, there is *no internal contradiction* between ERH and MUH, therefore, no "gap" to be accounted for if we claim that biological structures are in fact mathematical structures: the reader should acknowledge that while this claim might be false, it is not inconsistent (and it is inconsistency we are discussing in this piece). It is to be noticed that HPSG, CG, and LFG make no explicit claim with respect to the mental / biological / neurological status of linguistic objects (constructions, sentences, lexical items…), and there is no, say, "HPSG manifesto" regarding the ontological nature of the researched objects.

Another argument in favor of purely mathematical models of linguistic knowledge (to which we will restrict ourselves in the present paper) comes from the relation that exists between biology, physics and mathematics and their respective objects of study.[12] Chomsky's claim that Merge forms sets, but that is "metaphorical" and "the metaphor has to be spelled out someday" (2012a: 91) suggests that the only way to think about Merge is metaphorically and thus the phenomenon of structural complexity in the Universe is to be yet explained. Needless to say, if MUH is considered (again, a fully independent and internally coherent proposal on its own), there is no metaphor involved at all: we have atomic (i.e., indivisible) elements at all levels, be them strings, conceptual roots, numbers, nucleotides or whatever object in whatever level; and some concatenation algorithm, which may or may not be sensitive to the characteristics of the objects it manipulates (e.g., nucleotides cannot be freely-merged because of their molecular structure). To the best of our knowledge, this enters the kind of propositions that are true because of Chomsky's frequently invoked "virtual conceptual necessity" in the following sense: for the Universe to be as it is, with different layers of complexity,

both atomic elements and a combinatory operation are necessary conditions. This does not mean that this is the only possible universe (particularly taking into account recent Multiverse proposals), but that any theory that aims at descriptive and explanatory adequacy in this Universe must address the issue of complexity. If not with a mathematical algorithm like pure *concatenation* (in which there is no metaphor whatsoever if the Universe is itself a mathematical structure), we find it difficult to think of something else, but this does not mean there is in fact nothing else. Let us make explicit what is meant by *concatenation* in our own alternative theory, Radical Minimalism, since it is quite different from what is meant by Merge in orthodox Chomskyan linguistics:

23) *Concatenation* defines a chain of coordinates in *n*-dimensional generative workspaces W of the form $\{(x, y, z\ldots n) \subset W_X, \ldots (x, y, z\ldots n) \subset W_Y, \ldots (x, y, z\ldots n) \subset W_n\}$ [where each object has arbitrary computational complexity].

Our generator engine, it is to be noticed, is not sensitive to the substance of manipulated objects, but to their format: not inner structure, but ontology. The only condition to apply concatenation is that the objects, defined as *n*-plets of coordinates in *n*-dimensional conceptual spaces, following the lines of Krivochen (2012a) and current advances in cognitive linguistics. In this framework, geometrical "figures," sentences, and other "observable" objects which constitute the phenomenological world are epiphenomenal results of concatenation in one or several W read off at an interpretative system, in the event that there is one: arguably, mathematical derivations have no interface conditions, being therefore examples of pure syntax. This definition, which follows clearly from what we have been saying, can be formulated in a stronger way: there is no physical reality beyond the interpretation of the concatenation function applied to an *n*-number of objects sharing format. This is another way to express Tegmark's MUH; the so-called physical reality is a mathematical structure. We accept MUH without necessarily accepting ERH (the External Reality Hypothesis) as it is formulated: in any case, the notion of external and reality should be redefined. This must not be interpreted as a plea for solipsism: the concatenation function applies to objects that are external to the human mind and perception plays no role in generation. Moreover, there is no need to resort to a human mind: an automaton with the algorithm incorporated and interpretative routines (based on Relevance principles, see Sperber & Wilson, 1995) could serve as well. In this point, it is crucial to say that, if our view of syntax is that of a generative component that manipulates objects regardless their nature, then it can be applied to any so-called "complex object" insofar as complexity can be decomposed in

layers of simple, atomic elements somehow concatenated for interpretation purposes. If this view is correct, all physical systems would have "derivations," in the sense of "successive applications of concatenation and subsequent interpretation."

It must be noticed that many critics to the biolinguistic position often come from both a misunderstanding of the concepts on the part of the one who makes the criticism and a frank lack of clarity and explicit definitions on the part of the biolinguist. Let us see an example:

> *QUESTION: Infinite use of finite means; doesn't it entail an inconsistency? Isn't the model of an infinite potential in, a finite organ inherently inconsistent?*
>
> *CHOMSKY: That was the problem until about a century ago. It did look like an inconsistency. One of the important discoveries of modern mathematics is that it isn't an inconsistency. There is a perfectly coherent sense to notion of infinite use of finite means. That is what ended up being the theory of computability, recursive function theory and so on. It is a big discovery of modern mathematics which clarified traditional ideas. There have been sort of intuitive ideas like this around but they really became clarified quite recently – not really until almost mid-century. So, yes, it looks like an inconsistency but it simply isn't. There's a very simple account of it that is not inconsistent. I can't go into it any further here"* (Chomsky, 2000: 62–63).

The "infinite use of finite media" issue was raised in language by Humboldt, but it was already a topic in mathematics and, decades later, in computer science. Let us see an example and then discuss Chomsky's remark, together with Postal's criticism. Consider the following finite set of natural numbers:

24) (2, 4, 6, 8).

How many combinations can we make with them? A quick response would be "*either n! or n^n, depending on whether repetition is allowed or not*." This answer would be, at best, incomplete: there is an implicit assumption that we can formulate in the following way: given a certain amount of numbers, possibilities of combination are restricted to that amount. For example, among the possibilities that the reader may have in mind these are surely included:

25) 2468 – 2648 – 2846 – 2684.

But the ones in (27) are most likely out:

26) 24648 – 26242864.

And so on and so forth. Are we cheating here? Certainly not, since combination is only restricted by stipulation, and we have added none. The "infiniteness" is a property of the *operation* (i.e., Merge is *capable*, as a formal procedure, of generating infinite representations, or a single representation of infinite length; where *infinite* does not mean not numerable or not computable in either polynomial or non-polynomial time, considerations Postal does not take into account as the very notion of "finite" is not well-defined, in our opinion), not of the objects that is manipulates. Let us see Postal's reasoning at this respect:

> "*A real organ, e.g. a lung, is finite along every dimension including the temporal one and* ***everything it does or produces is finite****. So* ***if NL were an aspect of brains, it too would be finite and the output of sentences*** *(granting counterfactually that it makes sense to take organ outputs as sentences)* ***would be as well***." (Postal, 2012: 14. Our highlighting)

At the very least, this is a *non sequitur* situation; at the very worst, a manipulation of some basic claims of Chomskyan linguistics. Natural languages (NL) are not aspects of *brains*, but of *minds*, which have neurological substratum (the equation brain = mind is not innocent here, as the dynamics hardware-software are at the very core of the discussion: the brain is material, therefore, finite, but there is no proof, either formal or empirical, that the computational emergent properties of matter are necessarily finite, see Watumull, 2013: 207 for a recent discussion on the level of *uniform* Turing-computation). We doubt that the issue of finiteness or infiniteness of the mind even makes sense, at least without a formal definition of finiteness on the one hand, and a strong argument about the nature and ontology of the mind on the other (neither of which is presented by Postal after his criticisms). Moreover, consider Langendoen & Postal's (1985: 227) claim that:

> "*The collection of sentences comprising each individual NL is so vast that its magnitude is given by no number, finite or transfinite. This means that NLs cannot, as is currently almost universally assumed, be considered recursively enumerable* […]. *It then follows that there can be no procedure, algorithm, Turing machine, or grammar that constructs or generates the all members of an NL* […]."

However, there are unarguably infinite sets, like natural numbers, that can be generated (in the "structural description" sense used by Chomsky, 1965) by finite procedures applying sequentially, consider Peano's axioms (see Leung, 2010 for a language-centered discussion of Peano's axioms): if every natural number has a successor, and that successor is itself a natural number, a Σ, F

grammar (omitting the transformational component, as there is no need to map representations) can be modeled upon the axioms (e.g., Leung, 2010: 231), insofar as there is no limit for F, as would be the case of unlimited-memory Turing machines (and even more PDA+ automata, see Uriagereka, 2012).

Even without accepting this fundamental point regarding the nature and properties of the generative component, there are aspects of Postal's claim that are unclear – if not plainly wrong –: in which sense do we say that a lung "produces" something? Sure, there is O_2 coming in and CO_2 going out, but can we say that the lung "produces" CO_2, at least in the same sense that language is produced? There is not a single proposal that lungs (or any other "real organ," to use Postal's terms) are in any sense computational, thus, they are not generative in the relevant sense of complexity creators via combination. Language exists in the mind, while it is not the only "place" in which it might exist, it sure has mental entity at some point (there is an intention, which is embodied in a sentence that has entity before it is externalized, all this without even entering the realm of Fodor's "language of thought"). Mental objects have biological substrata, or, in other words, it is the configuration of the biological substrata that licenses computational properties of the "mind," quite a common claim in psycholinguistics. If there was no neurological (therefore, biological) dimension, brain injuries should not affect language. This is quite straightforward. There is a link, even if the specific kind of link (cause, mere concomitation, etc.) we are talking about is yet unclear. Please notice that in the whole of the preceding discussion we have not made use of the concept of UG, which we reject (Krivochen, 2012b; Krivochen & Kosta, 2013), because we simply have not needed it, and there is, as we said, no compelling evidence in its favor. A deep revision of Postal's arguments would have to acknowledge the fact that he sometimes uses NL and UG as synonyms: for example, "NL is both biological and infinite." UG (as the initial state of the Faculty of Language) is apparently biological (in Chomskyan linguistics), NLs are formally infinite by nature and regardless the theory we consider (neither formalists nor functionalists would say that a natural language is a finite set). This confusion, which is, like others, in the function of a certain rhetoric; is to be eliminated as a methodological *mala fide*.

Considering the Chomskyan response now, it is amazing how a very simple issue is made so complicated with irrelevant historical details and no argumentation, just a finishing line "I can't go into it any further here." Nor, apparently, anywhere else.

2.2.1 The evolution of realism

It is quite surprising for the follower of Postal's arguments that they have been turning from serious linguistic-philosophical objection into ad hominem

claims, displaying more rhetoric manipulation than convincing arguments (quite the same could be said of Chomsky's 2013 paper, which is an impressive set of stipulations under the form of a formal discussion on labeling and projection). Perhaps the most interesting substantial exposition of the realist proposal (summarized in Postal, 2012, as well as the arguments against Chomsky's view from many previous works) is to be found in Katz & Postal (1991). While still very much influenced by the GB tradition, the article is a concise presentation of the so-called "realist" position and the fundamental differences with Chomsky's ontology. The same confusion of the three sets (a), (b) and (c) we claimed exists in "conceptualism" is to be found here, in a stronger version than in Postal (2012). Consider, for example, the following quote:

> "(…) *acceptance of an overlap between the senses of NL sentences and logical objects involves linguists in foundational issues at least to the extent of committing them to a common ontological position for linguistics and logic. This overlap assumption confronts one with the following paradox. If senses are parts of the grammatical structure of sentences and if linguistics both deals with the grammatical structure of sentences and is psychological, then senses are psychological. But if senses are psychological, then the laws of logic are also psychological, since the ontological status of a law is determined by the nature of the objects to which it refers. Consequently, logic is psychological, contradicting the accepted view that logic is nonpsychological.*" (Katz & Postal, 1991: 520)

Notice that the argument is only valid if set (a) and logical principles overlap. However, logical laws do not belong to set (a), since they are essentially *meta-statements*, thus belonging to set (b). Logical objects are, in any case, part of the formal apparatus used to analyze NL, but crucially *not NL sentences*. In fact, no claim is made about the status of NL sentences, just a presupposition, generated by the conditional "*if senses are parts of the grammatical structure of sentences…*," which is incompatible with the formal, mentalist approach that has prevailed in Chomskyan linguistics since *Syntactic Structures*. Externalization (i.e., materialization of syntactic structure via phonological matrices) has always been rendered parasitic, an "exaptation" (see, for example, Uriagereka, 1998, 2000): we cannot think of another sense in which there is a "sensorial" aspect of NL sentences. In any case, externalized sentences are part of e-language, explicitly excluded from the scientific study of language (an arguable claim, but it is not fair to disqualify a theory because of the methodological boundaries it has set itself). Katz & Postal (1991: 521) argue that the mistake of conceptualism is the failure to distinguish between knowledge of language and the object of this knowledge,

language itself. They further elaborate this claim in three arguments they provide against the conceptualist enterprise. In the next section, we will analyze those arguments.

2.2.2 Three arguments against conceptualism

Katz & Postal (1991: 522 ff.) develop three arguments supporting the realist position, and arguing against what they understand as Chomsky's position. Before entering the arguments themselves, it is useful to address a commentary in a footnote, which seems to point at an inconsistency within the so-called "realist" enterprise. Katz & Postal (1991: 522, fn. 4) claim:

> "*Richard Montague advocated a realist approach to universal grammar, claiming that it should be pursued as part of mathematics.*"

In this context, it is to be noticed that the notion of "realist" *within linguistics* is still left undefined (despite the meaning it has in philosophy, the relevant sense must be a *linguistic* sense, insofar as the realist approach is being confronted to a linguistic, not a philosophical, theory). The confusion is even greater when one considers that one of the objections to the conceptualist approach is the use of set-theoretical apparatus to explain the process of Merge, either in Chomsky's or Kitahara's approach. If UG/FL is to be studied as a part of *mathematics* (which obviously licenses set-theory, as well as other formalisms), either Montague's approach is not realist or Chomsky's is. In any case, in the absence of an appropriate formalism for biological systems, both proposals are equally invalid as explanatory frameworks, achieving at most descriptive adequacy. It is curious that the mainstream biolinguistic approach takes biological systems for granted (with the exception of Jenkins' article, mentioned above) and does not attempt to find a physical or mathematical model for, say, genotype-phenotype dynamics or the cognitive reality of derivations within the mind-brain. This apparent gap (which is not so if, as we said, we consider that biological systems are particular instantiation of physical structures following limitations over mathematical systems) can be overcame if biology is modeled following, for instance, chaos theory (see, for example, Author, 2013a). Not having a definition of "real," the claim that a realist enterprise can model UG as part of mathematics is an empty claim, just like it is to claim that UG's content is to be adjudicated to "virtual conceptual necessity" (VCN) (see for example Chomsky, 1995: 169; 2005: 10; 2007: 8, 12), particularly Merge, Copy and Move, whose specific biological status is at best mysterious. This theoretical move has two direct consequences:

27) a. Eliminates the possibility of asking for formal demonstrations of theorems involving any of those operations, or the operations themselves

b. Eliminates the possibility of building alternative theoretical approaches, since whatever is not "virtually conceptually necessary" is to be eliminated in favor of allegedly principled "unavoidable" (*sine qua non*) elements.

Postal (2003) has argued against the wide use the notion of VCN, but his own methodological proposal is equivalent to (28 b). We will come back to this in the conclusion. Let us now focus on the three arguments against conceptualism.

Argument 1: The Type Argument

This argument derives from an apparent "type-token ambiguity," which is a long-dated problem in philosophy (but not in linguistics: consider, for instance, that Chomsky has clearly stated that the Numeration is a set of *tokens*, see Uriagereka, 2008: 16 for discussion about this point). In Katz & Postal's terms NL grammars and grammatical theory are about *type*-sentences. Apparently, for some unclear reason, this is inconsistent with the view that NL has psychological entity. The argument as we see it is a *non sequitur* (see also Watumull, 2013 for the same conclusion, although obtained via different assumptions): no proof is given that there are not types in the human mind (nor is any reference to *linguistic* work in which the type-token problem is discussed; notice that problematic as it may be for philosophers, the type-token dynamics have been worked on in linguistics in unambiguous formal terms, consider for example Martin & Uriagereka, 2014; Krivochen, 2015b). Moreover, even if individual sentences were tokens, there must be a sense in which NLs are mental objects, since sentences belonging to NLs are "externalized" (technically, Spelled-Out, given a phonological form), and what is not "inside" cannot be "made external." It would be possible to claim that individual sentences are tokens even inside the mind, but this would be equivalent to claiming that NLs are a set of tokens, which implies that any speaker must have some representation of each sentence he uses as a token in his mind. Katz & Postal also seem to assume that sentences have some sort of primitive status, without considering their derivation / formation, either formally or neurocognitively (the *implementational level* of Marr, 1981). In Krivochen (2015b) and Krivochen & Kosta (2013), Kosta & Krivochen (2014) we have put forth arguments that a type-token dynamics enhance the explanatory power of a syntactic theory, particularly when it comes to the property of *displacement* and the establishment of referential dependencies (including Binding Theory). In this framework, there is no Merge-Move asymmetry (as in Chomsky, 1995, and much subsequent work, particularly the so-called Merge-over-Move principle): structure building is always token-

Merge from the Lexicon, defined as the whole amount of types for NL. Yes, this approach (which we have developed in Krivochen, 2015b; see also Martin & Uriagereka, 2014 for a different though related approach to the distinction) requires the introduction of the distinction Type/Token in syntactic-semantic theory, and algorithms to link different tokens of the same type (which we have provided in Krivochen, 2015b) but it has proven useful in both a theoretical and an empirical domain (see also Stroik & Putnam, 2013): we can unify phrase structure and displacement in a single theoretical framework, without added notions like features or copy operations, and account for the data without *ad hoc* stipulations. If an element can be inserted in a structure (which would include constructions in the sense of CG as well) as many times as IC require, then we eliminate stipulations regarding intermediate landing sites for movement (see Abels, 2003 on this topic), moreover, being tokens of the same type, the establishment of referential dependencies at the C-I system becomes easier as it requires no added elements like indexes and diacritics (they can be used for expository purposes, but they would be theoretically superfluous and have no biological or physical entity).

In simpler terms, the whole argument against Kats & Postal's objection can be summarized as follows: if types have no mental entity, neither do tokens, insofar as tokens are instantiations of types. If tokens do not have mental entity, we could not derive a sentence (assuming the generative algorithm manipulates tokens following interface conditions and thus creates interpretable structures). If we cannot derive (i.e., produce in real time[13]) sentences, there is no NL. But, mind you, there is NL.

Argument 2: The Necessity Argument

This argument is based on relations of necessary implication between sentences, or so it may seem. Consider the following pair:

28) a. John killed Bill.
    b. Bill is dead.

According to Katz & Postal (1991: 523), (29 a) could not be true and (29 b) false. In their approach, a "proper account of NL" must explain this necessary entailment, arising from the "semantic structures of the entailing and the entailed sentences." This argument is vulnerable on several flanks. On the one hand, Katz & Postal are assuming a theory of lexical semantics as well as a theory of truth conditions. In their account, we must explain the fact that [kill X] *entails* [X die], against which many voices have arisen (e.g., Fodor, 1970 and much subsequent work in lexical semantics and syntax-semantics interface). Our own argument against the "Necessity Argument" rests in the idea that language and truth do not belong to the same domain when it is not

about analicity (which is based on lexical semantics within a structure, not on a relation between structures or propositions). Modern accounts of entailments make them a matter of pragmatics, that is, language in use, and not a matter of analicity in any way. They base their argument in an inference that arises from "the semantic structure" of the involved sentences, but there is no clue as to what such a structure may look like. What is more, the very concept of entailment, which is the word used by Katz & Postal, includes as one of its main characteristics being cancellable in assertive contexts (sometimes, this is used to differentiate entailments from presuppositions, which are only cancellable under the scope of negation). We will not get into this, but just point out that truth conditions, since they were relativized in formal semantics by Davidson (1967), cannot be determined in isolation (even less so if one subscribes to pragmatic accounts which reject the concept of truth values as primitives of a linguistic theory) but in relation to (minimally) a speaker, a time and a place. This said, following Fodor (1970), there is no contradiction in the following sentence:

29) Mary knew that Bill died, but she didn't know someone/John had killed him.

That is, there is no contradiction in asserting that (29 b) can be true for a speaker while (29 a) may not. The speaker can even deny the truth of one or the other based on his/her knowledge of the state of affairs described in the asserted sentence. The second argument Katz & Postal use is stained with stipulations about the nature of natural language semantics, for which they neither provide a theory nor cite independent references (only Katz's works, which are part of the "realist" enterprise, not independent theories that can be used to reinforce that enterprise).

Argument 3: The Veil of Ignorance Argument

This argument is based on the assumption that language and knowledge of language are two different things. This may sound trivial insofar as "know" is a dyadic predicate, requiring a "knower" and a "knowee," as we pointed out above. However, the conceptualist claim that there is no scientific object of study for linguistics outside the knowledge represented in the mind a speaker has of a language L (so-called i-language, with its alleged mathematical and biological aspects) is *not* an internal contradiction (although it might very well be wrong, as we think). Nor does a contradiction arise when the notion of e-language (i.e., external and extensional linguistic samples, in Postal's terms, *sentence tokens*) is included in the equation. It is true that the notion of a "Faculty of Language" is uncritically accepted as an axiom within orthodox Chomskyan studies rather than problematized and attempted to be

demonstrated (with due, but minority, exceptions), but that is an independent argument, which we have made in the previous section. The conceptualist thesis that there is nothing more to language than a state of a mind-brain in a speaker may very well be *false*, but it is certainly *not inconsistent* with the axioms in the conceptualist enterprise.

3.3 A note on "progress in Linguistics"

The considerations we have been making with respect to the self-appointed exclusive tendencies in formal linguistics cast doubt with respect to the possibility of having scientific progress within the discipline: there are studies of the use of the language faculty ("faculty" in a wide, non-technical sense) from sociology, ethnography, philosophy and cognitive psychology, to mention but a few. However, the most basic problems, the foundational abstractions, the grounding concepts are still far from clear: there is not even consent as to what exactly is language, as we have seen in the previous sections. Is it a mental entity? A formal entity? A social entity? Something else? The concept of "fact" in linguistics is to be challenged if some progress is to be made. For example, Chomskyan theories base most claims about "language design" on movement, which is interpreted as literal displacement (GB tradition) or copy (MP tradition, see Nunes, 2004 and Corver & Nunes, 2007 for an overview) of constituents following well-established rules: phase impenetrability (Chomsky, 1998), barriers (Chomsky, 1986), Minimality (Rizzi, 1990), Head Movement Constraint (Travis, 1984), Condition on Extraction Domains (Huang, 1982), among many others. However, the alleged "facts" that are accounted for only follow from an architecture that actually claims that elements "move." Take Systemic Functional Grammar, for instance (for a recent review, see Fontaine, 2012, and, for a more technical introduction, Fawcett, 2010). It is unlikely that problems of displacement-as-literal (feature-driven) movement arise in such a theory, where issues of locality are interpreted in a more cognitive-discursive way, in close relation to the metafunctions (ideational, interpersonal, textual) that configure the mellow of the theory. Our point is, simply, that what is taken as a "fact" in a theory is something that may not even arise in another. In order to claim that an element is interpreted in a different place from which it appears phonologically, we would have to resort to some kind of mechanism dissociating interpretation from phonology (already a strong claim) and then make that procedure explicit in logical, cognitive, biological or mathematical terms. What can be expected as "progress", then? Little if the polarization explicitly proposed by Katz & Postal (1991: 1 fn.1) is held as a "fact," dismissing as "non-credible proposals" alternatives which are equally consistent formal systems but depart from different axioms. This historical situation allows us to say that little progress has been done in linguistics, because of its

essentially atomized character. Something like "progress" in Lakatos' terms could be said to have been done within this or that theory, in terms of empirical adequacy. However, contrarily to Chomsky's repeated claims, the fact that new questions are being asked does not entail that we know more about "language," simply that there has been a shift in focus. Chomsky (2013: 33) says that

> *"There has been remarkable progress in understanding language in the post-World War II period, over a very broad range, including the general principles that shape this highly special cognitive faculty, dissociated from others in many ways and unique to humans in essentials. One indication is that it was routine and reasonable for prominent linguists in earlier years to write books entitled Language. No longer. The task would be radically different today; far too much has been learned."*

He seems to attribute the absence of books dealing with foundational issues to the fact that "far too much has been learned." However, outside Chomskyan linguistics, many object to that claim, including ourselves. The same can be held of any theory, however: it is not the (putative) fact that we know more that "prevents" linguists to undertake the enterprise of writing programmatic pieces, but mainly *dogmatism*. Within mainstream generative grammar (in both its conceptualist and realist versions), the foundational issues (like the existence of a "faculty of language" with its mental and physical aspects, or the very definition of "language," a very delicate issue Chomsky has refused to address beyond stipulative statements) are considered to be solved and understood, and are thus taken for granted. The same happens in SFL, Cognitive Linguistics, and their respective sub-theories (HPSG, LFG, etc.). To undertake research at "peripheral" levels of the theory (e.g., testing empirical adequacy) does not mean or entail leaving "core" issues aside (e.g., the very definition of "language" we are working with): a permanent revision of both is, in our perspective, the only way to avoid self-centeredness and guarantee integration with the last developments in different disciplines (particularly those more closely related to technological advances, like neurology or molecular genetics).

3.1 What is to be "discovered"?

Conceptualist generative linguistics has a curious concept of "discovery," and the ontology of the objects that qualify as "discoveries." The official vision is to be found, for example, in Pesetsky (2013), who lists alleged "discoveries" of generative syntax. An undeniable merit of Pesetsky's exposition is to provide an answer to a question often asked to Chomsky but that he seldom answers (see Behme, 2012 for discussion and examples), but his

methods are at best arguable. The methodological assumptions behind Pesetsky's exposition are the topic of the present section.

To begin with, we consider that a crucial distinction has to be drawn between discovery and invention. To discover something is to notice and provide an account (descriptive, explanatory) of a pre-existing phenomenon, then subjected to further research. For example, electrons existed even before they were first noticed by scientists, in the late XIXth century. The existence of the electron is, and was, independent of scientists' awareness of it. Invention, on the other hand creates an object (either material of formal) which did not exist before the act of invention.

Now, let us take a look at the alleged "discoveries" of (orthodox Chomskyan) generative syntax Pesetsky lists:

- Hierarchical structure
- Case Theory
- Locality of Syntactic Relations
- Support for the central conjecture of generative syntax.

Then, Pesetsky proceeds to "discuss" articles that contradict the aforementioned "discoveries." To the best of our knowledge, Pesetsky (and many more) have incurred in two mistakes:

a) A *historical* mistake.
b) A *methodological* mistake.

The historical mistake is simple enough: the effects that are observed have been studied for quite a long time now, before generativism and independently of its particular assumptions. Pāṇini, for instance, presents a distributional theory of Case, based on morphology and semantic roles (or *kāraka*), quite similar to the generativist "Theta theory" but without its added stipulations (government, subcategorization frames, etc.). Varro, in his *De Lingua Latina* also studied nominal and pronominal declension in detail, as well as the basic property of natural language from MGG perspective: recursion (from which phrase structure and hierarchy derive). Langendoen (1966) puts it the following way:

> *"(…) First he* [Varro] *viewed the phenomenon of syntactic derivation in Latin as following a universal feature of human language: the ability to form an unlimited number of expressions (in fact, words) from a limited number of elements in a systematic fashion. Second, he justified this position on the grounds that if it were not true, then language acquisition would be impossible"* (1966: 34).

The arguments in favor of locality (i.e., the relations between constituents are limited to certain domains, outside which relations result in ill-formedness: binding theory is a good and well-known example) within recent Chomskyan generative grammar have unfortunately reduced to self-reference (something Boeckx & Grohmann, 2007a acknowledge) and forcing the data to fit the theory (e.g., Chomskyan phases), in a procrustean way. There are some notable exceptions, which try to link linguistic phenomena to properties of other systems, thus deriving locality effects from more general principles (e.g., Uriagereka, 1998, 2012), but these alternative approaches are overwhelmed by orthodox assumptions.

We think the historical mistake is sufficiently illustrated, but we can also mention the Port Royal Grammar and Logic (1660 and 1662 respectively), which argued for the mental entity of grammar and the fundamentally logical structure of natural language, which was to be argued for in Chomsky's early *Logical Structure of Linguistic Theory*.[14]

The methodological mistake is somehow more serious: it implies that, if Pesetsky is aware of the references we have cited (and many others which also tackle these issues in the Greek-Latin tradition, as well as medieval studies with Aristotelian bases), he actually believes that generative Chomskyan syntax has provided evidence that proves that:

a) The invoked principles and rules are *necessary* conditions for a certain phenomenon to appear.
b) The invoked principles and rules are *sufficient* conditions for a certain phenomenon to appear.

Why is this relevant? Because scientific proof requires not only an account of why the relevant portion of the Universe is the way it is, but also *why it could not be otherwise* given certain parameters (mathematics tends to offer fine examples of such proofs). In this particular domain, the linguist (if concerned with methodological issues and willing to make a strong claim) must formally demonstrate that his formal procedure can productively generate the phenomenon in question (not only describe it, as it would be a mere reaffirmation of existence) and that either no other procedure can or, if there is an alternative way, that such a way requires extra assumptions or is in a specific and well-defined way less economical. Needless to say, this is not achieved in Pesetsky's talk, but, more worryingly, it does not seem to be of the concern of first-line linguists: the methodology is more inclined towards *assuming* something (e.g., the existence of FL/UG) and provide "evidence" in favor of that alleged "fact," which in turn results in the conclusion that the assumption is actually the case (by all means a circular reasoning). Counter-evidence or alternative but equally consistent proposals are seldom discussed,

and the basic properties of formal axiomatic systems (particularly, consistency and incompleteness, both intimately related to overgeneration[15]) are most frequently overlooked. This, we argue, goes against both theoretical and empirical development, since a theory must be restrictive enough to give interesting insight over natural language (or any other object) and it must be explicit enough to be subjected to the strictest formal scrutiny. As the reader may have noticed, the arguments we have been revising in this paper do not fulfill these criteria, or do only to a very limited extent. The "realist" and "conceptualist" positions thus limit themselves by their own rhetoric.

5. Conclusion and Methodological Warnings

In the preceding discussion we have analyzed two approaches to the foundations and ontology of linguistics. In this conclusion, we would like to make some methodological considerations regarding the apparent validity of the conceptualist-realist "discussion" (underlying more than just Chomsky's and Postal's personal stances, as we have seen), which has deep consequences for the ontology of theoretical linguistics and its future as a field.

Katz & Postal (1991: 515, fn. 1) claim:

> "*We are aware that some philosophers and linguists think there are foundational positions distinct from nominalism, conceptualism, and realism. Although we cannot deal with this issue here, every such putative alternative with which we are familiar reduces to one of the three standard ontological positions.*"

Crucially, their discussion is centered on conceptualism and realism, leaving nominalism aside. This polarization has the following logical consequence: if there is no other position (and their insistent ignorance of nominalism leads to this thought), then for every axiom or theorem *p* in theory A, theory B has a ~*p* axiom or theorem by necessity, otherwise, the polarization thesis they need for their arguments to be valid (and convince the reader that rejecting their presentation of Chomskyan conceptualism inevitably leads to accepting their realism) would fall apart. If there are only two truth values, let us call them true and false (or 1 and 0, after all, it is the same as long as we have two discrete possibilities), then for every proposition that belongs to sets A or B, we could determine its truth value unambiguously. This is, of course, false: it is unlikely that either A or B would have only true propositions and the other only false propositions: a third alternative (C), composed by only the true propositions of A and B is logically necessary (that is, C is the intersection of A and B only containing true propositions). The definition of a method to determine the truth of the propositions that compose A and B, of course, is not provided by either Chomsky and his advocates or Katz &

Postal and their supporters; moreover, the logical way out (i.e., build theory C) is a fallacy, insofar as there are really more than two theories (or stances) about the object, its nature, origin, and use; some internally consistent, some inconsistent, some logically complete, some incomplete; but all describing / explaining a *different* aspect of the object of inquiry, thus all epistemologically valid (with the demarcation criterion being internal consistency). An excellent summary of the allegedly exclusively binary debate we have been analyzing, and a fundamental flaw in its logical conception is enlightenedly put by Ross (1983: 3), quotation that summarizes the main points in the present contribution:

> "*What is the matter with a pluralistic situation in which there are many approaches to the truth?*
> *My answer to this question would be: nothing is wrong. But that is an answer which seems to go against the mythology of science in which I was trained. I was taught to believe that for any two theories of the same domain* [in our case, Realism and Conceptualism]*, A and B, there are only two possible logical situations that can obtain:*
>
> *1) One of these theories is correct and the other incorrect.*
> *2) These theories only* ***appear*** *to be different –* ***really*** *they are the same theory, wearing different terminological clothing. They are notational variants.*
>
> *I was not prepared to deal with a third situation:*
>
> *3) Each of the theories captures a fundamental part of the truth, but they are incompatible with each other, and neither can be reduced to the other.* ***Both*** *are necessary*" (highlighted in the original).

A further note is in order at this point (applicable to inter-theoretical criticism in general): notice that the alleged "incoherences" of the conceptualist position have been pointed out from a "realist" position, but not within conceptualism. In that case, we are not facing inconsistencies, but merely *incompatibility* (incommensurability, in Kuhnian terms) of two different frameworks (Ross' situation (3)). A criticism to a framework is to be made in the very terms of that framework, as it is the only way of finding internal logical inconsistencies and proving that the theory in question is logically untenable. There is no point in finding apparent contradictions in a theory from the perspective of another: it is at least a trivial enterprise, if not directly mislead.

What is more, we have provided some examples of propositions that belong to neither A nor B (nor C!) theories, but to a D alternative which is

not made up from propositions of one or the other, but constitute whole new systems: Simpler Syntax; Survive Minimalism, Radical Minimalism, the CLASH model, among many others, are viable alternatives to both the binary system proposed by Katz & Postal, and the unary system Chomsky proposes dismissing all other alternatives as unreasonable or departing from the undefined concept of "virtual conceptual necessity," without further discussion. The proof that there exists at least a third and a fourth alternatives opens the door for more alternatives, all equally valid and consistent (and we are limiting ourselves to theories that make a statement as to the ontology of language, not to mention those theories that present an architecture of the grammar without asking for its place in the natural world, as most non-transformational models do): Katz & Postal's, and Chomsky's position are equally dangerously close to what Austin (1962) calls "the descriptive fallacy," in this case also involving a polarization of the market in terms of venues for alternative positions apart from a narrow scientific horizon. We hope this work, rather than making a case for any particular theory, helps depolarizing the field of formal linguistics and create some awareness of the necessity of alternative frameworks and the creation of interdisciplinary bridges with mathematics, physics and biology (or the fields the reader feels closer to), crucially without limiting the collaborations to adopting of terminology or forcing concepts (like "features," or even "UG") on shaky grounds.

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NOTES

1. We beg the reader to notice how the notions of "theory" and "program," which should be kept apart in hard science, are permanently overlapping in the literature and are sometimes used as synonyms. Minimalism, as it apparently has "ineliminable elements" (Epstein & Seely, 2002) such as features (thus, substantive elements), is more a theory than a program. Its purely programmatic side, the elimination of superfluous elements, is nothing new, as it is the mere application of the Occam's razor metatheoretical desideratum, which has been applied in science and philosophy for many centuries now.

2. For instance, Boeckx (2010: xiv) claims: "*It stands to reason that in selecting material I am offering a rather personal view of what cognitive science is and what cognition may be.*" However, there is no *explicit* formulation of that alleged view.

Therefore, his views (like those of many others, frequently including Chomsky himself), turn out to be outside the domain of falsation.

3. Strong regularity, when applied to phrase structure, is what Culicover & Jackendoff (2005) refer to as *strong uniformity*. See Krivochen (2015a) for discussion about the theoretical and empirical consequences of such a uniformity thesis.

4. Tegmark (2007: 19) graphs the interrelations between Formal Systems, Mathematical Structures and Computations, together with the potential problems for each of those aspects of the unified theory of the Multiverse. With respect to Computations (defined as special cases of mathematical structures which produce theorems of formal systems), the problem Tegmark finds is that there might be no halting algorithm built-in the system. In Krivochen (2012b) we made two proposals:

a) Not all computations need halting: only those that have to be interpreted, because of memory limitations.
b) In an architecture with invasive interfaces, or where computations take place *within* the interpretative components (Stroik and Putnam, 2013), there is no need to formulate independent halting algorithms, apart from a general definition of legibility conditions:

$\forall$ (x), Transfer(x) applies *iff*:

$\exists$(IL) | x $\subset$ IL (in the case of language, IL = Phon / Sem)

$\nexists$ (p) | p $\in$ x Λ p $\notin$ IL

5. We use Sinn and Bedeutung in their Fregean sense. We maintain the original terms to avoid confusion and misinterpretations.

6. The fact that frameworks like Goldberg's Construction Grammar (see 2006: 4–5), and HPSG work without assuming UG should be revealing at this respect. This problem is not polarized either (that is, it is not necessarily a matter of "FL or not FL"), but most likely, *when* we need to resort to a domain-specific workspace. If *all the time*, we have a Chomskyan FL, assuming UG and so on. If only when deriving an object in real time, then alternative models arise. Or, it can be claimed that there is no FL at all, and all processes are shared between all domains. No option should be *a priori* dismissed.

7. In Krivochen (2012a) and Krivochen & Kosta (2013) we have argued against the existence of a fixed FL on computational grounds following the criteria exposed in Laka (2009), affecting Merge and the form-function binarism. The following argumentation will focus on the logical structure of the argument, while assuming previous discussion.

8. The sole concept of recursion in linguistics, and the misunderstandings it has generated, would deserve a full book. However, let us point out that the architectural theses focusing on the recursive engine frequently overlook data in favor of theoretical stipulations. The recent article by Watumull et al. (2014) loquaciously expresses the underlying assumptions with respect to empirical threats (like the one proposed, e.g., by Everett's, 2005 claims about Pirahã lacking phrasal recursion; or the non-recursive nature of some portions of the English language, like adjuncts, see, e.g., Uriagereka, 2005): "*To the extent that embedding is a sufficient, though not necessary, diagnostic of recursion, it has not been established that the apparent*

restriction on embedding in some languages is of any theoretical import." (Watumull et al., 2014: 1).

9. For a very recent take on the issue, see Putnam & Fábregas (2014). Their argument can be summarized as follows: there are certain phenomena (categorization, labeling, clitic positioning) which "have to be present in the narrow syntax." However, the article *presupposes* the existence of features, without discussing the possible implications of a feature-less model.

10. Perhaps the best example of such a theoretical complication is the famous "EPP", which is now understood in at least three senses (see, for instance, Gallego, 2010: 62):

a) Move a DP to Spec-TP (the traditional definition of the EPP)
b) Merge α with β containing EPP (sometimes called "edge feature")
c) Move an XP to an outer specifier of a phase head (sometimes called "occurrence feature").

To this day, the EPP itself remains unmotivated, which makes the whole proposal vacuous. In general, the assignment of features to heads (EPP, Wh-, phi-features, Edge Features, features triggering scrambling, topicalization, etc.) is one of the most controversial issues in MGG, since such features more often than not are mere artefacts to accommodate a particular analysis. As early as 1971, Paul Postal already raised an argument against the use of features like these (referring, specifically, to the assignment of a [Wh-] feature to a PP or just to its dominated NP in a [PP [NP]] structure to selectively "account" for Pied Piping effects):

> (…) *the whole feature-marking proposal has no independent justification. The point is not that descriptive adequacy is unachievable in this way, but rather that it is achievable under the assumption of successive cyclicity only at the cost of having available the overly powerful device of marking arbitrarily selected nodes with arbitrary rule behavior coding features. It is strange that this powerful device should be appealed to by authors who are often at pains to stress the need for restricting the power of syntactic theory, and who have often objected to other approaches on just this ground.* […] *A theory which bans arbitrary syntactic features is stronger than one which allows them, hence to be preferred in the absence of concrete evidence showing the need for weakening the theory, following the principles which Chomsky has long stressed* (Postal, 1971: 215).

Little, if any, attention was paid to this sensible fragment in subsequent developments of MGG.

11. Consider, for instance, how Postal exemplifies his point (2012: 5):

> *"Take for instance:*
> *(3) Most rabbits have big ears.*
> *Where in space is (3)? At what points in time did it begin and will it end? What is its mass? Is it subject to gravity? How can one*

destroy it? These questions, entirely appropriate for physical things, biological or not, make no more sense than their parallels for objects like the square root of 169 or Sibelius' 5th Symphony."

We find many misunderstandings here: consider 1-D strings, as physical constructs: the question about where in space they are is, at least, misguided: the relevant question would be about scale. There is no point in asking about their beginning and end, because they might not have such things. And so on. The same happens when we go beyond the Planck scale: is space (considered as a quantum foam) a physical "thing," in Postal's terms? We are afraid it might fail some, if not all of Postal's "tests."

12. Needless to say, this does not mean that non-mathematically based models of language are not interesting or relevant, for other respects. A model of competence like the one outlined in Sag & Wasow (2011) would be inherently limited if a purely mathematical stance was adopted.

13. A note is in order here: the fact that lexical derivations can be coined, thus fossilized, as well as idioms, beyond the word-level, does not mean that those fossilized linguistic elements, of arbitrary complexity, have not been derived at some point in the *diachrony* of a language L. The work on proleptic names done by Trejo (2013), under Radically Minimalist assumptions provides good arguments in favor of this approach.

14. Not to mention, for example, these kinds of claims: "*Legate's discovery that the left periphery of Warlpiri looks like Rizzi's left periphery for Italian (and Cable's for Tlingit) would have been the topic of an hour on NPR Science Friday*" (slide 72). The Left Periphery and the whole array of functional projections cartographic approaches assume did not pre-exist Rizzi's work as theory-independent objects of the world (or, at least, it has not been adequately proven otherwise), consequently, it all falls within the realm of the "invention." This does not mean they are wrong (that has to be argued for independently), they are just *not* discoveries.

15. If a formal axiomatic system contains every p and its negation $\sim p$, it will be complete, but necessarily inconsistent. It will also be useless for scientific purposes, for it would have no restrictions.

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A CONCEPTUAL-PHENOMENOLOGICAL APPROACH TO EXPLORING EDUCATION: RE-CONCEIVING STANDARDIZED CURRICULUM IN TERMS OF A POETIC, TRANSCENDENT, AND COMPLICATED CONVERSATION

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ABSTRACT. This speculative and theoretical analysis, born of a conceptual phenomenological model of research grounded in textual analysis, reveals for the reader the common ontological threads connecting three phenomenological readings of education and curriculum: William Pinar's "curriculum as a complicated conversation," Dwayne Huebner's phenomenology of "poetic" language in relation to curriculum writing, and Michael Bonnett's contemporary phenomenology of education and the teacher-pupil relationship as a "form of the poetic." The results of the analysis propose an alternative mode of phenomenological inquiry that incorporates a non-technical and non-representational language related to a renewed relationship to the human's Being-in-the-world as a learner that stands in sharp contrast to and transcends the standardized technical-scientific modes of research and thought regimes that govern much of contemporary education in the age of *Social Efficiency*. The essay demonstrates that the poetic language of phenomenology holds the possibility to facilitate the re-conceptualization of the "world of education," opening the potential for educators and students to appropriate that world in new and unique ways, occurring through a form of revelatory, emancipatory, and attuned "conversation" that offers the hope of adopting an informed and enlivened stance amid the unfolding of education as an ontological phenomenon that lives beyond the grip of *metaphysical instrumentalism*.

Keywords: phenomenology; education; teacher–pupil relations;
poetic language; continental philosophy

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Introduction

My recent scholarship (2014; 2015a; 2015b) opens a dialogue across the disciplines of philosophy, philosophy of education, and curriculum theorizing in order to bridge past and present scholarship, revealing the positive potential of this type of research for reconceptualizing and reconfiguring a view to the human being, education/curriculum, and the teacher-pupil relationship in the age of standardization. The research is carried out in a manner that is common in the tradition of Continental philosophy, in terms of conceptual-textual analysis. This form of research carried out in and through the "speculative philosophical essay" is certainly not new to the philosophy of education or curriculum studies, but has as of recently, especially in terms of phenomenological research, waned dramatically in popularity. However, this form of *thinking-writing* is a valuable and viable practice of educational research, which is "expressive of the humanistic vision of life," a form of life that should never be heedlessly "whipsawed into 'accountability' be a set of 'mind formed manacles,' whether Aristotelian syllogism, Roman formality, factualized hypothesis in scientific terms, or critical visions of someone's utopia" (Macdonald, 1995, 181). The speculative essay allows for a form of thought to emerge that transcends the traditional and formal ways that we conceive of knowledge and understanding, which fail to capture the full scope of the human experience, for the essay format, according to Schubert (1991), "is a process of inquiry that transcends the problem of reducing human experience to an objectified commodity, a snare of all formal systems of inquiry" (70) and, in addition, it is "not just a way of writing or mode of expressing that which is already known," rather it is a mode of conceptual exploration that invites readers to "follow along the often convoluted journey that leads to greater illumination" (69).

The road to *illumination* is made possible in large part because essay writing, especially forms that emerge from and are inspired by the phenomenological tradition, unfold as reflective research, for phenomenological writing is "closely fused into the research activity and reflection itself" (van Manen, 1990, 124–125). Thus, according to van Manen, phenomenological-hermeneutic "research does not merely *involve* writing: research is the work of writing," with the ultimate aim of fulfilling "our human nature: to become more fully who we are" (12). Dall' Alaba (2009) identifies the positive aspects of phenomenological research when stating that it allows researchers to "challenge taken-for-granted assumptions" while revealing "new insights into what it means to live, work, play and learn in our world" (1). Ultimately, the interest, or revival of such interest in the field of education and curriculum "can perhaps be understood in the context of its potential contribution to rethinking our understanding of the complex phenomena we encounter in the

world in which we find ourselves in the 21st century" (1). Echoing Dall'Alba, I claim that education needs, perhaps more than ever, to return to ways of thinking that inspire not only the intellectual aspects of our humanity, but also the spiritual and poetic ways of being that are so often relegated to curriculum's scrap heap in the age of standardization and the privileging of a STEM (Science, Technology, Engineering, and Mathematics) education within the Common Core States Standards Curriculum (USA).

In an era where Obama's 2009 initiative "educate to innovate" has drastically increased Stem programs in curriculum, and has exploded as of 2014 into a 3.1 billion dollar investment, pushing toward "technologizing" the curriculum, we must concern ourselves with what this indicates about the view of the student (human), valued knowledge, curriculum/education, and the teacher and teacher education, where everything from teacher motivation to cognitive training for student efficiency are being reduced to the purview of quantitative research (Skaalvik & Skaalvik, 2015; Schneider & Artelt, 2015; Ellis, Denton, & Bond, 2014). In response to what I argue is the technologizing of education, I draw out an understanding of education in non-technical, non-instrumental, and non-representational terms that points beyond the reductive view found in the STEM curriculum and other such standardized programs for learning that privilege *math-and-science*. I propose a re-configured view of education that transcends *metaphysical instrumentalism* with its potential benefits for allowing educators, practitioners, and researchers to re-conceptualize the objectified, reified, and technical ways of revealing and understanding our Being-in-the-world that have become the norm, which occlude other forms of *world-disclosure*, and for this, I am attuned to the curriculum as a "form of the poetic." My approach to these issues begins with reconceptualist thought (*curriculum as phenomenological text*) and curriculum conversations that are aesthetic and poetic modes of Being-in-the-world found in both William Pinar (1991; 2004; 2006; 2010; 2015) and Dwayne Huebner (1966; 1990; 1999). Then, introducing the important contemporary work of philosopher of education Michael Bonnett (1994; 1996; 2002; 2013; 2015), I show that the revolutionary curriculum theorizing of both Pinar and Huebner find a kindred and contemporary manifestation in Bonnett's writings, where similar, if not identical, themes are explored and then further developed in light of contemporary educational concerns.

With these preliminary remarks in mind, this paper is a critical exegesis of three phenomenological views of curriculum-education expressed in terms of "complicated conversations" unfolding as *poetic/aesthetic* phenomena, where common threads are interwoven into the *ontological* fabric of each interpretation: (1) I analyze Pinar's unique understanding of curriculum as "complicated conversation" in relation to what he terms, "abstract expres-

sionist" scholarship, which is a non-representational and aesthetic mode of theorizing that offers a counterpoise to "*re*-presentational" modes of research, i.e., the *technical-instrumental* approaches to curriculum. Pinar's understanding of scholarship reveals a view to "writing" curriculum in terms of an aesthetic conversation; (2) I explore Huebner's understanding of language in its "poetic" relationship to curriculum writing. Importantly, Huebner is focused on a non-representational and non-instrumental form of "poetic" language that allows us to speak "of" and not "about" the phenomenon of curriculum, thus avoiding the metaphysical pitfall of "objectifying" and "reifying" those things of which we seek to better understand through our inextricable and intimate involvement with them; and (3) I offer a critical reading of Bonnett's contemporary phenomenology of education, which continues to develop, in the area of philosophy of education, the *ontological* themes in Pinar's and Huebner's curriculum theorizing within the contemporary milieu of standardized education. Bonnett's view of education as a "form of the poetic," which is instantiated in the authentic and "triadic" conversation between teacher, pupil, and that which is to be learned, offers important insights for the continued re-conceptualization of the human being as "phenomenological subject," language as a "poetic" phenomenon, and the view of transcendence/attunement, whereby through an *emancipatory* change in attitude (mood) there is a movement from an inauthentic (*calculative-instrumental*) view and enactment of education to an authentic (*meditative-poetic*) form of curricular conversation.

1. Pinar's Understanding of Curriculum as "Complicated Conversation" "Possibly Being So" and Aesthetic Transcendence

Pinar's (2006; 2105) writing on curriculum as a complicated conversation, especially in his most recent scholarship, is focused on the global unfolding of education as an ever-growing, ever-widening international dialogue. However, for the purpose of this essay, I mainly focus on two of Pinar's writings: "The White Cockatoo" (1991) and the canonical text, *What is Curriculum Theory?* (2004). I do this in order to elucidate Pinar's understanding of the poetic self, curriculum as extra-curricular conversations, and the new modes of addressing students that challenge the subject-centered, *technical-instrumental* view that learners have a "stable and unitary 'address' from which and to which 'messages' can be sent and received" (2004, 200). This discussion will lead into Pinar's (1991) notion of "abstract expressionist" scholarship, a form of meditating on and writing curriculum in terms of a conversation unfolding as an *aesthetic phenomenon*, intimating new "conceptual tools for teaching, researching and evaluating curriculum" (244).[1] Pinar (2004) claims that the authentic unfolding of education *as* conversation,

and this is a theme that also cuts through the phenomenology of Huebner and Bonnett, begins with a reconceptualization of the common understanding of "curriculum" itself. Curriculum is most often expressed in reductive and stultifying terms concerning "what the district office requires [educators] to teach, what the state education department publish in scope and sequence guides," and in the extreme, "denotes a course syllabus" (185). It is difficult for educators to approach curriculum in terms of a "complicated" and multi-faceted conversation because "it is so highly formalized and abstract" and has been "institutionalized and bureaucratized" (186). In limiting curriculum to such a view, instead of "employing school knowledge to complicate our understanding of ourselves and the society," teachers are in effect forcing students to "mime others' (i.e., textbook authors') conversations, ensuring that countless classrooms are filled with forms of ventriloquism rather than intellectual exploration, wonder, and awe" (186).

Through a phenomenological approach to the "living" experience of curriculum, it is possible to reveal it as something other than a mere course of study. In such a view, curriculum, as a complicated conversation, "ceases to be a thing, and it is more than a process. It becomes a verb, an action, a social practice, a private meaning, and a public hope. Curriculum is not just the site of our labor, it becomes the product of our labor, changing as we are changed by it" (Pinar et al., 1995, 848). Teaching, learning, and curriculum are all understandable in terms of "modes of address," and the "structure of address" is grounded in "curriculum as a verb," or in terms of the Latin infinitive *currere*, and in and through the unfolding of the curriculum, within complicated conversations that "complicate" and "disrupt" the lives of the participants, there is a "process of self-shattering" and the "'same old self' which renders education merely the acquisition of new information is decentered, splintered, rendered a 'play of dynamic forces'" (Pinar, 2004, 201). Pinar's focus on the grammatical mode of the infinitival is crucial to a phenomenological-*ontological* understanding of curriculum, in that he is not concerned with *what* curriculum is in objective terms. Instead Pinar searches for the original *how* of its essential unfolding. As related to phenomenology and *ontology,* curriculum as conversation presupposes an understanding of truth or knowledge that is "always provisional, textual, multiple, and, as such, never finished or complete" (200). This breaks open the space for imaginative and creative engagement, which also opens the precarious and dangerous possibility of encountering the unknown and along with it those things that are forever recalcitrant to human understanding. However, this danger is the harbinger of "curricular innovation and experimentation, opportunities for students and faculty to articulate relations among [the conversations between] the school subjects, society, and self-formation" (191). Thus, as in Hölderlin, and this is a running theme in Pinar, Huebner, and Bonnett – *where danger*

is, grows the saving power also. In the quest to uncover and appropriate new forms of understanding within the curriculum's dialogue, there is a "poetic self" in the process of developing, evolving, and *becoming* something *other* to itself, and this for Pinar is the immanent and *futural* "not-self," which indicates that in this understanding of curriculum as complicated conversation, potential or *possibility* stands higher than *actuality*. In the phenomenological literature, McNeill (2008) argues that the "being-possible" of human Dasein – which might be related to Pinar's notion of "possibly being so" – forms the *ontological* grounds of the human being, the *how* of its existence, the *how* of its *currere*, its living curriculum *as* the unfolding of a complicated conversation: "If all living is a being underway, then every living being, as living, has already surpassed what and how it actually is, surpassed it in entering into and maintaining itself within the dimension of possibility or potentiality," where human living *becomes* the "possibility of being otherwise than it already is" (107).

It must be stated that the process of self-formation as ever-renewed *possibility* must not be limited or restricted to academic conversations or "school talk," which is "disconnected from students' lived experience and from the intellectual lives of the faculty" (Pinar, 2004, 196). Curriculum as complicated conversation is also "extra-curricular," a dialogue inspired and moved along by living traditions, the heritage of those who are conversing within a context where the "address" of the *other* is at issue, where there is an attentive *listening* in an anticipatory manner for the call of the *other*, to which, much like the "call" of language, we respond in and through sympathetic gestures in ways that are never wholly predetermined. This curriculum dialogue as a form of self-formation is the very opposite of "neutral exchanges among unitary rational subjects" (199). There is a malleability to curricular conversation, which is essentially the *potential* ("possibly being so") inherent in its unfolding, and it is possible to reveal what is immanent in this conversation "as soon as we take hold of the curriculum as an opportunity for ourselves and our students, as citizens, as ethical and spiritual persons" (187). When we do, Pinar argues that we "realize that curriculum changes as we engage it, reflect on it, and act in response to it, toward the [potential] realization of our private-public ideals and dreams" (187). To further develop the issue of curriculum as complicated conversation in terms that highlight the imaginative and aesthetic nature of the curriculum, I turn to Pinar's (1991) thoughts regarding "abstract expressionist" scholarship in curriculum theorizing, which emerges from his compelling reading of Jackson Pollack's non-representational abstract expressionist art, which allows Pinar to draw on art's power for envisioning, instantiating, and writing curriculum in terms of an *aesthetic text*, which might afford "frameworks" for understanding curriculum that contrast "with those associated with mainstream social and behavioral science" (244).[2]

According to Pinar, "Relinquishing realism allowed Pollack to become more self-conscious about the very process of painting, the generation of each stroke and line" (246). In reading curriculum, the inspiration drawn from Pollack and abstract expressionist painting allows Pinar to understand the experience of art as a multi-sensory phenomenon with "ever changing landscapes of colors, textures, motions, and smells," which indicates that participants in the *truth-happening* of Pollack's abstract expressionist paintings are inspired to consider other modes and perspectives for participating in and writing on experience, which includes the "learning experience." As stated, this reconceptualized view of curriculum and theorizing emerges from what Pinar terms "abstract expressionist" scholarship, which he describes as "intellectually experimental and revelatory" (247). Here, Pinar reveals a form of scholarship "more intellectually experimental and revelatory than 'representational' scholarship permits" (247). Ultimately, he draws on the elements of aesthetic composition of abstract art, which pushes traditional and modern aesthetic ideals and boundaries to the breaking point. Observing and experiencing Pollack's use of "color, shapes, movement," and the "general dynamism" of the "action-painting," Pinar is inspired as a researcher to "write of this maelstrom of experience" that is the unfolding of the curriculum in terms that are expressive of a new form of "complicated conversation" (248).

We encounter a "complicated conversation" at work within the interrelated and overlapping lines of Pollack's violent and tumultuous "poured paintings," where there is a sense of harmony and order in manifoldness and diversity. The sense of *harmony* and *order* present in Pollack's completed painting was always already immanent in and emerging from the "living" unfolding of the artist's work. This crucial understanding of "immanent order" reemerges as related to curriculum conversation as a "form of the poetic" in Bonnett's phenomenology. According to Pinar, the experience of the painting, composed of seemingly disparate and randomly intersecting lines of paint, draws the spectator *as* participant into the "aesthetic experience," an experience of attunement and *truth-happening* in a register beyond the bounds of the purely cognitive. Just as Pollack "broke down the barriers between art and life," the attentiveness to the experience of his paintings, and the subsequent relationship that might be drawn between curriculum as a newly conceived and lived "complicated conversation," might allow researchers to break down the "barriers between curriculum and life" (245). It is crucial, when drawing inspiration from the art of abstract expressionism that the curriculum theorist and researcher shift paradigms from a *technical-instrumental* mode of *disclosing* curriculum through "representational" means to a perspective attuned by art, which might allow the scholar to "become more self-conscious about the 'strokes' and 'lines' etched into the [human's or learner's] personality by the curricular experience (and vice versa)" (246). As related to curriculum

theory achieving the purpose of high art, Pinar stresses that "the processes in which Pollack was engaged, processes that begin with the relinquishing of so-called realism or representationalism, and end in abstract dynamics of color, shape, and texture, allow us to see anew and understand anew" (246).

The complicated conversation of curriculum in its "irrationality, its fullness," according to Pinar, viewed through the clarifying lens of Pollack's abstract expressionist art, conveys, because it reveals in an aesthetic mode of attunement, "the postmodern movements of immediacy and dissociation, absence and presence, the simultaneity of complexity and simplicity, not just life against death, but life and death, including death in life" (248). This reveals at least two crucial concerns about the reconceptualization and re-configuration of the curriculum through art and the language it speaks: (1) the curriculum in such a view unfolds in terms of a dynamic and ever-renewed dialogue (conversation) that transcends the metaphysical notion of polarized, hierarchical, and irreconcilable opposites, e.g., Being and becoming, Reality and appearance, One and many, etc. Thus, curriculum as an "abstract aesthetic" phenomenon resists the sway and influence of the metaphysics of presence or *metaphysical instrumentalism*. This for Pinar is accomplished through the aesthetic re-attunement, or "aesthetic transcendence," of educators and students within the context of the curriculum's unfolding, in terms of a "vision" and "revelation" that is unique, opening "the knowing and appreciative eye to worlds hitherto unseen and unknown" (246), and (2) it embraces a view that effectively blurs the lines between the human's life as "lived" phenomenon as *currere* – the manner in which it is stretched out between the horizons of birth and death – and the formal academic curriculum. Abstract expressionism inspires a view to a re-configured form of conversation where the rigid division between the formal and technical structure of the "school" and the human's "lived curricula" dissolve as the lines blur.

As participants in this conversation, researchers and theorists are faced with the difficult challenge to "write this portrait nonrepresentationally," in terms of a language that lives beyond the synthetic propositions of technical and scientific communication and "aspires to, and at times exemplifies, the revelatory function of art" (249). The "maelstrom" of curricular experience requires and demands a language that facilitates the writing of curriculum in a "non-representational manner, incorporating appropriate 'phrases' that allow the researcher to gesture and intimate senses of perspective, motion, and time, senses articulated by phenomenology and perhaps even more pleasingly revealed by art" (248). When curriculum theorizing draws its inspiration from abstract art and attempts to write the curriculum "nonrepresentationally," the temptation to approach curriculum in terms of an *object* of study, as is common in all *philosophy of X* approaches, must be resisted. Here Pinar sets "abstract expressionist scholarship" apart from "representational scholarship,"

which is a form of research linked with *technical-instrumental* research ("*re*-presentational" research), which seeks results that are generalized, repeatable, and predicable. This for Pinar is the crucial concern with standardized education's "obsession with the 'technical' in curriculum development" (246). Instead, following Pinar's "abstract expressionist" scholarship, the so-called focus or "subject" of our studies must be approached in ways that avoids objectification, in ways that resists hypostatizing and substantizing what is being analyzed, spoken *of*, and "poetized."

Thus, in light of Pinar's "abstract expressionist" scholarship, we must find a unique form of language that allows us to speak "of" as opposed to "about" curriculum, and this becomes a possibility when we understand and embrace the *ontology* of curriculum in terms of an "aesthetic," and beyond, a "poetic" phenomenon, with its unique value-register and "poetic" mode of communicating, i.e., the *truth-happening* through which the phenomena of curriculum are revealed or *dis-closed* in new ways for the appropriation of educators and their students. This attention to language and the re-writing of the curriculum as it is related to transcending the hold and sway of *metaphysical instrumentalism* with its reified categories of classification, importantly, reflects directly on the conception and understanding of the living human subject. In standardized research there occurs the reification of the individual to general "types," and this is the disingenuous "reduction of concrete beings to an idea," which distorts human life (Pinar, 1984, 104). In the case of standardized education in the grip of *Social Efficiency Ideology*, the "idea becomes larger than the living species who conceive it. The idea becomes more real than the concrete," and as a simulacrum of sorts, "it becomes the source of explanation and, worse, action" (104). For Pinar, this new form of "writing" curriculum might draw on the "language" of Pollack's abstract expressionist paintings, which is an aesthetic language and it is intimated in Pinar's essay within the brief discussion of "non-representational" scholarship.

However, beyond these intriguing remarks, Pinar does not develop the formal characteristics that an "artistic" language suitable for "writing" curriculum anew might assume. However, it is Huebner (1966) who devotes a great deal of attention to elucidating the manner in which curriculum research and theorizing might benefit from an understanding of a "poetic" form of language, which is at once aesthetic and ethical in nature with the *potential* to offer a "release from the confinement of existing language, or more appropriately, transcendence of existing patterns of speech" (8) comprising the *technical-instrumental* curriculum, which is "filled with dangerous, non-recognized myths" (9). For an understanding of the potential *revelatory* and *emancipatory* force of such a language and the form that it might take in the "writing" and "speaking" of the educational phenomenon, Huebner (1999) offers a vista into a form of curriculum language that opens and establishes a

new context for the unfolding of education wherein the technical and serviceable functions of language are held in abeyance, and through a transcendent mode of attunement are replaced or supplanted by what Huebner calls the "poetic" potential of language to bring forth new worlds. This he understands as the *laying out of language as poetry*: "The 'laying out' of language as poetry and the happening of truth is quite different from the 'laying out' of language as having serviceability and accessibility. As preservation of a happening of truth, the 'laying out' takes on the aspects of artistry" (154). As shown, Pinar's (2015) notion of learning as a "complicated" curricular conversation "involves individualizing rather than normalizing, interpreting rather than objectifying, pluralizing rather than encompassing – in short, radically dialogic processes" (186). It is in and through the understanding of language and its power to gather meaning and to open and transform worlds in new and hitherto unforeseen ways that the *potential* arises to "free ourselves from our own potentially power-determined pre-understanding" of education (186), and I now move to address the analysis of an *emancipatory* understanding of poetic language in Huebner's phenomenology of curriculum.

2. Huebner and Curricular Language: The Poetic and Transcendent Language Opening the Space of Conversation

To discuss language in non-representational and poetic terms that set it apart from utility and instrumentalism is to approach language in a way that begins with the basic understanding, as Huebner (1966) claims, that language "may be considered a basic form of man's response-in-the-world" (21). However, the form of language that holds the power to re-configure and transform our world in an aesthetic, ethical, and poetic manner is far more than a "basic form" of communication between humans, and as Huebner stresses, to understand the power of "new speech, poetic nonritualistic or unconditioned speech," is to see that poetic language is part of the "creative unfolding of the world" and thus the "sanctity of the response-ability and speech must be recognized" (21). Poetic language "introduces newness and uniqueness into the world, and contributes to the unveiling of the unconditioned by the integrity of [the human's] personal, spontaneous responsiveness" (21). The responses to poetic language are creative responses to the address of language's essence, which demands from us an appropriate response "in kind" to its unique call. Poetic language does not capture and convey those things that are "known" to us in a scientific manner, rather it intimates and "illuminates the unknown *and* man's poetic character," and so lives beyond the tendency in education to force the responses of students into "preconceived, conditioned patterns," which inhibit the opening of new worlds in

creative ways, for "limiting response-ability to existing forms of responsiveness denies others of their possibility of evolving new ways of existing" (21). For Huebner (1999), the mode of transcendence afforded by non-representational, non-conditioned language is prefigured by our first responding to the "address" of language in and through our *ontological* predisposition to *hear* and *listen* for what is on the approach from out of the essence of language, from out of the depths of the "conversation" that we all are. In this reconceived and creative view, language, as found in Heidegger's (1979) philosophy, lives as an "aural" phenomenon in the first instance prior to its "oral" expression: "Man listens to that wherein he moves and has his being in order that language can speak through him, name that which is, and open up a world, which is to simultaneously project one's possibilities for Being" (Huebner, 1999, 148).[3]

Much like Pinar, Huebner (1999) views curriculum as a "conversation" that is set off from everyday forms of communication that imply "only the transfer of information from one to another" (78). Whereas poetic conversation calls for the responsible recipient to "act on this information, reshape it himself, and continue the dialogue at a new level," which indicates that the human being is never a finished being, "but is always in the process of 'becoming,' and hence is willing to find the new and unexpected, the awe and wonder in that which he repeatedly faces or which he partially knows" (78). Crucially, this includes a solicitous concern for and responsibility to the *other*, for "conversation demands an acceptance and acknowledgement of the reality and value of the other person; not only his equality, but his fraternity and solitude" (78). It is the listener that "establishes the climate for conversation," however, the "listener cannot listen to satisfy his own desires. By his attitude, his interest, he listens actively; he extends himself to the other, making himself available to the other" (79). Authentic conversation, for Huebner, which is concerned with the complexity, mystery, and wonder of life, is irreducible to the "socially validated and objective usages of conventional language, epitomized by mathematical and scientific language," which are not, according to Huebner, "vehicles for the formation and expression of the personal, the unique" (79). Conversation, as a form of the poetic, which I claim has roots in an *ontological* foundation, provides the opportunity for educators and their students to speak themselves and the world in new ways through language that names and poetizes "the experience of [their] world," which indicates that the *art of conversation* "leads to the formation of oneself and the other" (81). For it is through poetic language, by "speaking and by listening, man can become, and may help his fellow man do the same" (81). Education instantiates in an essential manner the "uniquely human endeavor of conversation," and in the authentic dialogue between teacher and pupil there occurs "the giving and receiving of the word at the frontiers

of each other's being," inspiring the participants to show themselves in ways through which "the unconditioned can be revealed in new forms of gesture" (20).

It is imperative to understand that the opening of a "world," such as the world of curriculum, happens only in and through the phenomenon of language. Naming is a *showing forth*, a *letting be seen* of that which is spoken *of*, temporarily brought to stand in the *word*. "Language," according to Huebner (1999), "is not only a relationship among people; it is also a relationship between the person and his world" (145). Additionally, language is irreducible to a mere "medium" for communication, for it is the "house of Being" where humans dwell, grow, and project their unique *potential-for-Being*. Huebner is keenly aware of language's power to configure and reconfigure the world, for the continued reconceptualization of curriculum is not only about changing the way we "think" *about* our educational practices, it is also about the way we "speak" *of* and *give voice* to those experiences, i.e., reconceptualization is grounded in the linguistic re-configuration of the world of curriculum and this occurs by opening, through the re-attuned vision given by language, new worlds of living and learning. Language structures and in great part determines our complicated curricular conversations, it is responsible for configuring the educational dwelling spaces inhabited by educators and students. For example, consider the technical language related to objectives, the organization of the learning experience, and the evaluation of said experience: Huebner (1966) claims that by "framing curricular tasks in this language, the curriculum worker is immediately locked into a language system which determines his questions as well as his answers" (12). This represents for Huebner (1999) the danger inherent to language, which manifests on two fronts: (1) there is the danger of corrupting the essence of language, which is "poetic" in nature, and (2) there is the danger of debasing educators and students by means of truncating or occluding their authentic *potential-for-Being* through the misunderstanding or misuse of language. Dwelling with others, educators are beholden to students' *potential-for-Being*, for education *is* a journey undertaken "with someone else," and this importantly demands that educators are listening and heeding the call of their students while attuned to new potential worlds to be opened, which are "hidden by our common language" (145).

This concern for the misuse of language is expressed by Huebner (1966) in terms of curriculum's "dangerous tyrannical myths," which are more accurately inauthentic *ways-of-Being* that remain concealed and are cryptically embedded in curriculum talk, giving structure to reified categories preserved in a *technical-instrumental* language with concomitant value-system(s), e.g., Huebner identifies both the myth of the "learner" and objective (teleological) "purpose" in curriculum-making, which are given meaning and value through

the *technical-instrumental* language system. It is also possible to identify other "tyrannical myths" arising from this limited and reductive view of language such as brain-based learning, student competencies, skill-sets and, in the extreme, standardized student "achievement" and teacher "effectiveness." Such hypostatized categories exact a seemingly inextricable stranglehold on curriculum workers because they "have become almost magic elements within curricular language," and as a result "the curricular worker is afraid to ignore them, let alone question them, for fear of the wrath of the gods" (10). In less dramatic terms, these co-called "myths" are for the most part adopted because the educator accepts a given form of language that has been passed down through the history of education. In doing so the educator forgets that language and the ideas it structures, the worlds it opens and founds, are temporary and malleable, emerging from out of the human experience and are not formed "by God with ultimate truth-value" (9). Thus, in the standardized arena, "curricular language must be continually questioned, its effectiveness challenged, its inconsistencies pointed out, its flaws exposed" (9), and its privileged status and supreme reign critically put into question.

Thus, there is a crucial critical element bound up with the understanding of language and educators must work to reveal and criticize (*Destrukture*) the structures that have been codified by language in curriculum that go unnoticed and hence remains unchallenged. This begins with an understanding of the forgotten view of language as a "form of the poetic," wherein the *potential* for what Huebner terms a "better language" is to be found, which ultimately facilitates the attunement or openness of the human being to the mystery of the world, the complexities of other humans, and the unpredictable *potential-laden* nature of learning in all of its multifarious and unique manifestations. Attunement is *transcendence*, and it occurs when the curriculum worker "stays open to the world which speaks to him" and responds with "the vision of the poet" (Huebner, 1966, 9). The occurrence of transcendence is inseparable from the "poetic" character of the human *as* linguistic being, which I explore below, and to "accept non-conditioned speech" in our conversations with students, is to at once "accept the emergence of the unformed and to-be-formed in the world" (22), i.e., embracing *potential* above *actuality*, and this becomes possible in and through the attunement of poetic language and the concomitant values-meanings emerging in moments when new worlds begin and spring forth. Huebner's understanding of the notion of "psychic distance," or the *ontological distantiation* associated with the view of "non-instrumental" activity, is an essential component of the experience of poetic and non-representational language. Since poetic language maintains a "psychical distance," that which is intimated through its expression does not "partake in the conditioned world; that is, it has no functional or instrumental significance, and consequently may partake of or be symbolic

of the unconditional" (18). In this mode of *truth-happening*, or the opening up of the re-configured world of curriculum, a new possibility of life is revealed as it is "captured and heightened," and this opening stands apart from the world of "production, consumption, and intent" (18). Thus, as poetic modes of attunement transform the ways in which the world shows up for our appropriation, the realization strikes us that the educational "tools and products of knowledge," the artifacts of education, "need not be subjugated to the demands of social or biological necessity" (25). As Huebner (1999) observes, this change in attunement is a change to the way language functions, the manner in which it speaks through us, and when no longer viewed and used as a "present-at-hand" instrument or tool for "efficient" communication, language slides into the *ontological* register of the "ready-to-hand." This facilitates the opening and establishing of a "clearing within which that which is can shine forth," and within this "clearing, in the open, which is held open by language as poetry, the student can project his being as potentiality" (153). For through "poetic occurrences in language," the "curtain of the everydayness is rent and that which is, is named and stands forth" (153–154), and does so, in and through the phenomenon of attunement-*truth-happening* in language, which transcends the *technical-instrumental* reification and re-presentation of the educator, student, and curriculum.

What I have described is for Huebner (1966) the *emancipatory* "release from the confinement of existing language, or more appropriately transcendence of existing patterns of speech" (26) available to curriculum theorists who are open to the *truth-happening* unique to poetic language. It is the case that "present curricular language is much too limited to come to grips with the problems, or rather the mysteries, of language and meaning of the classroom" (26). This indicates, as related to the potential of Pinar's analysis of abstract art, that revelatory and *emancipatory* language has the *potential* to open new worlds that are beyond the sway and control of *metaphysical instrumentalism*, but only when the educator is freed from the confining structures of *technical-instrumental* language. This mode of transcending the *technical-instrumental* attunement of education is far more than merely a change in an emotional or psychological state. Rather, it is a form of transcendence whereby the human comes to inhabit the world in a different way; by opening herself up to the transformative *potential* of non-representational, poetic language the educator has become different in and through a substantive transformation of her Being. The notion of attunement expressed here is akin to Heidegger's (1962; 1979) notion of "existential" moods (*Stimmungen-Befindlichkeit*), which are more primordial and deeper than conscious or psychological structures, and further, they prefigure even the emotions in that they color the way in which the entire world shows up for human appropriation. The attunement of language as a poetic and aesthetic

phenomenon, which is the emancipation from *technical-instrumental* modes of *dis-closing* the world of education, need not be conceived in nebulous or overly complicated terms. Instead, it is sufficient to conceive this form of transcendence in terms of a legitimate paradigm shift or radical change of perspective occurring through language when one *value-meaning* structure supplants another.

Recall Pinar's (2015) prescient words concerning the potential for a re-conceived and re-configured understanding of curriculum to inspire the move beyond the "potentially power-determined preunderstanding through an understanding of the other" (186) in relation to Huebner's phenomenology, and this happening of attunement, we must accept, emerges only from out of the dialogue or the "conversation" that we all already are as linguistic beings. In and through the discussion of language in Huebner, it is possible to understand the "complicated conversation" that is curriculum in terms of the "conversion" of both educators and student, which instantiates and embodies the *ontological* transformation happening to their Being as they open new and potentially unforeseen worlds in the curriculum through dialogue. Huebner (1990) links this notion of transcendence with "spirituality," however, as Huebner is careful to point out, the "spiritual is of this world, not of another world; of this life, not another life" (164). The transcendent potential is born of "openness and receptivity" to the transformative power of language, indicating that life can be lived differently, intimating "more than the present, more than current forms of life," which can be "informed, reformed, and transformed" (165). This form of attunement presupposes the "awareness that what we are and what we know can never completely contain what we might be or what we might know" (165). Within and through this change of attunement, educators "can be freed from the demands of utilitarianism" and the classroom can "become a place where purity and beauty of knowledge may be enjoyed for itself," and the "student can be freed to use knowledge and heighten his own significance" (165) in pursuit of his/her unique *potential-for-Being*. Through this conversation the "near infinite possibilities of knowledge and knowing can be hinted at, and the mysteries of the world can be pointed to without the need to reduce them to problems to be solved" (Huebner, 1966, 25).

Indeed, for Huebner (1999), the human is viewed primarily a linguistic being, and within language "he lives, grows, and projects his possibilities for being" (145). It is language that "grounds man in his history, in the past which is present," and to lose sight of this *ontological* understanding is to reduce language to the "commonplace, and thus to project our possibilities for being without thinking or thanking" (146). This view of the human as linguistic being denies that the human is the master of language, where language is slavishly subjugated to instrumental and utilitarian needs, for in an

important way language is never under the complete and unadulterated control of the human being. "Man does not simply live in language, language also lives in him and speaks through him" (148), and this is especially true with language conceived in a non-representational and poetic manner. The human does not "use" poetic language to express poetic thoughts and emotions. Instead the poetic nature of language is already speaking through the human being in its essence. This indicates that humans should be respectful of and beholden to language as a primordial gathering force giving form to their lives and worlds. This calls for the human to assume the role of language's guardian in that the human understands the fragile potential of language for misuse, as I have already described, and thus avoids falling victim to the dangers inherent in language as a primordial phenomenon. For Huebner, it is the educator who must assume the greatest responsibility for the guardianship of language, for educators "differ from others by the care with which [they] dwell in that language," so they must guard language, "if [they] are not to fall into the idle speech which covers the earth" (145).

To open and establish a new world, "language must be served," and it is the educator as the guardian and servant of language who imparts this trust to students and "he does so by the way in which he dwells with them in language" (145). Thus, educators must approach language with "care and respect, articulating [their] own understanding of the world, and conveying it openly with others" (149). However, we must be cautious when approaching this idea of "conveying" to others the nature of language, for it must not be thought of in terms of teaching the respect for language through transmission or didactic approaches. It also cannot be understood in terms of students imitating the educator's so-called *authentic stance in the midst of language*. Rather, this *conveying* of the primordial respect for and beholdenness to language as a poetic phenomenon occurs only through attunement, only by means of transcendence. When dwelling in language poetically, "man does not force language to do his bidding, nor to disclose his possibilities, rather he waitingly listens that he may name that which is and establish it as such" (148). Further, as stated above in relation to the dangers of language, educators must guard against the reductive conception of language and the concomitant curriculum practice of "using" language as a purely instrumental medium, for such a notion and practice is "tyrannical" and it prevents "the development of other forms of curricular thought" (1966, 11). The "scripted curriculum," so popular in standardized classrooms for teaching not only reading and the Language Arts, but also for instruction in history and mathematics, "with the goals of raising test scores and providing easy evaluation of teachers by administrators," is but one example where language is reduced to its rote utilitarian and mechanical function (Au, 2011, 36). The "scripted curriculum," in light of this reading, strips all those involved of their auton-

omy and burgeoning *ontological* potential for *becoming-other*. In standardized education language manifests *as* an "instrument," in terms of its reduction to the "present-at-hand" as opposed to its "ready-to-hand" nature (Brown & Au, 2015).

This is an instance where the misunderstanding and misuse of language, manifesting as *present-at-hand,* occludes the revelation of the curriculum as a dwelling space of creativity and imagination expressed through an authentic conversation grounded in the poetic unfolding of language through the conversation between the educator and her students. As opposed to *present-at-hand,* when language comes into its poetic essence as *ready-to-hand,* it grants and gives form to the human's "intentions and projects" as expressed in and through authentic conversation or dialogue, where language becomes a "sign, pointing out a totality of instruments and involvements" that comprise the world of educators and students, "shaping their projects and moods [modes of attunements], making demands or asking questions of them, guiding cooperative action" (Huebner, 1999, 151). Bringing this section on Huebner's view of poetic language, attunement, and conversation to a close, it is to Bonnett's phenomenology that I now turn, which offers a view to education as a complicated conversation in terms of the re-conceived and re-configured understanding of the teacher-pupil relationship as a "form of the poetic." Bonnett's contemporary scholarship further explores and deepens the rich and compelling *ontological, dialogic,* and *poetic* themes that we have thus far encountered in Pinar's understanding of curriculum as complicated conversation and Huebner's phenomenology of the "poetic" essence of language.

3. Bonnett's Phenomenological Ontology of Education as Conversation Embracing the Form of the Poetic and the Re-configured Teacher-Pupil Relationship

Bonnett's phenomenology of education, much like the curriculum theorizing of Pinar and Huebner, draws from the Continental tradition in philosophy, most particularly the phenomenology of early Heidegger and the meditative and poetic thought of his later philosophy of the "Turn" (*der Kehre*). However, Bonnett's (2002) scholarship is not focused on formal exegetical readings of Heidegger, rather Bonnett seeks to "exhibit and draw upon the underlying spirit of some aspects of [Heidegger's] thinking and to develop its potential for understanding certain central educational concerns" (230). Most specifically, Bonnett is concerned with a "non-technologized" form of learning that expresses itself in and through the re-conceived and re-configured teacher-pupil relationship, which for Bonnett instantiates the essence of education's unfolding as an "ever-evolving triadic interplay between teacher, learner, and that which calls to be learned" (238).[4] Much like the "writing"

of curriculum's conversation as an *aesthetic* and non-representational phenomenon in Pinar and the "speaking" of poetic language that gives structure to our curricular conversations in Huebner, Bonnett's notion of the authentic *triadic curricular conversation* is radically non-representational and non-instrumental in the sense that it "evolves according to its own norms and is destroyed if made subservient to any set of external norms that attempt to prespecify what it is to achieve and how it is to proceed" (239). Analyzing Bonnett's phenomenology, a strikingly similar view of education and the human being emerges that relates to the work of both Pinar and Huebner, e.g., developing a re-conceived view of the "phenomenological subject," viewing language as a transformative and poetic event, and understanding the potential power of attunement for changing not only our perspectives on education, but also our entire attitude, inspiring new and enlightened forms of comportment within the curriculum's unfolding as an authentic conversation highlighted by *receptivity, participation,* and *co-responsibility*.

Bonnett's phenomenology calls for our continued response to the following crucial concerns, which I pose as questions that have already been formulated by Pinar, Huebner, and the phenomenological tradition in curriculum studies, but are undoubtedly still relevant and pressing issues: What is the foundational view of the human being that underlies our educational methods and practices? What type of human being is education endorsing, and also, more importantly, inculcating, and beyond this, in an ominous manner, "producing"? The human being that the "world picture" inculcates, as it is *re*-presented in scholarship and research of a scientific and empirical nature, is either a mechanistic and technological (commercial) "product" or some form of "cognitive" processing unit, a brain *sans* body in a vat (or desk!) wired to electrodes apathetically awaiting stimulation from an external power source (Thomas, 2014; Dommett et al., 2014; Lewis, 2014; Jennings & Bearek, 2014).[5] Are these the only choices available to us? Are these limited views truly expressive of human autonomy and creative aesthetic development? These questions concerning the individual lead to the formulation of additional questions concerning the learning process and the subsequent influence the *technical-instrumental* view of education has on the teacher-pupil relationship. How much learning in contemporary education is "being carefully interpreted and evaluated in terms of the learners' sense of their own existence?" Does education work to initiate "individuals into the nature and truth of their own freedom and their own mortality? How is 'real' learning from others – and therefore in education – possible?" And, finally, "How should we conceive of knowledge and truth in education and how are they acquired" (231)?

Bonnett's (1996) initial rejoinder introduces the reader to what he terms, "New Era" values, which exercise a noticeable "effect (current and potential) on the culture of schools" (28), influencing the "ethos and language" of

education in the direction of values associated with the instrumental mode of the marketplace. The language of standardized education – and this might be related directly Pinar's view of *re*-presentational scholarship and Huebner's analysis of the inauthentic *present-at-hand* manifestation of language – is "used to characterise educational transactions as a process of 'delivery' to 'customers', and as needing to meet the demands of 'consumers'," which has "brought in its train a range of models and techniques of management taken to be effective in industry – notwithstanding problems identifying, say, who should count as 'customers' in the educational context" (28). In this way the system of education resembles "a commercial business enterprise" and has "at its heart the identification of pre-specific out comes (the product) which meet the requirements of those that education is to serve (the consumer)" (28–29). Whether "product" in this instance refers to the student or the capacities and capabilities (skill-sets) to be mastered by the student, "there is a clear predisposition to regard the *outcomes* of education as definable in advance of the *process* of education" (31), and this issue becomes critical when exploring the teacher-pupil relationship as a "form of the poetic." In the contemporary age of education in the US, it seems that both student and her "add-on" skill sets become the ends and products of education: in both cases the student is reduced to an "object" (rendered *present-at-hand*), which the selective and limiting experiences of education have "forged" in line with a pre-specified plan (Kenden, 2015). Thus, as opposed to an existence highlighted by autonomy and *potential*, the student is passive, impressionable, and re-producible in whatever form or shape desired by the reigning cultural, political, economic, or epistemic ideology.

In this limited view of education, the teacher-pupil relationship suffers, for here, "the clear upshot is that it becomes viewed essentially as a means for the attainment of certain pre-specified learning items and must be tailored so as to maximize effectiveness in this regard" (31). According to Bonnett, when learning is geared toward quantifiable and identifiable outcomes, learning becomes a "public" issue, meaning that the results of the so-called "educational process" are displayed for public consumption and critique, and this is a concern for both "the *image* of learning" as well as its actuality (51). In this instance, the teacher-pupil relationship becomes a "vehicle for producing those kinds of learning which are most easily displayed publicly" (51). Thus, the curriculum focuses on "those things most tangible to, and valued by, people who are external to it – and indeed may well be quite uninterested in it beyond what it demonstrably produces and with what degree of economy of resources" (31). For example, in the US this extraneous influence in education occurs through corporate interventions, where groups of professionals at a remove from the *praxis* of education, or the "lived world" (*Lebenswelt*) of the classroom, determine the course and direction of the curriculum. In

addition to students, educators also experience a lack of autonomy in the institutions that train them to teach, where the National Commission on Teacher's and America's Future (NCTAF) and the National Council of American Teacher Education (NCATE), driven by the *professionalization* agenda, demand that institutions of higher learning "teach" teachers how to "teach to the test," prior to ever entering the classroom, prior to the lived, or existential, experience of teaching (Zeichner 2013; 2003).

Bonnett (2002; 2013) observes that in this view of education "calculative" thought reigns supreme, which is a form of thought that "challenges forth" and "seeks to reckon everything up in terms of its own instrumental purposes – to master, to possess, to exploit all that it encounters," and "its ascent is the grand narrative of modernity" (2002, 233).[6] However, calculative thinking is not merely one out of many ways of thinking for *dis-closing* the world. Rather, in the modern age it is the privileged mode of thought providing structure to what Bonnett refers to as the *world picture* (borrowing from Heidegger's critique of technology), and "what is meant by 'world picture' is not merely a picture of the world, but a framework of instrumental relationships in terms of which *the world first appears* – in which things first have their being for us – and which determines *how* they appear in terms of their meaning and their value" (233–234). This for Bonnett (2013; 2015) is a form of *technical-instrumental* attunement ("metaphysics of mastery"), which is understood in terms of the phenomenon of "cultural framing." Framing (*en-framing*), much like deep moods (*Stimmungen*) from out of which we interpret, understand, and discourse about our world, determines "how things are described, hence, what is visible and what remains invisible; what is relevant and important and what is not; what is a problem and what is not; what counts as a valid way of proceeding in addressing a problem and what does not" (189).

Bonnett (2013) claims that the "deepest and most pervasive framings install us into a particular version of reality – that is to say they operate as metaphysics" (190). Bonnett is quite correct to view this in terms of a problem with the language we use to describe our intimate relationship with the world and other human beings, an issue already familiar to the reader from the analysis of language in Huebner's curriculum theorizing. Bonnett's notion of "cultural framing" has compelling implications that resonant with the critique and analyses of both Pinar and Huebner, for the world picture plays a crucial role in "determining," or at the very least, "influencing," the extra-curricular conversation that will eventually find its way into the classroom, for recall that authentic curricular conversation in both Pinar and Huebner demands the inclusion of extracurricular voices, namely, the *lived curricula* of *others*. Thus, in the picture Bonnett paints of the teacher-pupil relationship, or "conversation," in the age of New Era values, the students potential contribution to furthering the development of the conversation is

truncated because of the oppressive effect of *en-framing*, their language and ethos, the way they view themselves and are in turn viewed by others is always already pre-determined by calculative logic and the web of instrumental relationships that give structure to, and beyond, bring the world to presence in ways dictated by the original mode of attunement, which as stated, is calculative, technical, and instrumental in nature (world picture).

Just as in Pinar and Huebner, where the potential exists to break the hold of *re*-presentational language, Bonnett claims that the re-attunement of education is possible via the experience of poetic language and its concomitant re-configured "attitude" and perspective, or poetic mode of *dis-closure*, which facilitates transcendence beyond the *technical-instrumental* in curriculum. This is expressed as overcoming the *metaphysics of mastery* or the transvaluation of *technical-instrumental* values. To reiterate, transcendence is not merely changing or substituting of one experience for another, it is the revelatory substituting of one center of Being for another, and never, as stated earlier, simply a change in the way we think. It is inseparable from the transformative powers of moods (*Stimmungen*) and the key feature of transcendence, as expressed by Bonnett (2013), is that it is an experience that is "immediate rather than abstract and discursive," opening up a new world wherein "powers are in play whose significance far outruns any scientific explanations" (194). The cultural frame given structure by the *technical-instrumental* "world picture" can be overcome as we glide from one attunement to another, and this occurs as we enter realms that are poetically embodied and emplaced. Indeed, Bonnett (2015) states that in and through "'emplacement' the 'presencing' of each thing is ontologically related to/ affected by the presencing of others" (10), and this phenomenon for Bonnett is instantiated in the unfolding of the authentic conversation between teacher and pupil. "Emplacement" demands a perceptual or intuitional receptivity to the various addresses and the proper sets of responses that comprise the original conversations between human and human, human and world. This form of "conversation" demands a sense of "mutual anticipation" in that our in-dwelling with others places demands on us that can, if we are receptive, "determine incisively how and who we are when we are present there" (11). This anticipatory attitude is crucial for human transcendence, which, building on Pinar's and Huebner's understanding of it, might be understood in terms of an *ek-static* state or "event." This understanding emerges from the Greek term *ekstasis*, wherein the experience of the "transcendent" is one of "displacement," whereby the human being "stands outside" of itself and the present place, moment, or mode of attunement. Bonnett (2002) notes, however, that transcendence, although inseparable from "receptivity," is never a purely passive phenomenon, for personal *authenticity*, i.e., our re-configured *ontological* relationship to the world, others, and the phenomenon of educa-

tion, "is an *achievement*" in that, as I have stressed throughout, "we have to extricate ourselves from the frame of mind that constitutes the [metaphysics of mastery] and which proximally and for the most part conditions our perceptions" (232).

Considering the stultifying view of the human and its world disclosed through the *technical-instrumental* "world picture," what is Bonnett's (2010) reconceived and re-configured view of the "phenomenological" subject and its intimate relationship to the notion of authentic learning that transpires through the unfolding of the teacher-pupil relationship? To begin, it is a view that shares much in common with Pinar's "self-in-transition," a view that eschews the subject as *hypokeimenon,* and Huebner's "linguistic being," wherein the human is the center through which language emerges, speaks, and discloses, founds, and grounds new worlds. As shown, standardization for the most part establishes and sets goals, aims, and objectives at a remove from the lived-world of the student in the curriculum, and in doing so creates abstract, generalized (reified) inauthentic categories for what the *learning sciences* define as "education." Through this restrictive technical lens humans show up as *de-centered* and *de-nucleated*. Bonnett turns a critical eye toward a post-modern response in educational theory and research (e.g., the incorporation of Foucault and Levinas) that seeks to address this issue. He finds the proposed solution problematic: it fosters, in its efforts to introduce a new and reconceived notion of selfhood, the image of the human that is still lacking what is essential to authentic "phenomenological" selfhood, namely, autonomy and an internal sense of unity. Bonnett is critical of two particular manifestations of what I term "post-modern selfhood-subjectivity": (1) the socially-constructed subject as we find in Foucault and (2) the notion of selfhood that is contingent on and posterior to its relation to the *other*, as we find in the post-Husserlian phenomenology of Levinas.

Bonnett's notion of "phenomenological selfhood" avoids the pitfalls of the subjugated self indicated above, and his notion of selfhood, while anti-essential, is neither *de-nucleated* nor *de-centered*, it is neither dependent nor parasitic on the *other* for its authentic and unique sense of identity. The phenomenological self cuts a middle path between the classical notion of the indelible, eternal self and the radical, and perhaps fatalistic, post-modern notion of the "subject-*as*-creation." Bonnett's phenomenology shows that education hinges on the *ontological* conception of the human, as prior to and above any and all psychological or epistemological categories, and this *ontological* view of the human is carried over into the understanding of the teacher-pupil relationship as "form of the poetic" and is expressive of the following: the phenomenological self is autonomous, it is free to make choices, and when choosing a responsibility follows – it is shaped by its historical context but is never slavishly determined by it. It has an *originary*

apprehension of its unique existence that is in a process of ever-renewed transformation, which indicates that in addition to its role as a communal dweller, its Being-in-the-world "has the quality of 'mineness' and of privacy" (50). It is finite and its form of human transcendence (attunement), or self-overcoming, is grounded in existential finitude, thus it has a limited number of possibilities unique to its Being that it can enact. It is also "worthy of respect that cannot simply be trumped by the desires of another," which indicates that it lives for itself and is therefore not wholly contingent on *others* for its Being, but importantly, "a sense of responsibility pervades the self and its relationships" (50). We will see that this sense of responsibility is instantiated in the openness to the call of "poetic" language and the address of the world and others. This openness and receptivity assumes perhaps its most powerful and definitive form within the "poetic" triadic "conversation" between teacher and pupil, which includes the crucial concern for what is worthy of learning, and it is to the elucidation of this relationship that I now turn.

To approach the "poetic" in Bonnett, we must understand the debt owed Heidegger (1977) for the understanding of this phenomenon. To think "poetically" is to *think* meditatively and to speak poetically is to *bring forth* and *let-be-seen*. The poetic relates in one way to Heidegger's description of *physis*, which is usually translated as "nature." Heidegger, however, focuses on the mode of the infinitival associated with the Greek understanding of the term, which describes and names the "process of nature's unfolding," as the ever-renewed activity of *concealment* ↔ *unconealment*, in terms of a *poietic* mode of "bringing-forth." "Physis," according to Bonnett (2105), is *poiesis* "in the highest sense," as the unaided bringing-forth, "the arising of something out of itself," e.g., "the bursting blossom into bloom, in itself (*en heauton*)" (10). Following Heidegger, Bonnett claims that the artist should draw from this idea of unaided bringing-forth in order to inspire her creative activity, facilitating her working in sympathy with what calls to be revealed in the very essence of its own self-showing. For example, much like the ancient craftsperson, the authentic artist, as Bonnett (2002) observes, "brings out the figure slumbering in the wood, the luster inherent in the metal, the texture of the stone, by assuming a role of *co-responsibility* with the creative physical attributes and cultural powers that give the work meaning," and in this sense, as related to education, "things made in this way inherently express authentic dwelling and open up the human world" in a way where the "process and product are 'poetic' and the integrity is preserved" (236). It is possible to envision the "poetic educator" in terms similar to the artist/craftsperson, demonstrating the fundamental respect for the multifarious ways in which the world comes to presence, and this for Bonnett becomes an expression of a "non-technical form of education" (235), which is non-instrumental in

nature. For what is thought in a "meditative" manner and spoken of "poetically" resists reification and objectification, and this view is mirrored in both Pinar's "expressionistic" and non-instrumental writing of the curriculum and Huebner's non-ritualistic and non-technical poetizing of the processes of authentic education through language.

Based on this understanding of the *co-responsibility* of the artist to both her craft and product, it is possible to state that much like the artist's poetic revelation, Bonnett's (1995) notion of "poetic teaching" recognizes the "contingency and many-sidedness of things" along with sensing and responding to the "nonhuman powers involved in the arising of things," and this "invites us to view education, in its essence, as an ever-evolving triadic interplay between teacher, learner, and that which calls to be learned" (235). This includes an understanding of a poetic form of thinking, speaking, and *listening* for what is on the approach and emerging from the developing conversation between educator, student, and curriculum content. Authentic education requires the openness to respond appropriately to the address of both those with whom we learn as well as the receptivity to be challenged by those issues that are worthy of – in the *ontological* sense of "question-worthy" – our educational concern and understanding. How does Bonnett's view of education as a "form of the poetic," in terms of the conversation between teacher and pupil, resist the sway and influence of technical, market, and instrumental values as expressed through the cultural frame of *re*-presentational language? How does the curriculum facilitate and sustain "meditative" thought, which is poetic ("bringing-forth") over the *instrumental* form of "calculative" thought ("challenging forth")? How is it that the curriculum develops in a rich and fecund manner, where learning and the values that emerge are immanent in the triadic conversation between teacher, pupil, and content without the rigid imposition of "order" in the form of predetermined goals or external pre-specified content criteria?

As an initial rejoinder to these queries, Bonnett (1996) states that the essence of authentic education is located in the "genuine teacher-pupil relationship," which is nothing other than the "engagement of the personhood of the teacher with the personhood of the child; a genuine mutual responsiveness initiated by the teacher's desire to enable authentic learning" (35). Additionally, the triadic conversation Bonnett envisions is grounded in the view of phenomenological selfhood as introduced above. According to Bonnett (2002), education lives as the "initiation" into what it means to be human "in some founding sense," which is related to both a phenomenological and *ontological* understanding of selfhood where "poetic" thought and language become "intrinsic to education in the sense that [their] restoration becomes a central, 'internal' educational purpose – one which stands regardless of the demands and pressures which happen to be current in every day

society and which may wish to impose their purpose upon education" (239). Education, when conceived in terms of an *ontological* phenomenon, "becomes incoherent if we attempt to ignore persons as individual centers of consciousness, capable of relating to the world in ways that have personal meaning, for this is essential to human being against some sort of mechanized and depersonalized being" (34). Since Bonnett's (2002) notion of phenomenological selfhood decries the generalized, abstract, and reified categories of standardized research in education, because the authentic conversation between teacher and pupil evolves within the mutually inclusive context that opens space for teacher autonomy in relation to the pupil's *potential-for-Being*, it "implies a relationship that is radically non-instrumental" (239).

Curriculum grounded in the "metaphysics of mastery" (scientific instrumentalism) stifles our complicated curriculum conversations and occludes the unique and multifarious ways we express ourselves as dynamic and autonomous beings in and through the multi-faceted dialogues within which we are engaged. Education as a "form of the poetic" is instantiated in terms of *what is to be learned* as a form of "'empathetic challenging' in which, from out of her sensitivity to the concerns of the learner and the potential of the domain with which he is attempting to engage, the teacher can suggest, challenge, provoke in ways that both respect the integrity of the engagement and deepen and refine it" (241). However, since the poetic learning experience is not grounded in pre-specified and rigidly inflexible lesson plans, Bonnett (1996) is clear that the teacher must by attuned to the learning in such a way that *receptivity, participation,* and *responsibility* are highlighted in the "listening" in advance for the call and address of what is to be learned, and this means listening "to the call of things themselves in the region of the child" (36). In this poetic approach to teaching and learning, the engagement with students and curriculum content "is open to the call of what is there to be thought in its summons to individuals," and this occurs, as Bonnett suggests, in a way that is in "sympathy" and "harmony" with the educator's understanding, which is made possible through her attunement to "the child's engagement" (36). This indicates that the authentic teacher-pupil relationship, which is poetic in nature, "celebrates *receptivity* and *participation*: engagement that is open to the call of what is there to be thought in its summons to individuals, rather than a preoccupation with imposing pre-formed structure" or with "seeking detailed pre-specified learning outcomes" (35).

Immediately a concern arises, and this is also addressable to Pinar's and Huebner's phenomenological conception of education: if there are no external (and *teleological*) pre-scripted goals and proscribed principles structuring either the curriculum or the learning experience, by what norms and standards do educators instill order and assure rigor within the curriculum? Bonnett's (2002) rejoinder exposes the deeply ingrained and disingenuous

prejudice that this concern harbors regarding education and humans, for there are "deeply mechanistic assumptions that it makes about learning; namely, that rigor must be a product of some kind of enframing, of adherence to some set of prespecified rules, and that order cannot be conceived without (external) control" (239). In short, this criticism, an *informal fallacy* ("begging the question") that sits within the general cluster of *circular reasoning*, exposes its *technical-instrumental* roots. Thus, it is grounded in the attunement of the "metaphysics of mastery" or the "immersion" in the "self assertive/ calculative frame of mind," and so as opposed to bringing us closer to the understanding of authentic education actually works to alienate "us from the things themselves" (235). To the contrary, Bonnett argues that the *originary* order and rigor of "poetic thinking and practice is greater than any to be generated by following an externally imposed framework" (239). For as opposed to pre-determined and external goals determining the curriculum, which are removed from the "learning experience," the *co-responsive* enterprise of deepening the understanding through renewed dialogic activity facilitates the emergent sense of order and rigor when there is a response on the part of both teachers and students "to what calls for attention, a sensing of what is at issue, what is 'on the move,' as it were in an engagement with a living tradition of thought" (Bonnett, 1996, 35).

Education as a "form of the poetic" demands our "constant and close attention to the signs which are its way, to a sense that which is as yet withdrawn, not yet manifest. It requires genuine *listening* to that which calls to be thought in the evolving situation" (239). This indicates, as related to McNeill's (2008) understanding of *possibility* above *actuality* introduced earlier in the discussion of Pinar's complicated curriculum conversation and the "possibly being so," that curricular *order* is always *on-the-way* from out of the *as of yet* indeterminate *potential-for-Being* of those immersed in the evolving, ever-renewed process of learning. However, although the conversation between teachers and students grants and bestows an *originary* sense of "order to the enterprise," it is an "order that is fluid and creative in that it is open to whatever arises within its interplay," having no need for ultimate and pre-specified ends in view, for "whatever occurs in the interplay – is conditioned by that set of values and organizing principles of procedure which express a concern to achieve authentic understanding," and it is this *originary* sense of order that bounds, outlines, establishes, and organizes "the spirit of the interplay" (38). With this idea we return to the *ontological* ground of the human being in its world, where educational progress occurs through result of a "set of constantly evolving mutual relationships" (241). Indeed, what it is to be a "teacher and learner in the occurrent sense is a function of the different locations which actors may occupy at different times in this interplay as they respond freely and responsibly within it" (241). As

ontological sites of autonomy, *potential,* and human transcendence in conversation, there are no prespecifiable educational norms or standards that exist "independently of this relationship" that *is* the learning "which *is* its [own] outcome" (241).

To pursue this idea a bit farther, it is perhaps possible to concretize the notions of order, structure, and immanent standards emerging from the authentic poetic engagement of teachers and students in the context of learning: in essence, Bonnett (2010) claims that "phenomenological" goals and aims," or *attuned perspectives on learning* (Magrini, 2015a), begin as tentative and meditative thoughts – a "bringing forth" for the purpose of education – and then, much like the unfolding of the authentic human's life, they evolve and develop in and through the unfolding of the ever-changing educational process. Here we would do well to recall Pinar's analysis of abstract art and the emergence of *harmony* and *order* from out of Pollack's "lived" activity of painting, where the composition, which is nothing other than the aesthetic sense of *harmony* and *order,* develops and takes shape through the process of painting, which simultaneously gives form in *praxis* to the composition by means of addressing the "poetic" call emerging from the evolving and renewed conversation between artist, paint, and canvas. Thus, as related to Bonnett's phenomenology of education, as opposed to goals and aims being determined in advance of the pedagogic and educative experience in the curriculum, goals and aims might be thought of as immanent in the context of the unfolding of the learning process. The content of the authentic curriculum is always be mindful of the students' unique *potential-for-Being* as a unique individual, in order to "develop in pupils a sense of the personal significance of what is learnt – a feeling of how they should affect their outlook and their sense of their own existence" (51). Poetic thinking, language, and the unique attunement that accompanies their disclosure of open sites in the curriculum, generate – in that they are *generative* – their "own intimately context-relative interpretations of criteria which express a receptive-responsive openness to things" and "constitute a whole-hearted engagement" (Bonnett, 2002, 239).

In this view, goals and aims, or *attuned perspectives on learning,* "reflect the fluid interplay of different dimensions of understanding that are possible in this participation, both in terms of what is achieved and what is held out as an open potentiality for the future" (Bonnett, 1996, 36). According to Bonnett, "This is the only path for the development of authentic understanding, i.e., understanding that is true to its sources" (36). The authentic relationship between educators and students nurtures an atmosphere where "judgments of progress must take as their standard not some set of pre-specified content criteria, but the quality of the engagement itself and the standards that are immanent in it which express its integrity, vitality, perceptiveness, aptness,

etc" (36). In essence, "no-one initiates" the poetic conversation that *is* the curriculum, neither is anyone wholly responsible for it nor in complete control of its unfolding, this is because it is a matter of *co-responsibility*. "The 'task' is the product of a set of constantly evolving mutual relationships'" (36), wherein through the expression of the interrelated lines of inquiry and conversation, the growth and development of the participants occurs, i.e., their understanding is deepened. The context of conversation also develops, which is inseparable from the learning experience, as it is sheltered, nurtured, and facilitated by the "provisional (i.e., constantly evolving) intersection of the relationships/values that are in play and together constitute the enterprise of authentic teaching and learning" (37). For example, in the authentic teacher-pupil relationship the *potential* is immanent for individuals to assume a multiplicity of roles, to take on manifold responsibilities, because they are "conceived as occupying different locations at different times or simultaneously – teachers become learners, etc." (37).[7]

Bringing this section to a close, I return to the difference introduced earlier between calculative thought and meditative thought and their respective modes of world *dis-closure*. Calculative thought and the *synthetic* propositional language of its expression objectify and *re*-present what is brought to stand in the instrumental quest, as Bonnett points out, to master the things of its concerns, i.e., to overcome the problems it seeks to solve. Conversely, meditative thought, as an expression of the "poetic," both thinks and gestures in a non-representational manner, and here there is a view to language as non-instrumental, with its inherent poetic power intimating a return to a question-worthy state of world dwelling where original (*ontological*) questions open the multifarious possibilities of Being. However, when dealing with such concerns as *phenomenological selfhood, temporality, historicality, mortality,* and the *primal mysteries* as related to education, there can be no easy answers provided wherein certainty obtains. Thus, neither students nor teachers can ever really be sure of their *ground*, "because it cannot be specified in advance, nor can any authority or official source do so without disrupting the [poetic] educational process" (240). Thus, there is the continual establishment and re-establishment of *ground* within what is essentially a "groundless" (*abysmal*) endeavor. In this view of education as "form of the poetic" there is freedom, but there is also imminent danger as we saw in both Pinar's view of curriculum as an educational encounter with the recalcitrant aspects of existence and Huebner's analysis of the danger inherent to the poetic essence of language. Bonnett (1996) recognizes that within the authentic teacher-pupil relationship, the "significant sense of personal risk" is ever-present, and "on occasion elements of one's own identity may be felt to be at stake" (36). Due to the potential "loss of self," an "underlying attitude of mind" is required, which attunes the educator's "preparedness to engage poetically," and this

will "often represent the achievement of much patience and hard work" (36). Bonnett (2002) claims that as a journey into the unknown, education as "form of the poetic," as a complicated *ontological* conversation between teacher, pupil, and what is worthy of concern and solicitous care, is "deeply rooted" and continually "being drawn forward by the pull of that which is somehow incipient in our awareness but has yet to reveal itself" (242). It is possible to state that "the fundamental achievement of education," in terms of an ever-evolving complicated and "poetic" conversation, "lies in learners coming to feel for themselves the call of what is there to be thought in this unthought: the harmonies, the conflicts, and the mysteries" (242).

Concluding Reflections: Lingering Resonations and the Phenomenological Approach to Curriculum

I believe it is necessary to open a dialogue, or "complicated conversation," across the disciplines of curriculum theorizing and the philosophy of education in order to bridge past and present scholarship, revealing the continued potential of the this type of research for re-conceptualizing and re-configuring a view to the human being, education/curriculum, and the teacher-pupil relationship in the age of standardization in education. It is clear from my reading that the point of curriculum theorizing is not to produce theories with predictable outcomes, programmatic curriculum schemas, or objective, a-historical generalizations for rigid, a-temporal classification. In addition, there is much more to the human being than can be captured in theories of a scientific or social scientific nature, in behavioral, cognitive, or neurological terms. It has been my goal, to open a form of curriculum conversation that is *emancipatory* in and through its intimate connection with the phenomenological sense of the "poetic." This requires the formulation of new questions and the re-formulation of perennial questions concerning the essence of education and curriculum. However, such questions posed in a phenomenological and at once *ontological* terms are foreign to curriculum workers focused exclusively on quantitative research. For this requires the "re-focusing" of their concerns, and beyond, the re-attunement of their Being-in-the-world. This is because inquiry and research grounded in the type of *ontological* questions I have posed in relation to curriculum theorizing and the philosophy of education are, according to Pinar (1995), "inhibited by denying the language in which they can be meaningfully articulated" (709), and this occurs as I have shown when the human is reduced in a disingenuous manner to one or another manifestations that occlude its *ontological potential* to live and learn in ways that defy easy and rote categorization.

This move from *epistemology* to *ontology*, or from the *calculative* (instrumental) to the *meditative* (poetic), in curriculum, might be approached through

the language of phenomenology, occurring through the poetic process of "naming" anew, bringing to language, bringing to *presence,* the forgotten *ontological* aspects of our Being that have been occluded by the *technical-instrumental* language and attunement of contemporary standardized education. It would require a linguistic "turn" in research to the poetic language of Huebner (1966), which would open the space for phenomenology as a form of legitimate conceptual, theoretical, and philosophical research. Phenomenological inquiry, as evidenced throughout, harbors the potential release from the ensnarement within the existing "technical" web of curriculum and educational language, for it is "specifically poetry," and the mode of the poetic that empowers and enables the human "to break out of his verbal prison and to achieve a 'victory over language'" as it now holds him captive (Huebner, 8). Phenomenology as a practice concerned with poetic revelation is irreducible to rote introspection, or worse, metaphysical solipsism. Rather, it is a legitimate way in which inquire into the manifold ways in which we inhabit ("embody") our existence that are irreducible to the realm of the "cognitive" and the domain of apodictic truth, because as Huebner argues, as poetic and linguistic beings, we reside and dwell most intimately in the place or *space* of the "affective," which is a dwelling opened and sustained by the original poetic power of language. It is precisely this affective domain of *knowing-and-living* that is maligned or ignored in education's push for the tangible, the explicit, and the quantitative aspects of learning that can be gauged, measured, and categorized. Phenomenology, according to Huebner (1999), "by emphasizing the significance of man's relationship to man and the primacy of the communion, conversation, dialogue, or participation with his fellow man, makes it possible for man to value more strongly these personal encounters and provides a language to legitimize conversational acts" (90).

My reading demonstrates how an authentic education, when conceived in terms of the *phenomenological selfhood* of both teachers and students, is a dynamic and ever-renewed process where what is learned is evaluated and filtered back into the immanent goals and aims of learning, which as I have stated, are fluid, tentative, and malleable. The curriculum instantiates the unfolding of the student's *Being-in-the-world,* and thus avoids the need for categorical objectives for determining the path of education in advance of the actual learning, like so many models for curriculum do. Ultimately, my hope is that this critical exegesis might inspire educators to consider alternative ways for conceptualizing learning and discoursing about it in terms of a holistic, multi-faceted and irreducible phenomenon that outstrips rote instrumentalism, transcending and the notion of the classroom as an experimental environment within which the student is manipulated to perform certain behaviors, or think in certain ways, which are assessed in terms of

rising to or demonstrating the state of "learning." Pinar (2013) observes that contemporary curriculum theorists need to "formulate new concepts" to inspire change and transform approaches to curriculum and education, and for this "conceptual research is necessary" (56). Perhaps, by seriously adopting a reinvigorated form of phenomenological-*ontological* inquiry, as instantiated in Bonnett's contemporary phenomenology of education and elucidated in this analysis, the formulation of new concepts in poetic language might inspire our *living* and *learning* in new ways and *curriculum as contemporary phenomenological text* becomes a unique and welcome possibility.

NOTES

1. It is far beyond the scope of these thoughts to provide the reader with an in depth analysis and exploration of the history of "aesthetic" research in qualitative curriculum studies. However, it must be noted that Pinar (1991) presents four manifestations of such research in terms of reading curriculum/education as *aesthetic text*: (1) the relation of arts to the curriculum; (2) aesthetics as a framework for rethinking education in contrast to the conceptual frameworks of the social sciences; (3) conceptions of art found in artist's biographies that relate to the conception of education as an *aesthetic phenomenon*; and (4) art as a conceptual tool for teaching, interpreting, researching, and evaluating learning (244). I also note for the reader that the pioneering philosophies of both Maxine Greene (1995) and Elliot Eisner (1998) have contributed invaluably to the infusion of the arts in curriculum and educational studies/research.

2. In the extreme, as the condition exists today, qualitative forms of research are for the most part marginalized, thus educators at all levels are experiencing the *empirical science-humanities divide* in research, policy, and the classroom. This mode of "technical-and-scientific" world-disclosure is an inauthentic and dangerous form of *re*-presenting the "world-*as*-picture" for the repeated consumption of our students, which is grounded in the view of "science-*as*-research" and philosophy as a new form of metaphysics, in terms of *metaphysical instrumentalism.* It is possible to link "empirical" or "*re*-presentational" research with a view to curriculum and education that is technical-scientific in nature, which manifests on two fronts – *traditionalist* and *concept empiricist* research. *Traditionalists* tend to be concerned with researching and analyzing the "set of perceived realities of classrooms and school settings generally" (Pinar, 1995, 169–170). Traditionalist curriculum making advances the early emergence of "scientism" and its implementation in business and factories to improve production. "This model is characterized by its ameliorative orientation, ahistorical posture, and an allegiance to behaviorism…and 'technological rationality'" (169). Concept empiricism is highlighted by the belief that "education is not a discipline in itself but an area to be studied by the disciplines," and so philosophers, psychologists, and sociologists research and make claims regarding "education-related matters" (171). This type of research can be classified as "employing conceptual and empirical" methods, in the sense that "social scientists typically employ them" – i.e.,

"developing a hypothesis to be tested, and testing them in methodological ways characteristic of mainstream social science" (171).

3. This talk of the primal auality of language over orality is taken over by Huebner from Heidegger's analysis of language. In the 1968 essay, "Language and Teaching: Reflections on Teaching in Light of Heidegger's Writings About Language" Huebner presents what reads as a consistent and coherent treatment of language as it is found in Heidegger's philosophy. This gives the disingenuous impression that the works of Heidegger that Huebner cites present a consistent interpretation of what might be called a "Heideggerian view of language." It must be noted that the writings that Huebner incorporates range from 1927 through the 1950s, and there is no acknowledgement of the radical changes that Heidegger's view of language undergoes during that time period, i.e., as Heidegger moves from the *fundamental ontology* of *Being and Time* through the later works (of the "Turn – *Kehre*) on art, poetry, and meditative thinking his view of language changes – primarily because the "ontological distinction" falls from his philosophy. It is far beyond this essay to address the issue of the "Turn" and language in Heidegger, but if the reader wishes to pursue the topic, see Powell, J. (2013), *Heidegger and Language*. Bloomington, IN: Indiana University Press.

4. In addition to Bonnett's phenomenological analyses of the authentic teacher-pupil relationship, his research as of late has moved in the direction of eco-pedagogy, where he is concerned with the notions of the de-centered phenomenological subject viewed through the lens of "post-humanism," which foregrounds the potential re-awakening to an ontological awareness of nature and the transcendent. This includes the important analysis of Bonnett's notion of nature as a "self arising" and value-laden phenomenon, which instantiates an integrity and nobility that instill in us a sense of awe, respect, and beholden-ness, which grounds and guides our response to nature's *originary* overarching address, communicated in the reticence of its sway and unfolding, within which we are integral participants. For a detailed reading of both Bonnett's and Jardine's eco-phenomenology, see my chapter three, "The Phenomenology of Nature and the *Ēthos* (ηθος) of Earthly Dwelling in Jardine and Bonnett: Ecopedagogy, Transcendence, and the Post-Humanist Integrated Curriculum-of-life (*Curriculum Vitae*)," in *New Directions in Curriculum as Phenomenological Text: Continental Philosophy and Ontological Inquiry* (2015).

5. Ivan Snook (2012) is highly critical of this burgeoning trend in contemporary quantitative-empirical research linking neuroscience and education, stating that neuroscience in education can be understood in at least three critical ways: (1) Its findings are true and relevant for education, but are tautological in nature or commonsensical, e.g., studies that indicate eating a nutritious breakfast improves the student's cognitive efficiency; (2) Its findings may be true, but have no bearing on education; and (3) Those expressing a faith in neuroscience without being able to provide substantial evidence to back their aforementioned faith in the discipline (446). In addition, Snook is concerned that the reduction of the subject to a "brain" holds the potential to devolve into a crass view to "materialism" within education and its research. This, according to Snook, is a reductive view because it leaves little room for consideration of social and cultural influences on the development of the student. Clark (2015) responds to this pressing concern in his research by stating that

the incorporation of neurology need not exclude the social aspects of human development. Clark's philosophy of education, an empirical theory of neurology, also argues against the materialistic view of the human and attempts to make room for social class and family within his research. It will be noted that Pinar and Huebner, since the mid-1960s, and Bonnett, since at least the late-1970s, already were expressing these types of concerns regarding empirical research and its incorporation in education. This is yet another powerful testimony to the fact that their philosophies on education and curriculum still have relevant and important contributions to make to the contemporary debates in education.

6. In contemporary education research it is possible to recognize, as related to Bonnett's critique, the privileging of cognitive knowledge as the primary mode of world *dis-closure* in K-12 curriculum (Ellis, Denton, & Bond, 2015). In addition, we find the notion of curriculum grounded in quantitative research, wherein the student is viewed as a neurological-cognitive-processing unit in need of various skills and their sharpening in order to "produce" an efficient critical thinker instantiated in the *Three-Year Integrated Competency-Based Model* (ICBM) for higher education (Bradley, Seidman, & Painchaud, 2013). All the ways that the authors suggest are advantageous for authentic "learning" resemble a combination of behavioral and neurological models for storage, process, and effective retrieval. The research underlying the ICBM adopts an original "projected" view of learning in terms of the "transfer" of information, where students are defined in terms of demonstrating a host of pre-determined behavioral-cognitive skill-sets and competencies. Importantly, the establishment of *nomological* principles for education through research is always accomplished with reference to the ends of education that are established in advance of the curriculum.

7. Jay McTiche and David Reese, from 2013 to 2015, have championed a curriculum design, implementation, and evaluation system called "Understanding by Design and Defined STEM." It is a curriculum structured around "project-based" learning organized through Understanding by Design (UbD) to "produce" efficient and knowledgeable students. Although the plan claims to be revolutionary and employs what appears to be scientifically grounded ideas, such as the unique method of "reverse engineering" for curriculum design, UbD is nothing other than an ends-driven curriculum plan that draws on the similar if not identical philosophy of curriculum engineering found in both Tyler's rationale and Taylor's scientific principles for efficient industrial production. "The deliberate use of backward design for planning curriculum units and courses results in more clearly defined goals, more appropriate assessments, more tightly aligned lessons, and more purposeful teaching" (4). For example, in the STEM literacy plan, there is an undeniable "vocationalism" present to the Language Arts curriculum, which is structured primarily around the reading and writing of non-fiction and informative material and the critical assessment thereof. This is because "most reading in college and the workforce is informational in nature," thus students will not only be college ready they will also possess "career readiness" (8). Ultimately, as against the view of the teacher as facilitator who demonstrates *receptivity, openness, solicitous care,* and an *attuned attitude* and *responsibility* for what is on the approach from our of the indeterminate future of the learning experience as it unfolds found in Pinar, Huebner, and Bonnett, the UbD

educator is trained to "'think like an assessor' before designing specific lessons plans and units" and by considering the "needed assessment evidence to document and validate targeted learning outcomes, teaching is invariably sharpened and focused" (5) It is interesting to note that the much of the research behind the UbD is traceable to the work of John Bransford et al, who in 2000 published the canonical work on empirical curriculum making and brain-based learning, *How people learn: Brain, mind, experience, and school.* Here we encounter an uneasy and somewhat frightening admixture of *Social Efficiency,* cognitive psychology, neurology, and ends-means logic in education and curriculum design, the precise movements and trends in education and its research that our three phenomenologists have been critical of for many years.

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AN ANALYSIS OF PHONOLOGY AND LINGUISTIC INTERFACES AS A NEW CASE FOR A BIOPSYCHOLOGICAL FOUNDATION FOR LINGUISTICS

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ABSTRACT. This paper explores the biology of natural languages at their phonological and formal levels. Phonology is both grounded in speech biology yet, at the same time, an abstraction from it. The building blocks and principles of phonology are abstracted from speech biology by the medium of psychological representation. Phonology is thus logically dependent on both human biology and psychology. The paper also explores the interfaces among phonology, morphology and syntax in natural languages. It discusses the applicability of the same scientific frameworks to both phonological and formal levels of linguistic representation. The technical and theoretical relations among formal and phonological grammatical components justify the hypothesis of a biopsychological foundation for all of core theoretical linguistics.

Keywords: philosophy; linguistics; philosophy of linguistics; phonetics; phonology; linguistic interfaces

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1. The Biopsychology of Phonetics and Phonology

This section addresses phonetics, phonology, and the relation between the two. It demonstrates that phonological units and phonological grammars are both essentially rooted in human biopsychology.

Philosophers typically think of words as pairings of sounds with meanings. This can make words seem apsychological. But the correlate of a meaning is not really a sound, but rather something that only a biopsychological perspec-

tive can describe. There are two biopsychological projects, neither of which is exactly about sounds. There is the articulation of sound patterns in speech and the perception of sound patterns in speech. Some philosophers of language have emphasized the importance of the actual human brain for philosophy of language. In this paper, I want to emphasize the essential importance of things like the exceptional agilities of our tongue, vocal chords, etc.

Phonetics and Speech Science

A complete understanding of human language requires an understanding of the biology of articulation and perception. To understand why speech sounds develop as they do and why human systems of speech sounds have the particular structures that they have, we must understand the science of speech (Leiberman and Blumstein, 2).

In the physiology of speech production, some anatomical elements have a specific functional role and some do not. Articulatory Phonetics seeks to understand the elements that play the specific, speech-related functional roles. Traditionally, the physiology of speech production is categorized into three anatomical subcomponents: the subglottal component, the larynx and the supralaryngeal vocal tract. In turn, the subglottal component of speech anatomy consists of the lungs and the respiratory muscles that control them. The larynx is a muscle that moves the vocal chords together or apart so as to close or open the airway from the lungs up towards the supralarngeal area. Finally, the supralarngeal vocal tract consists of further airways in the nose, the mouth and the connection from the throat to the mouth called the "pharynx." The speech-specific actions of articulatory phonetics are called "gestures" (Leiberman and Blumstein, 3–4).

The functionally relevant components of speech anatomy are "matched" with functionally relevant components of perceptual physiology in a way that composes a complete functional system. This is to say that the sounds we have gestures to produce are the same sounds we have a perceptual apparatus to interpret. Further, it is by the same mentally represented categories that both articulation and perception of human speech are made possible. The nature of these categories will be illuminated gradually over the course of this section (Leiberman and Blumstein, 14).

In phonetics and speech science we are interested in anatomical gestures, perceptions and acoustic patterns that are related to language. But this language-specificity is relative to our interests, whereas in phonology, in theory, the natural categories are inherently language-specific due to their role in the language faculty. In cases where we are taking in air for a non-linguistic reason, the relevant anatomical laws are the same, whereas phonol-

ogical laws are linguistic by their very nature; they have no non-linguistic instances.

The larynx in the throat is set to openings of particular size, varying from a completely closed to a minimally obstructed airway. It holds certain openings relative to the production of certain speech sounds. For example, it holds wider during the production of a [h] than during a [f]. The principle function of the larynx relative to speech is to generate a series of air puffs by vibrating the throat. In articulatory terms this is called "phonation," in phonological terms the matched representation is called "voicing" (Leiberman and Blumstein, 97–8).

While phonation and voicing have an equivalent physiological basis, logically, they can be understood as distinct. Phonation is an anatomical gesture, whereas voicing is a phonological feature. Features, unlike gestures, are inherently linguistic by theoretical definition. We can say that all voicing is phonation but not that all phonation is voicing, since non-linguistic phonation is not voicing, but all voicing is inherently linguistic. These definitions are helpful for explanatory purposes. Analogous remarks apply to the gestures of the supralaryngeal vocal tract where the majority of the phonological categories for production and perception of speech are biologically grounded (Leiberman and Blumstein, 115).

Depending on speaker and context, non-identical patterns of articulation may be used to produce equivalent speech sounds, even within the same dialect. Evidence appears to point towards "acoustic invariance" as opposed to "motor invariance" as the fundamental language-specific phonetic categories.[1] As Leiberman and Blumstein write, "speech production appears to involve the speaker's planning his articulatory maneuvers to achieve supralaryngeal vocal tract shapes that yield particular acoustic goals" (Leiberman and Blumstein, 128–9).

If the acoustic invariance account is correct, the principles by which phonological features relate to articulation must be somewhat abstract and defined in relation to articulatory physiology in an irreducibly functional manner related to our perceptual systems. However, this does not change the fact that phonological categories are grounded, ultimately, in physiology. The functional abstractness of the physiological grounding of phonological features demonstrates why they require articulatory gestures to exist, but cannot be strictly identical to them. It also demonstrates, as will be discussed later on in the section, the role psychological representation must play in the categorization of gesture classes into features. As Leiberman and Blumstein continue, "speakers have some sort of mental representation[2] of the supralaryngeal vocal tract shape that they normally use to produce a particular speech sound in a given phonetic context" (Leiberman and Blumstein, 129).

An analogous theory could offer a functional psychological grounding of sign language phonological features in relation to light patterns, rather than acoustic ones. Given the possibility of a functional analogy between the groundings of spoken and signed phonological features, even on the acoustic invariance perspective, the metaphysical grounding of features remains articulatory. In other words, sound is not directly essential to features, whereas articulation is. Sound, rather, is indirectly essential in that it is an essential consequence of certain articulations. The sense in which the articulatory grounding of features is functional does not mean they can be abstracted from a biologically constrained class of implantation bases. Features are very much rooted in the general nature of human physiology. If the human production system had been radically different, human languages would have been too. Sign-language phonology will be discussed further later in this chapter.

Psychological representation provides a physiologically grounded mapping between articulation and perception. An understanding of this mapping demonstrates that even acoustic invariance relative to features is actually a partially illusory abstraction. It is the categorical nature of perception that allows continuously varying gesture sets to be categorized relative to features. Phonetic communication between speakers-listeners essentially works by a speaker encoding phonological feature segments into acoustic patterns and a listener decoding those patterns back into phonological representations. This intricate phonological encoding and decoding system creates the illusion of invariance between gestures and acoustic patterns that are in fact distinct. As an example, the [d] sound in [di] (‘dee’) is acoustically distinct from the [d] sound in [du] (‘doo’), but “human listeners ‘hear’ an identical initial [d] segment in both of these signals because they, in effect, ‘decode’ the acoustic pattern using prior ‘knowledge’ of the articulatory gestures and anatomical apparatus that is involved in the production” (Leiberman and Blumstein, 147).

The set of categories used for instructions that function to produce an acoustic pattern is the same set as that used to perceive it. This category set is a phonological feature. The specific biological implementations of the human articulatory and perceptual systems are thus fundamental to the very nature of phonological features. This fundamental grounding is organized through a mapping between articulation and perception that is connected via psychological representation. As I will eventually flesh out thoroughly, this is why the grounding of phonology must be not only inherently biological, but also inherently psychological as well.

It is the same speech sounds that the human vocal tract is adapted to produce that human neural property detectors are adapted to perceive. As Leiberman and Blumstein write, “there seems to be a ‘match’ between the sounds that humans can make and the sounds that they are specially adapted

to readily perceive (Lieberman, 1970, 1973, 1975, 1984; Stevens, 1972b)" suggesting that "physiological constraints on both the human vocal tract and the auditory system provide a limiting condition on the particular shape of language" (149, 185).

The human auditory system has biological constraints analogous to those of the human articulatory system. From birth, humans are equipped to interpret speech-sound continua via strict on-or-off categories. The biological contingencies of the human articulatory system together with the categorical restraints of the human auditory system provide the fundamental explanation for why there is a specific, limited range of possible basic human speech sounds (Leiberman and Blumstein, 186–7).

As an example to demonstrate the categorical nature of human speech perception, consider the sounds [b] and [p]. In the articulation of these two sounds, the classes of gestures functioning in the supralaryngeal vocal tract are equivalent in equivalent contexts, e.g. in 'bat' and 'pat'. The functional articulatory difference between these two sounds consists in the *degree* of opening of the laryngeal muscles in the throat. In the [b] in 'bat' the larynx begins in a relatively closed, phonating position. In the [p] in 'pat' the larynx begins relatively open and closes as the lips do, phonation beginning on the vowel sound (Leiberman and Blumstein, 196).

Of course, the articulatory system itself is anatomically continuous. The difference between 'bat' and 'pat' is perceived relative to the continuum of possible phonation-delay periods from the starting of articulation. As it happens, articulations with a delay before phonation shorter than 25 milliseconds are perceived as [b] while otherwise equivalent articulations with a delay before phonation longer than 25 milliseconds are perceived as [p]. Yet phonation delays in the same context shorter or longer than 30 milliseconds or 35 milliseconds make no perceptual difference. Clearly, the 25 milliseconds distinction has no logical priority over phonation delay distinctions at other duration points. We happen to make a discrimination at the particular point in the potential duration continuum that we make, this is a fact about our biology, not of logic. It is the specific, biological nature of the human auditory apparatus that structures the basic sounds of human speech (Leiberman and Blumstein, 197).

Equivalent millisecond variation ranges are not perceived. Which ones are perceived is simply a contingency of the human perceptual system. As Leiberman and Blumstein write, "voicing thus appears to be inherently structured in terms of this perceptual constraint as well as the articulatory constraints of the speech-producing apparatus" and, of course, this applies to other phonological features as well (Leiberman and Blumstein, 197).

We now have a general understanding of how the science of speech production and perception relates to the grounding of the basic sound units

of language. So far we have been talking about the implementation of the sound systems of language at a very low level of abstraction. We will now begin to speak about these systems at a higher level of abstraction, specifically, at their inherently linguistic level. At their inherently linguistic level, speech sounds are represented as phonemes. The nature of phonemes is to be understood through an understanding of the underlying nature of features.

Features

[set], [bet], [let], [net] each correspond to different words in English because /s/, /b/, /l/ and /n/ are different phonemes in English (Durand, 7–8). It is in the sense that there is no linguistic change without a phoneme change that the phoneme is the basic linguistic unit. But this is not to say that a phoneme cannot be analyzed. As Druand writes:

> A typical French [ɛ] (as in [mɛr] 'sea') involves at the same time an egressive airstream, vibrations of the vocal folds, a raised velum shutting off the nasal cavity, a specific tongue position on anterior-posterior axis (i.e. front[3]) and the closed-open axis (i.e. mid-low) and a lip gesture (spread lips). But all these components are independent of one another. The lips could have been rounded resulting instead in an [œ] sound as in 'moeurs' [mœr(s)] 'habits', the tongue could have been retracted (cf 'mort' [mɔr] 'death'), the velum could have been lowered giving the sound a nasal quality (cf 'main' [mɛ̃]) 'hand') and so on (15).

In other words, a phoneme is not simply a sound. It is a set of instructions for articulation matched with a mapped set of instruction for perception based on the same fundamental categories. The different phonologically significant aspects of articulation determine what are called phonological features. According to linguistic theory, a phoneme is a set of features. In so far as a phoneme is a set of features, it cannot be something other than a set of features, since this would be a modal contradiction. Features are logically dependent on articulatory and perceptual phonetics. Thus, phonemes are logically dependent on articulatory and perceptual phonetics, which is to say that the basic linguistically significant units are logically dependent on their biological implementation. The set of possible features is determined universally by the nature of biological constraints of human anatomy. In theory, fundamental laws relating to natural classes of possible phonemes should apply cross-linguistically at some level of abstraction.

Gestures and features are importantly distinct. Gestures are purely physiological. Features are psychological representations of the ways ranges of gestures function to produce acoustic categories defined relative to perception. Not every language needs to make every possible phonological distinction,

but every language can use only possible phonological distinctions, and what the possible phonological distinctions are is determined by the biology of articulation and perception.

Sign Language

Etymologically, it could be argued that 'sign language phonology' is a contradiction in terms. Scientifically, however, underlying categories and principles of signed languages have been shown to be relevantly analogous to those of spoken language phonologies to such an extent that semantic concern about the term has become irrelevant. This is because, as noted earlier, the directly essential metaphysical grounding of the categories of phonology is not acoustic, but physiological.

The only relevant disanalogy between articulatory gestures of spoken and signed languages is that the latter happen to be decoded via a visual rather than an auditory modality.[4] As in spoken languages, in signed languages the semantically lexical items are not holistic gestures but, rather, sets of anatomically-grounded, recombinable, non-semantically significant primitives determined by a finite inventory of categories functioning as instructions for articulation and perception. The phonological features of signed languages have constraints on their recombination analogous to those of spoken languages and, again analogous to spoken languages, "features of handshape, location, and movement can recombine to form minimal pairs of signs," thus distinguishing particular phonemes relative to the role they play in distinguishing different words (Sandler, 1).

This shows that the sense in which spoken language phonology is related to actual acoustic sounds is in fact indirect. The physiological production of components of signed languages is a different type of articulation, and their visual rather than auditory decoding is, of course, a different kind of perception. The truth is that all phonological systems are essentially related to articulation and perception, and, since the articulations and perceptions essentially related to the phonologies of spoken languages are in turn essentially related to sounds, the phonologies of spoken languages are, in some sense, indirectly essentially related to sounds. But the philosophical point remains the same that all phonological systems are essentially related to some implementation in some articulatory anatomy and some perceptual modality. The representation and use of the phonological system of a language is thus very much dependent on concrete biological matters.

An organism radically different from us biologically, may not be able to use our languages despite being sufficiently intelligent, and vice versa with us and the language of such an organism. In theory (perhaps) we could come to understand the meanings of a language of an organism biologically very different from us. But this would be different from representing that language

linguistically; its principles would not be intuitive to us and we would represent them using general-purpose memory, rather than the language faculty. We could never be a native speaker, but could only represent the alien language as we might represent the biology of how birds fly.

Dolphin Communication Systems

Consider, as a possible real-world example, dolphin communication systems. Dolphins produce two broad types of sounds: "pure-tone whistles and broad-band clicks." The clicks in turn come in two subtypes: "echolocation signals and burst pulse sounds" (Dooling and Hulse, 296).

To what extent dolphin communication systems should be considered actual languages is a matter of debate. However, if dolphins do have languages, the phonologies of these languages will likely be very different from those of human languages. In this case, though we could come to learn the dolphins' languages using general-purpose memory, due to their physiological differences from us, we could not represent the dolphins' languages as languages. We could never be native dolphin-language speakers, even if taught from birth.

It would not be contradictory to imagine languages with phonologies based in articulatory and perceptual systems that do not actually exist. Presumably, in some sense, the possibilities are infinite. According to Platonism non-actualized languages are just as legitimate objects of study as actualized ones, since all possible languages exist as abstract objects in the same way, regardless of whether or not organisms or populations use them. But the features and principles of possible languages with otherworldly phonologies are impossible for linguists to study. Arguably, they are as impossible to study as otherworldly colors, as they simply have no cognitive grounding for us.

The concrete empirical facts of language are essential to the science of linguistics. Even if we do have the imaginative ability to conceive of non-actual phonologies, this is no more relevant to foundations of linguistics than our imaginative ability to conceive of non-actual animals is relevant to the foundations of biology. In some sense, there are possible worlds with very different biological facts. But no one moves from this premise to the conclusion that biology is an abstract discipline analogous to mathematics. Since the facts of phonology are grounded in contingent reality analogously to biology, imaginative possibilities should also not lead to the conclusion of Linguistic Platonism.

The Phonetics-Phonology Interface

Having discussed some varied actual and possible implementation bases of phonologies, let us return to the matter of the nature of the direct relation of phonology to phonetics.

There are three ways in which phonology is grounded in phonetics: definition, explanation and implementation. Phonological features are defined in respect to contingencies of human physiology. It is the biological constraints of human physiology that explain phonological patterns. And, lastly, it is human physiology that implements phonological representations (Kingston, 401).

The explanation of phonological patterns is very complex, as such patterns are always the result of various, often competing biological constraints. As we will see later in this section, communicative and anatomical constraints are in a delicate balance in the determining of the phonological principles of languages. The problem of understanding the implementation of phonological representation is analogously complicated. As Kingston explains, "the problem of implementing phonological representations cannot be solved by simply reversing the solution to defining their constituents and working down from the phonology to a pronunciation or percept," because "the phonetic implementation also determines what kind of phonological representation is possible in the first place" (Kingston, 402).

Definition

Phoneticians and phonologists have long worked hard to understand the correct phonetic definitions of phonological features. "Landmarks in this effort," Kingston sites, "are the acoustic-auditory definitions in Preliminaries to Speech Analysis (Jackobson, Fant, & Halle 1952), the articulatory alternatives in Chapter 7 of *The Sound Pattern of English* (Chomsky & Halle 1968), and most recently, the combined acoustic and articulatory definitions in *The Sounds of the World's Languages* (Ladefoged & Maddieson 1996), and *Acoustic Phonetics* (Stevens 1998)" (Kingston, 402).

As noted previously, the phonetic grounding of phonological features has a certain level of functional abstractness. Features are realized differently depending on contexts, aspects of speaking style, etc. There have been two general approaches to understanding the relevant level of abstraction appropriate to categorizing the phonetic invariance of phonological features: Articulatory Phonology and Auditorism. Each of these approaches abstract from the specific articulatory and acoustic details of utterances, but each does so differently. Articulatory Phonology defines phonetic invariance of phonological features relative to the speaker's mental representation of her articulatory plan for the utterance, whereas Auditorism defines phonetic invariance of phonological features relative to the auditory effects of the acoustic waves produced. These approaches each offer a different means of defining phonetic invariance of phonological features "by moving to a description of the utterance with many fewer dimensions than are necessary to describe its articulatory or acoustic realization" (Kingston, 402–3). At the

linguistic level, less is represented than may be represented at other levels related to actually performing articulation. Linguistic principles do not require representation of all the articulatory information.

Either of these approaches is consistent with the functional grounding of phonological features relative to human biological constraints that we have previously described. Evidence, as it happens, at this point leans toward Auditorism. Scientific results, Kingston writes, "suggest that the invariants from which distinctive features emerge are the auditorily similar effects of covarying acoustic properties and not motor equivalences of different combinations of articulations" (Kingston, 406).[5]

This provides one fleshing out of how phonological categories can be based in biology. The appropriately similar articulations are those that produce sounds that are perceived as the same. That the fundamental level of categorization relates to perception does not mean that the mental representations of plans for utterances do not exist. It merely means that these mental representations of plans for utterances must be understood as having those plans fundamentally defined relative to the way those utterances are represented as being perceivable. But, as we have previously discussed, the categories by which humans perceive and individuate speech sounds map onto the same categories they use to produce them in a manner composing a complete functional biological system. This is to say that we are wired up to perceive the same sounds we are wired up to articulate, and that both the articulatory wires and the perceptual wires make use of the same information, functioning in harmony. Perceptual phonetics may define phonological features, but since the mental representations of articulation and perception are essentially interrelated in this way, articulation still has a metaphysical relation to phonological features. Indirectly, the objective nature of articulation, as well as perception, thus determines the grounding of phonology.

Explanation

Natural language phonemes cluster into natural classes that relate in principles that determine phonological patterns. The biological and psychological properties of speaking and listening offer phonetic explanations of these phonological patterns. As examples, consider "stops," the natural phoneme classes in which the airflow of the vocal tract is blocked, and "fricatives," the consonants in which air is pushed through two articulators close together. Stops include phonemes such as /p/, /t/ and /k/, and fricatives include phonemes such as /m/, /n/, /ŋ/ ('ng') and /l/. Ultimately, all natural classes of phonemes are defined relative to the features that they have in common. Phonological principles relating phonemes are thus ultimately reducible to principles relating feature classes, since phonemes themselves are nothing over and above classes of features. Kingston notes that "stops intrude between

nasals or laterals and following fricatives in many American English speakers' pronunciations of words such as warm[p]th, prin[t]ce, leng[k]th, and el[t]se because voicing ceases and, in the case of the nasal-fricative sequences, the soft palate rises before the oral articulators move to the fricative configuration (Ohala 1971, 1974, 1981)." This is an example of how the contingent nature of human anatomy can ultimately explain phonological patterns. We will delve deeper into the role human biological constraints play in determining phonological principles later in this section (Kingston, 406).

As we have previously discussed, articulatory and perceptual biological factors ultimately explain why there is a finite set of possible human speech sounds. In fact, human articulatory and perceptual constraints also seem to provide part of an explanation for why human languages have the specific actual sounds that they have. As Kingston writes, "languages have the oral, nasal, and reduced vowels they do because vowels must be dispersed perceptually in the vowel space, certain vowel qualities are more salient than others, and a long vowel duration makes it possible for a listener to hear nasalization while a short duration prevents the speaker from reaching a low target." Phonetic factors will form a part of any eventual complete explanation of the specific contents of the phoneme segment inventories of human languages (Kingston, 407).

Implementation

A fundamental difference between phonetic reality[6] and its phonological representation is that the former is inherently continuous whereas the latter fundamentally consists in relation to strict categories. The categorical nature of phonology, as we have discussed, is determined by the categorical nature of human speech perception in that the categories determining phonological principles are defined by functional contingencies of perceptual phonetics. The continuous-categorical distinction is often put forward as the fundamental distinction between phonetic and phonological phenomena. This is the case, for example in Keating (1988c), Pierrehumbert (1990), Cohn (1993a), Zsiga (1995), Holst & Nolan (1995), and Nolan, Holst, & Kuhnert (1996) (Kingston, 430).

The puzzle of understanding exactly how phonology is phonetically implemented is analogous to the challenge of explaining phonological patterns in phonetic terms. Human biological constraints determine not only the manner in which phonological representations are realized but also some of the properties of these representations themselves. The phonetic implementation of phonology also relates to the phonetic definition of phonological features in that "properties of the phonological representation emerge out of its implementation in much the same way that the distinctive features emerge out of the solution to the variability problem." Thus, the three main topics in

the study of the phonetics-phonology interface all ultimately interrelate themselves. The complete system of human phonology is grounded in a thorough and harmonious manner in the contingent restraints of human biology (Kingston, 432). Ultimately, phonology consists in a mental representation of phonetics.[7]

Optimality and Markedness

One might agree that the basic units of language are not logically independent of biology and psychology, but claim still that the general principles are logically independent. A strong case can be made that this is false. In optimality theory, a given grammatical output is, by definition, the optimal output given a ranked set of "markedness constraints and faithfulness constraints" (Kager, 9). Markedness constraints optimize ease of articulation and perception while faithfulness constraints optimize one-to-one correspondences between forms and meanings. In other words, faithfulness constraints "protect the lexical items of a language against the 'eroding' powers of the markedness constraints" (Kager, 10). The constraints most interesting for our purposes are markedness constraints.

Unmarked values are preferred in all languages and primary in all grammars, while marked values are avoided when possible in all languages and used by grammars only for the purposes of contrast. Formal and lexical contrasts are required for contrasts in meaning. This, again, is the role served by faithfulness constraints.

Markedness constraints affect all levels of phonological representation. At the phoneme level it can be observed that, while the unrounded front vowels /i/ and /e/ exist in all languages, rounded front vowels such as /y/ and /ø/ exist only in some languages, and again, merely for the purposes of certain contrasts. [-round] is thus unmarked in front vowels while [+round] is marked in front vowels. Analogous markedness values also apply at the level of syllables, with CV[8] and V syllables being unmarked and CVC and VC syllables existing only in some languages and only for contrastive means (Kager, 2–3).

The important fact about markedness constraints, for present purposes, is that "what is 'marked' and 'unmarked' for some structural distinction is not an arbitrary formal choice, but rooted in the articulatory and perceptual systems" (Kager, 3). As Kager continues:

> An exclusively typology-based definition of universality runs the risk of circularity: certain properties are posited as 'unmarked' simply because they occur in sound systems with greater frequency than other 'marked' properties... phonological markedness constraints should be phonetically grounded in some property of articulation or perception. That is, phonetic evidence from produc-

> tion or perception should support a cross linguistic preference for a segment (or feature value) to others in certain contexts (11).

Since markedness must be rooted in the biology of articulation and perception, and since the general phonological principles of natural languages' grammars are based on markedness constraints (together with faithfulness constraints), it follows that the general phonological principles of natural language are themselves rooted in biology. These general phonological principles consist in psychological representations of the physiological system in which they are implemented. The information carried is dependent on the receiver, even when the receiver is one's self. 'Unmarked' is not a functional characterization that is multiply realizable. It isn't like jewelry or transportation. Instead, 'unmarked,' like 'cerebral cortex,' refers to a biological kind. As a result, what is actually unmarked is essential to natural language. General principles of natural languages are essentially biological and psychological and cannot be logically independent of their representation and implementation, as Platonism requires them to be. Not merely phonological units, but also phonological grammar is rooted in contingent human biopsychological constraints. It is not just that the units the principles relate are biopsychological. The very principles themselves are determined in the biopsychological implementation. It is because the implementation has the structure that it has that phonological principles have the structure that they have.

Allophony in I-language

As we have discussed, not all aspects of phonetic reality are essential to the nature of their phonological representation. As an example, Isac and Reiss note that phonological grammar "treats plain and aspirated [t], flap, and glottal stop as equivalence classes that are themselves realizations of a more abstract equivalence class called a phoneme" (Isac and Reiss, 112). In this example, we see that whether a [t] is phonetically aspirated is phonologically irrelevant. Thus, standard French and Quebecois pronunciations of the informal second-person singular pronoun 'tu,' for example, are phonologically equivalent. Both phonetically not aspirated and phonetically aspirated [t]s are represented phonologically as a /t/. When it comes to determining phonological principles, whether a [t] is aspirated is an irrelevant distinction. Two classes of speech sounds produced relative to the same phoneme that are not represented as phonologically distinct or relevant to phonological principles are called two "allophones." Phonetically aspirated and not aspirated [t] classes are allophones of the phonological /t/ (Isac and Reiss, 112).

As Isac and Reiss note, the phenomenon of allophones demonstrate the "construction of experience" that is intrinsic to phonological representations

in that two sounds that, in reality, are acoustically and articulatorily different, are perceived as the same. This point matches well with the fundamental perceptual definition of phonological features put forward earlier. Analogously, as noted earlier, sounds that are phonetically different can also be perceived as phonologically the same. E.g. 30–35 milliseconds phonation delays on [p]s in 'pat' are all phonologically perceived as identical /p/s.[9] These examples demonstrate the essential role inherently psychological representation of human biology plays in the fundamental nature of human language (Isac and Reiss, 113).

The Role of the Psychological

As the above already suggests, saying that phonological facts are logically dependent on phonetic ones, again, is not to say that they are identical. As Durand writes:

> Componential aspect of speech production does, of course, provide support for distinctive features but it should not lead us into thinking that every parameter of speech production is phonologically relevant... it is crucial to establish a fundamental distinction between phonological and phonetic features (Durand, 15).

Every pronunciation of the word 'set' is slightly different, phonetically speaking. But they are all the same, phonologically speaking, in a sense in which a pronunciation of 'bet' is different. Since the articulatory system is continuous, there is strictly an infinite range of possible phonetic variation, allowing for arbitrary, non-linguistic individuation criteria. Since the categories on which phonology is based are discrete, phonemes cannot be strictly identified with regions of articulatory space. Rather, in saying that phonemes are sets of features, what is meant is that phonemes are sets of instructions to be executed in continuous articulatory space producing acoustic patterns categorized discretely relative to human perception. The basic linguistically significant units are thus logically dependent both on the biological as well as on the psychological. The identity of a phoneme consists in a set of instructional relations from the mind to the articulatory system that determines the production of sounds categorized relative to their perceptibility by the human auditory system. Since phonemes are scientific objects, they may be designated according to their essential structure. They are thus not merely contingently, but necessarily biopsychological.

Tonal Stability

The role of psychology in phonology may be made clearer by a consideration of tonal languages. The language Bakwiri has high and low tones on given phonemes that create linguistically significant contrasts beyond those deter-

mined by standard phonological features. In what follows, an upward-facing accent will be used to note a rising tone and a downward-facing accent to note a falling tone. When Bakwiri speakers are asked to transpose[10] the syllables of certain classes of disyllabic words they systematically respond by swapping the phoneme sequence of each syllable while leaving the tones in their original phonological segment. For example, upon being asked to transpose the syllables of 'k^{w}élì' ('falling') they consistently produce 'lík^{w}è.' This "tonal stability" can only be explained by considering the tonal system and the phoneme system to be represented on separate phonological "tiers" (Durand, 244).

In other words, a phoneme and its tone must be distinct, since phonological operations may be applied to them separately. But since a tone, at the level of articulation, cannot exist independently of a phoneme, its identity must be partly determined psychologically. It is *only* in representation that a tone is isolated in the way required for the transposition results attained to be possible. Again we have a scenario in which the categories of instructions for articulations must be more specific than the mere general properties of articulations themselves. The basic linguistically significant units are logically dependent on both the biological and the psychological.

Empirical inquiry into the grounding of the basic linguistically significant units leads us to the a posteriori discovery of their essential features. In every possible world in which the phonemes and tones of our world exist, those phonemes and tones are logically dependent on the same biological and psychological grounding that individuates them.

Conclusion

The view here defended – that psychological representation of biological phenomena is the foundation of human language – is often termed "mentalism" (or "psychologism," which I prefer). As Bromberger and Halle write, "if the mentalist view is correct, then one should expect systematic connections [between phonology and phonetics]: after all, articulatory types represent ways in which phonological intentions are executed, and acoustical types represent information on the basis of which these intentions can be recognized" (142).

In other words, the essential psychological nature of phonological representation does not take away from the concrete phonetic grounding of these psychological representations. Human phonology is a system of psychological representations that are representations of concrete biological realities. The phonological principles that determine phonological patterns are psychological principles that are themselves also partly determined by fundamental human biological constraints. This section has demonstrated the essential grounding of phonology in both human psychology and human biology.

2. The Dependence Relations of Formal and Phonological Grammar

One might retort to the previous chapter by claiming that linguistics should simply ignore phonology. One might try to defend the idea that, despite appearances, phonology is somehow not actually a proper part of the science of language. A Platonist could claim that only the formal aspects of language should be considered essential to linguistics, where 'formal' means 'medium-independent,' the aspects of language that are the same whether spoken or written (or signed or whatever). Since languages are abstract, anything related to articulation or perception by nature is inessential, so the objection would go.

The response to this objection is that phonology has to be considered part of linguistics because the formal aspects of language, it turns out, cannot be properly explained independently of their phonological aspects. Morphology[11] and phonology, as optimality theory demonstrates, are essentially co-dependent. Aspects of syntax, in turn, are dependent on morphology. Thus, aspects of all of formal grammar require explanation partially at the level of phonological grammar, and thus ultimately at a biopsychological level.

General Harmony

In this section, I will be putting forward some technical arguments for the interrelatedness of formal and phonological grammar. These technical arguments will do the main work to rebut Platonism regarding morphology and syntax, but they will also be made within a context based on general harmony. General consideration of harmony leads one to note that it would be strange if phonological units and structural principles were biopsychological while morphology and syntax were Platonic. The observation of correlations at the syntax-phonology interface makes this evident.

Consider the sentence 'John likes blueberries'. The syntactic concept of force, or emphasis, notated 'f', allows for multiple formal representations of this sentence. For example, the sentence can be represented as '[f JOHN] likes blueberries', such as when it is used as a response to the question 'who likes blueberries?', or as 'John likes [f BLUEBERRIES], such as when it is used to answer the question 'what does John like?', etc. In these representations, f is a syntactic constituent. In the everyday writing of the sentences there is no representation of f, but phonologically there is. The constituent of the sentence paired with syntactic force, in Standard English, will always be the same constituent paired with phonological stress, that is, the constituent emphasized vocally. When it comes to force and stress, in Standard English, syntax and phonology are 'mapped' in a way determining consistent correlations. Not all stress is accompanied by force,[12] but all force is accompanied by stress (Truckenbrodt, 442–3).

Thus, there are law-like relations between formal and phonetic representations at the level of sentence syntax. These relations are facts about idiolects with generalizations, facts and generalizations that Platonist Linguistics must necessarily leave out if it is to ignore phonology. Specifically, there is a law-like relation between syntactic f and phonological stress generalizable over Standard English idiolects, a sentence-level linguistic phenomenon that Platonist linguistics must leave out.[13]

Such correlations do not provide a strong case against Platonism for formal grammar, but they intuitively open the door for a biospychological account. Though such correlations do not demonstrate dependency, it would be somewhat surprising if syntax and phonology turned out to have no ontological connection to each other. As I will now show, other aspects of formal grammar are directly dependent on aspects of phonological grammar. Thus, the intuitive sense that one gets from consideration of general harmony can be fleshed out into a rigorous technical case for the biopsychological grounding of all linguistics.

The Phonology-Morphology Interface

Again, one might grant based on the previous section that there are general principles of linguistic sound structure that could not be logically independent of biology and psychology, but claim still that the general formal principles must be logically independent. In other words, one might claim that the principles of language that apply to it regardless of whether it is spoken or written (or signed or whatever) must be logically independent of representation and implementation. Once again a strong case can be made that this objection fails.

As it turns out "morphological and phonological properties of an output form are mutually dependent" (Kager, 25). Even when abstracted from actual articulation, the general formal principles that apply to complex word formation remain logically dependent on psychological representations of markedness constraints.

Reduplication

A clear illustration of the dependency of morphology on phonological markedness constraints can be seen in the phenomenon of reduplication as pluralisation.

Reduplication can be either total or partial:

Total reduplication: Indonesian: 'woman' = 'wanita'; 'women' = 'wanita-wanita' (Kager, 195).

Partial reduplication: the Australian language, Yidin: 'initiated man' = 'mulari'; 'initiated men' = 'mula-mula.ri' (Kager, 196).

In the case of partial reduplication, "reduplicants tend to have unmarked phonological structures, as compared to the phonotactic[14] options generally allowed in the language" (Kager, 196). A reduplicant, as Kager writes:

> is, by nature, a phenomenon which is dependent in its identity upon another morpheme. Since the reduplicant is not burdened with lexical contrasts, its phonological form naturally drifts towards the unmarked... any language, given the chance, will develop unmarked structures in contexts where the influence of faithfulness is absent... [this brings about an] 'emergence of the unmarked'... [which is a] major argument... that languages are subject to universal markedness constraints (Kager, 198).

Thus even in written language (or any other medium in which the formal level of natural language may be abstracted from its primary articulatory form), the brute human biology of natural language plays a role in the general principles that apply to it. Phonological constraints directly impact morphological structure. The latter thus cannot be fully understood without the former. There is no way to abstract a correct understanding of the principles of natural languages as logically independent of their psychological representation and biological implementation. Even formal principles are rooted in the nature of the human articulatory system and its discrete representation in the form of feature instructions and markedness constraints. Since the phonologically determined structural principles of morphology can be designated as essential features of morphological representation, it follows that the nature of natural language morphology is not merely contingently, but essentially biopsychological.

Haplology

In contemporary linguistics it is well established that phonological markedness constraints have a strong effect on inflectional morphemes. There is a phenomenon resulting from this called "morphological haplology" (Stemberger, 1981) or "the repeated morph constraint" (Menn and MacWhinney 1984). Haplology consists in the deletion of an affix in a context where the other rules of the grammar would determine it to be directly adjacent to a phonologically equivalent affix. An example of this can be seen in the English possessive plural dogs'. Haplology aside, the rules of the grammar would determine two –s affixes resulting in 'dogs's', but the second –s is consistently absent (Bernhardt and Stemberger, 590).

Again we have an effect from phonology that is carried up to formal grammar. The effect of haplology is not medium-specific. It affects written English equivalently to spoken English. Just as one says [dɑgz] rather than [dɑgzz], so one writes 'dogs'' rather than 'dogs's'. The Platonist cannot

escape the effects of phonology in her theory of linguistics by claiming to only consider formal grammar as genuine linguistics.[15]

Affix Position

Yet further examples come from consideration of affix position. Most familiar affixes are either morphemes added to the start of words, called 'prefixes', or to the end of words, called 'suffixes'. There exist languages with affixes positioned differently, however, and their consideration provides various examples for the case at hand, since there is evidence to support that "when affixes occur anywhere other than the edge of a word, phonological pressures are always responsible" and that "the influence can be quite important, to the extent that phonological well-formedness can determine morpheme position" (Ussishkin, 457).

According to General Alignment theory (GA) all affixes are prefixes or suffixes by nature, which deviate from word-edge position strictly due to phonological requirements. More specifically, there is a morphological alignment constraint that requires every affix to be placed at one end of a word or the other, but there are also phonological well-formedness constraints that cause deviation from this morphological constraint due to the phonological constraint's higher ranking in the grammar (Ussishkin, 460). Below are some examples to demonstrate.

Variable-direction Affixes

In Afar, the verbal system determines variable-direction affixes for person marking. The affixes marking person, in Afar, vary in location as a result of phonological constraints. The verbal affix, 't', marking second-person forms, for example, occurs at the end of stems beginning in consonants and the start of stems beginning in vowels. Examples are as follows: "[consonant-initial stems] nak-t-e – 'drink milk'; haj-t-e – 'put'; sug-t-e – 'had'; kal-t-e – 'prevent'… [vowel-initial stems] t-eh-e – 'give'; t-ibbid-e – 'seize'; t-okm-e – 'eat'; t-usuul-e – 'laugh'" (Ussishkin, 460).

The position of t is phonologically based in that the stem-initial phoneme, to which the affix is added, is determined by its phonological property. Optimality theory offers a straightforward explanation:

> A right edge-oriented alignment constraint on the person marker (capturing its suffixal nature) is dominated by ONSET, a constraint requiring syllables to have onsets.[16] Since consonant-initial stems have an onset, the alignment constraint exerts its effect on the position of the person marker. However, vowel-initial stems surface with the person marker at the left edge, resulting in a more harmonic output from the point of view of syllable structure, to which alignment is subordinated (Ussishkin, 460).

In other words, in the grammar of Afar, the phonological constraint demanding syllables to have onsets outranks the morphological constraint demanding affixes to be placed at the end of stems. Since onsets must be consonants, and since the phonological onset constraint in Afar outranks the relevant morphological constraint, in vowel initial stems the affix t ends up stem-initial.

Again, of course, this example is medium-transcendent. Though the grammatical cause is a phonological one, the morphological result exists at the formal as well as phonological level of representation.

Infixes

An infix results when phonological constraints force a morpheme to occur away from either stem edge. A somewhat comical example comes from English expletive infixation, "where the expletive prefixes to a stressed syllable... [e.g.] Ari-fuckin-zona, cali-fuckin-fornia... Minne-fuckin-sota" (Ussishkin, 461).

Here, morpheme position is determined by a specific phonological factor, namely, the location of phonological stress. The morphological component 'fuckin' consistently occurs directly prior to the stressed syllable in the word, e.g. 'zo' of 'Arizona,' 'for' of 'California,' and 'so' of 'Minnesota'. Yet again this example shows results that are independent of medium. While phonological stress is not represented in standard writing, the morphology of the word transfers over. This does not require that orthography be linguistically represented.[17] The point is that the formal linguistic reality *that is present in spoken and written utterance*s is determined partially by the structural nature of its spoken form. Phonological grammar determines formal grammatical facts.

Interfixes

An interfix occurs when phonological constraints cause a morpheme to split apart within a word. The morphology of interfixes is called "'nonconcatenative morphology', where the segmental content of an affix may be distributed within a stem" (Ussishkin, 463).

Modern Hebrew offers an example of nonconcatenative morphology. In Hebrew, constraints on syllable structure and word size "impose a set of restrictions on the optimal phonological shape of words that results in interfixational phenomena, without explicit recourse to interfixes as a special class of morpheme" (Ussishkin, 464).

Abstractly speaking, there is a passive-making affix in Hebrew 'ua'. 'Dubar', 'it was spoken' is derived from 'diber', 'he spoke' in a way determined by phonological constraints. The constraint COMPLEXONSET requires syllables not to have multiple onset consonants. The constraint

ONSET, however, requires that syllables have onsets of one form or another. Thus COMPLEXONSET rules 'out .dbrua.' and '.dbu.ra.' as passive forms and ONSET rules out '.du.abr' and '.ud.bar.' as possible passive forms. The remaining result is 'dubar' (Ussishkin, 470).

This is yet another example of phonological causes having medium-independent consequences for formal linguistic properties. All the examples provided thus far have been morphological, but this already provides argument for the biopsychological grounding of syntax as well, since the nodes of a syntactic tree are themselves the output of morphology.

As we will see, however, there is even stronger reason to take all of formal grammar to be grounded biopsycholgically. In the next section I will address the morphology-syntax interface. By demonstrating the interdependence of morphology and syntax, given the already-established interdependence of morphology and phonology (and of phonology and biopsychology), one can ultimately defend the grounding of syntax, too, in biopsychology.

The Morphology-Syntax Interface

It has now been demonstrated that morphology is dependent on phonology. If it can also be demonstrated that syntax is dependent on morphology, then, in an indirect sense, it can be inferred that syntax is not independent either. It is the role of this section to demonstrate the dependence of syntax on morphology. The same phonological-determination of morphological structure must indirectly be ontologically essential to syntactic structure.

Case in Australian Languages

In many languages, morphological words can play the same functional role as syntactic phrases. Morphology and syntax offer alternative means for encoding the same formal linguistic relations. In fact, in "nonconfigurational" languages "inflectional morphology takes on much of the functional load of phrase structure in more configurational languages like English, determining grammatical functions and constituency relations" (Nordlinger, 2).

Australian languages offer a clear demonstration of the contingency and variability of distinctions between morphological and syntactic representations and relations. This is due to their surprisingly extensive case system. Many Australian languages have free constituent order in simple clauses and the only marker for grammatical relations is provided by case morphology. The sentence 'the dog saw the boy' in the Non-Pama-Nyungan language, Wambaya, for example, may be grammatically represented with any constituent order provided that the auxiliary gin-a occurs in second position. Thus "Ngajbi gin-a alaji janyi-ni… alaji gin-a ngajbi janyi-ni… alaji gin-a janyi-ni ngajbi… ngajbi-ni gin-a janyi-ni alaji… janyi-ni gin-a alaji ngajbi… [and] janyi-ni gin-a ngajbi alaji" are all semantically equivalent (Nordlinger, 2–3).

In Wambaya and many other Australian languages main clauses have no syntactic indicators of grammatical function. Which words play the roles of "Subject, Object and other grammatical functions is specified solely from the morphology; usually from the case morphology," which demonstrates that there is no essential rule regarding which parts of formal grammar are part of syntax and which are parts of morphology (Nordlinger, 3).

Even the seemingly quintessentially syntactic process of iterative embedding can be done morphologically in Wambaya and similar languages. This is done via case stacking where the iteration of case suffixes on a single word mark successively embedded formal linguistic relations. As Nordlinger writes:

> It is clear that case marking in these languages has a fundamental role in determining the syntactic relations. In fact, these relations need not be expressed in phrase structure at all, but are constructed directly from the case morphology; in these languages the morphology builds the syntax, expressing the same types of relationships encoded in the phrase structure in languages like English (Nordlinger, 4–5).

In other words, in translating Wambaya into English, one must use syntax to represent the formal linguistic relations that Wambaya represents morphologically. In saying that "morphology builds syntax" in Wambaya and similar languages one should be careful to disambiguate two senses of "syntax." We may say that a formal linguistic relation is syntactic when it is represented by sentence structure in the metalanguage of our linguistic analysis, here English, or we may say that a formal linguistic relation is syntactic when it is represented by sentence structure in the object language that the linguistic analysis is about, here Wambaya.

Note that the above distinction makes a difference in the analysis of the morphology-syntax relation in Wambaya. If we take a metalanguage definition of syntax, then it is true that morphology builds syntax in a straightforward way: the morphological principles of Wambaya bring about syntactic relations. This shows the dependency of syntax on morphology and thus, through the chain of syllogisms of this thesis, ultimately on biopsychological phenomena.

If one takes an object language definition of syntax, we can say something even stronger. In this case we can say that there is no categorical distinction between morphology and syntax at all. The very same grammatical relations may be represented morphologically in one language and syntactically in another. The difference relates only to our theoretical system for analyzing these languages. This is a more radical interpretation, though nothing, it seems, but an English-style language bias could really count against it. Regardless, the weaker metalanguage interpretation is sufficient for the argument of this paper.

Back to General Harmony

In addition to these technical arguments for the dependency of formal grammar on phonological grammar, a further theoretical case can be made by appeal to the successful application of the same theoretical framework for both phonological and formal grammar. If the same principles of optimality theory that make sense of phonological data also make sense of syntactic data, this suggests that phonological and formal grammar are essentially interdependent in a mutual ontological network. That is, it gives reason to think that, if phonological grammar is biopsyhcological, formal grammar is likely biopsychological as well. It is the role of the pages to come to demonstrate the useful and correct applicability of optimality theory to syntactic data.

OT Syntax

Though thus far in this paper I have addressed optimality theory as it relates to phonological phenomena, the framework is actually applicable as a theory of natural language grammar in general. In fleshing this out it will be worth highlighting and reiterating some basic points. In brief, optimality theory could be defined, in relation to linguistics, as a hierarchical ranking of constraints that grammar works to violate minimally in producing linguistic outputs. This is a very general idea and thus is not inherently restricted to phonology (Kager, 341).

One thing it is crucial to highlight about OT is the sense in which it is empirically divergent from predecessor frameworks based on the notion of parametric settings. In parametric frameworks a given rule could be "switched off" in a given language such that it did not at all apply in that language. In OT, contrarily, constraints are never switched off, but rather are merely "dominated" by higher ranked constraints within the grammar of a given language. The notions of off-switching and dominating are conceptually similar but empirically divergent in important ways. As Kager writes:

> It is predicted [by OT] that the effects of some constraints may show up even in a language in which it is dominated. Given the chance, even a dominated constraint will make its presence felt, and 'break into activity'. The canonical example of such situations… are cases of 'the emergence of the unmarked'. In contrast, a parameter, once it has been 'switched off', can never thereafter leave its mark on the grammatical patterns of the language (Kager, 342).

In other words, if constraint A were to be dominated by constraint B, then, though in any linguistic context where B applies, A would be irrelevant, in any context where B and all other constraints out ranking A were to happen not to be relevant, A would apply. Contrarily, however, if, assuming a parametric framework, rule A' were switched off in the grammar of a given

language, then A' would simply never apply in that language. Kager offers the following illustrative example:

> Consider a language which selects the value 'negative' for the parameter 'onsets are obligatory'… On a parametric view it is predicted that such a language lacks processes… to bring about syllables with onsets, rather than onset-less syllables.[18] Yet we know… that this prediction is simply false. In OT the (correct) prediction is made that the relevant constraint ONSET may continue to be active in a phonology even when the language allows for onset-less syllables. (Onset-less syllables show that Onset is dominated by faithfulness constraints, obscuring its effects in most contexts.) There is a subtle yet robust difference between parametric theory and OT in this respect (Kager, 342).

This is to say that in languages with grammars in which the syllables-must-have-onsets constraint is dominated by constraints a, b,… q, the processes of the language which would force an onset will not apply where a or b…. or q apply, but will apply where none of a or b… or q apply. The grounds for testing OT against parametric frameworks are thus empirically straightforward. And as Kager shows, there is also strong evidence for the limited applicability of dominated constraints in the realm of syntax, analogously to the realm of phonology (Kager, 342).

Kager gives the example of 'do-support,' which will be explained below. He cites Chomsky 1957 and 1991 as showing that "do-support is possible only when it is necessary" and shows that optimality theory can make straightforward sense of this general principle (Kager, 358).

'Do' is obligatory as a single auxiliary verb only in simple interrogative sentences and is unpermitted in positive declarative sentences, or in sentences with additional auxiliary verbs. In other words, 'do', in past form, is obligatory in 'what did Mary say?'. One cannot instead ask 'what Mary said?' with the same meaning. Alternatively, however, in similar linguistic contexts with additional auxiliary verbs such as 'what will Mary say?', do forms are unpermitted. One cannot say 'what does Mary will say?' or 'what will Mary do say?' (Kager, 358–9).

Similarly, in a positive declarative sentence, one must say 'Mary said much,' not 'Mary did say much.' Auxiliary do forms are also ruled out in declarative sentences already containing an auxiliary verb. One must say 'Mary will say much' rather than 'Mary does will say much' or 'Mary will do say much.' Indeed, auxiliary do forms cannot even co-occur with themselves. One must say 'what did Mary say?' not 'what did Mary do say?' As Kager summarizes, "no more occurrences of do-support take place than are strictly necessary… The auxiliary do is possible only when it is necessary" (Kager, 359–60).

An optimality theoretic explanation of this phenomenon is made by reference to the constraints OB-HD (Obligatory Heads) and FULL-INT (Full Interpretation). OB-HD requires each syntactic projection to generate a syntactic head, that is, a constituent that determines the syntactic type of the generated phrase. In a verbal projection, for example, a verb must be generated as head (Kager, 349).

FULL-INT, in turn, requires that lexical conceptual structure be parsed, meaning it functions to eliminate any semantically empty lexical items such as the forms of do in English that are at issue. The verb 'do', used as an auxiliary, is semantically empty. Thus sentences such as 'what did Mary say?' violate FULL-INT (Kager, 352).

The reason this occurs, however, is because, in the grammar of Standard English OB-HD ranks more highly than FULL-INT. Did is generated in 'what did Mary say?' so that the Verb Phrase 'what did' can be headed by a verb as OB-HD demands. When auxiliary verbs with semantic content such as 'can', 'will', or 'may' are available to satisfy the OB-HD constraints of verbal projections, 'do' will be ruled out of entry to the projection by the FULL-INT constraint. But where no verbal auxiliary with semantic content is applicable, the grammar will ignore FULL-INT in order to use 'do' to satisfy OB-HD (Kager, 363).[19,20]

This shows that the same theoretical framework that explains phonological phenomena can also be used to explain syntactic phenomena. Considered out of context, it is of course logically possible that this is a sheer coincidence, but together with the technical arguments I have provided regarding the dependency of aspects of formal grammar on aspects of phonological grammar, I think it fits a further component into a strong case against Platonism for formal grammar. I have here strengthened the case from general harmony to show not just that linguistic theory in general should apply to both phonological and formal grammar, but that the same theoretical framework should apply to both. This provides further reason to think phonological and formal grammar of equivalent ontological status.

NOTES

1. Though either theory would align with the philosophy of this paper.
2. Presumably a modular sort.
3. Front being the tongue position within the axis, not the axis itself.
4. Lip reading presents an interesting potential connection.
5. Auditorism clearly fits well with the acoustic invariance account of speech production previously discussed.
6. Both articulatory and acoustic.

7. In personal correspondence Chris Viger offered me the analogy to think of the relation of phonological representations to phonetic implementations as we think of the relation between our color representations to light. Perhaps this serves as a helpful heuristic.

8. 'C' for 'consonant', 'V' for 'vowel:' so 'a' is V, 'ba' is CV, and 'bad' is CVC, etc.

9. See end of section on Phonetics and Speech Science.

10. In English this is changing the word 'baby,' /bebi/ to /bibe/, 'beebay'.

11. Morphology is the formal grammar for constructing words from minimal meaning units called 'morphemes,' whereas syntax is the formal grammar for constructing phrases and sentences from words.

12. One can phonologically stress a syllable of a word, for example, without syntactically emphasizing it. E.g. in the word 'emphasis,' the syllable 'em' is phonologically stressed, but typically in no way logically emphasized.

13. This may also be a case where phonology ultimately connects up with semantics.

14. Phonotactics is, essentially, the syntax that applies at a phonological level of representation.

15. Importantly, the rule relates to /z/ represented as a plural morpheme, not merely phonologically represented. This explains why 'Chris's' remains an acceptable output.

16. Onsets are consonantal phonemes starting a syllable. In 'dog' /d/ is the onset.

17. It may or may not be.

18. That is, to bring about onsets for the sake of having onsets.

19. Actually there is some slight complication on this matter, but further use of the OT framework can explain it. As Kager notes "what said Mary?'... satisfies OB-HD… [and] avoids do-support. Then why should it be ruled out? The answer resides in the undominated constraint NO-LEX-MVT that… blocks head-movement of a lexical verb out of VP… When movement of the lexical verb to the head position of CP is blocked, while this head position must be filled by some verb, then there is nothing better than to insert a form of 'do'. English thus prefers violations of FULL-INT to violations of NO-LEX-MVT" (Kager, 367–8).

20. Another apparent counter example comes in cases of stress 'do' such as 'Rob *does* like beer.' In such cases, however, *do* does carry semantic weight. 'Rob *does* like beer' (or '*do does* carry semantic weight') differs from 'Rob likes beer' in a way semantically analogous to 'Rob likes beer, actually,' the 'does' or 'actually' implying this fact about Rob was not previously known, acknowledged or accepted.

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THE CRITICAL ROLE OF SOCIAL MEDIA IN CRISIS COMMUNICATION

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ABSTRACT. The main objective of this paper is to explore and describe the pivotal function of social media in crisis communication, the role of the individual within information exchange from inactive recipient to producer, inquirer or collator of crisis communication, and the features of social networking technologies that are of special applicability to crisis communication. The analysis presented in this paper contributes to research on the relevance of social media as a communication instrument throughout crisis management events, the degree to which the constitution and acceptance of social networking technologies influence established modes of government to citizen communication, and the importance of social media as an instrument for emergency management.

Keywords: social media; crisis communication; emergency management

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1. Introduction

The development of social networking technologies is influencing the network communications fabric and the manners we interact with each other. Users of information are concurrently contributors of information (Popescu Ljungholm, 2015a, b, c), by that supplying the ground for user-generated media. The news of a crisis can be (re)distributed, attaining millions of individuals without the intervening occurrence of journalists. Communicators can adopt social media instruments to more effectively handle a crisis. New media tools may stimulate readiness, knowledge, and participation (Pera, 2015a, b; 2014) in

crisis reaction by making the matter observable and interactive. Social media can ask persons to self-identify as backers of the entity. Setting up how the entity aims to involve social media throughout policy constitution can expand communication chances and reduce the clutter and inaccuracies liable to take place in the thick of the crisis. (Veil et al., 2011)

2. The Features of Social Networking Technologies that Are of Special Applicability to Crisis Communication

The self-sourcing of information by individuals provides access to a broader series of information but it may constitute difficult tasks for the official regulation and synchronization of information. Persons via better personalization of their social media platforms may prefer only to use information comparable to their own opinions (Constantin, 2015), therefore acquiring a restricted worldview, notwithstanding whether the information they get is accurate. Social networking technologies facilitate the swift and available distribution of information via both established and unofficial routes. Social media compresses a new trend of digital communication and content distribution between persons and entities. (Branicki and Agyei, 2015) The recognition of social media and their function in many events globally have generated new concerns related to crisis communication approaches. The function of conventional leadership furthered by government entities and mainstream media channels (Popescu, 2016, 2015, 2014, 2013) is altered within social media: on account of hyperlinked networks and the receptiveness of posted messages, the latter is a media outlet for instantly communicating significant information before it is announced in the mainstream media. The arrival of social media has met the audience's demand for personal and direct communication and in addition for information regarding their safety and prosperity throughout crises. (Cho et al., 2013)

The importance of crisis communication builds on the conviction that the messages will have beneficial consequences on crisis publics, thus assisting the entity. The feedbacks of crisis publics furnish evaluations of communication strength. Intended outcomes from crisis communication endeavors encompass reducing reputational harm from a crisis, preserving buying intention, and hindering adverse word-of-mouth. The development of social media has supplied unrestricted places for other opinions (Lăzăroiu, 2013; 2012; 2011), besides the entity's position, to announce the crisis and crisis-associated messages. How individuals behave to the crisis response approaches implies approval or rebuff of the crisis account. (Coombs and Holladay, 2014) Effortless alteration of information is an outstanding boon of employing new media instruments in bracing oneself for a crisis. Social media platforms are especially appropriate for mass observance as they supply a feed that presents

dialogues of countless individuals at any precise moment. Communicating with wireless audiences as component of a relationship-building operation (Popescu and Predescu, 2016) enables permanent connectedness, which can be performed even in an unforeseen event. Entities can both collect user-generated material from social network web sites and employ the platform for transmitting information back to consumers. Replying to the audience belittles gossips and defends reputations. Crises can be reduced via swift counteraction through the straightness of new media. Online communities may self-correct false rumor before organizational voices have the opportunity to react. (Veil et al., 2011)

3. The Relevance of Social Media as a Communication Instrument throughout Crisis Management Events

Individuals' capacity to produce content and distribute knowledge is the essential shaping characteristic of social networking. Social networking technologies may assist in ground-breaking and swifter fashions of information exchange (Popescu et al., 2016) between first answerers, emergency supervisors and users, e.g. the crowdsourcing of data, regarding a crisis event in progress. The capacity of official emergency communication supervisors to handle the account of a crisis is reduced by social media. Mobile technologies are a key component of making social media significant to crisis management. Involving more pro-actively with social media may provide chances for collecting comprehensive information from observers immediately. Emergency management entities may utilize the social component of social media by involving the audience straightaway in their own improvement and reaction or by enabling the audience to self-organize. (Branicki and Agyei, 2015) Social media consumers are more inclined to depend on peer-to-peer interaction and information-led websites throughout crises than they are on established media outlets. Various types and channels of information supplied by government entities are relevant in constituting crisis-communication schemes: the arrival of social media has furthered established leadership, comprising central and local governments' official declarations, via the employment of direct communication with persons for the purpose of handling vitiated top-down communication arrangements (Mihăilă et al., 2016) in crisis communication. Social media enable consumers to successfully preserve undeveloped and unsatisfactory relationships, and thus individuals may consider that they have expanded their social networks with essential information. (Cho et al., 2013)

Crises can harm organizational reputations (Popescu and Ciurlau, 2016) by bringing about adverse public messages regarding the entity (social media messages may create outstanding effects on corporate reputations). Social

media comments by audiences constitute a component of the messages that influence post-crisis organizational reputations. Negative comments can boost the reputational harm (Mihăilă, 2011) while positive comments can assist in moderating the reputational harm for the entity in crisis. Social media messages produced by crisis publics may either serve or damage the entity in crisis on account of their capacity to influence assessments of organizational reputations. (Coombs and Holladay, 2014) Crisis communicators should manifest integrity, fair-mindedness, and receptiveness to hinder the audience from accepting less-reliable sources for information. Organizations should be accessible with generous information through social media channels before a crisis to make sure that information seekers identify the correct sources while examining the social sphere. Before the rise of a crisis, intercommunicating with other established sources is indispensable to guarantee coherent messages. Association through traditional social sites is crucial. Working with reliable sources through social media can harmonize the capacity to both reach broad publics (Nica and Potcovaru 2015a, b, c) and achieve their confidence. Notwithstanding the fragmentation of news channels, introducing narratives into the mainstream media is anyway decisive. On account of the confidence that individuals have with social media in addition to its generality and swiftness, several mainstream channels and entities have included their own social networks. While web-based editorial offices have an ambivalent reputation, reaching mainstream media can be improved via social media technologies. As social media is a multimodal, colloquial, and effortlessly updatable platform, editorial offices can be active and dialogic via practice. (Veil et al., 2011)

4. The Degree to which the Constitution and Acceptance of Social Networking Technologies Influence Established Modes of Government to Citizen Communication

The notion of digital community backers may be an impactful manner of local authority emergency planning groups increasing both their knowledge (Nica, 2015a, b) and reach in association with social media. Social networking technologies generate virtual spaces in which data can be shared with reliable participants, transmitted to the publics or exchanged via mutual and chiefly unofficial and self-regulated processes. The significant degree of horizontal adaptability manifested by social media creates both chances and difficult tasks for emergency managers as both inaccurate and accurate information may bring about adverse outputs in practice. (Branicki and Agyei, 2015) Established information outlets may preserve their function as a one-way communication route, while peer-to-peer communication routes and websites supplying peer-generated material tend to go on furthering interactive communication among persons. Government entities can fortify their leadership

in crisis communication by altering their present crisis-management schemes into suitable measures (Nicolaescu, 2015) concentrating on peer-to-peer communication contingent upon person-level leadership. (Cho et al., 2013)

The positively inclined audiences will disregard the adverse information generated by the crisis and preserve their optimistic opinions of the entity in crisis. Crisis managers should establish whether or not their generally positively inclined audiences are preserved throughout crises that cause grave, adverse consequences (Peters, 2015) for the entity and its stakeholders. Crisis managers can detect positively inclined audiences in organizationally subsidized social media outlets. Positively inclined audiences may be more compliant of crisis narratives than other audiences as they are helpful of the entity preceding the crisis. (Coombs and Holladay, 2014) As citizen-generated information is a substitute to public relations-transmitted news, persisting attainable to the media via social media is essential. In the sphere of user-generated content, acceptance and involvement with important social media actors is decisive in reaching and affecting stakeholders (Nica, 2013), whom public members consider reliable. Social media was devised to link individuals to others in the most effective and personal fashion, being a tempting way of communication for persons who have undergone a crisis (Petcu, 2015) and supplies an exemplary channel for crisis communicators to show sympathy, and consideration. Employing a blog or another direct-to-audience social platform, an entity can talk unswervingly to its stakeholders without being separated out. The direct and real-time character of social media and the actively personal touch via photo and video sharing and talking makes it a consummate complementary point of contact between stakeholders and crisis communicators. (Veil et al., 2011)

5. Conclusions

Emergency managers searching for information can reach individuals on the setting of a crisis through social media. New media entails a fragmentation of concerns and publics: fragmentation signifies that employing numerous elements of new media guarantees that various groups of persons are contacted (Bondrea and Ștefănescu-Mihăilă, 2014a, b), but the endeavor necessitated to post to these diverse routes is negligible. New technologies enable the whole online community to get information that may generate more difficulties (Mircică, 2014) for individuals assigned to handle a crisis. If crisis communicators prefer not to be part of the online forum, the dialogue on the crisis will advance via social media without the entity's view being heard. (Veil et al., 2011)

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EFFECTIVE SERVANT LEADERSHIP BEHAVIOR IN ORGANIZATIONS

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ABSTRACT. Scholarship about the multidimensional servant leadership behavior, the direct and mediating influences of servant leadership on job contentment, and the mechanisms via which servant leadership impacts outcomes has increased and consolidated, especially in recent years. The purpose of this article is to gain a deeper understanding of the relevant consequence of servant leadership on group member performance evaluations, the antecedents of servant leadership, and beneficial influences of servant leadership on main organizational results.

Keywords: servant leadership behavior; organization; follower; performance

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1. Introduction

Leader behaviors that apply more significant influences on workers' self-identity have more powerful effects on subordinate behaviors. On account of the inconstant, active, and people-oriented character of service sectors (Lăzăroiu, 2015a, b), servant leadership may associate relevantly to workers' self-identity, and eventually to their operation: the former contributes more conspicuously than the latter in influencing frontline workers' self-identity (Nica et al., 2016) and successively their service performance. An extremely competitive group atmosphere determines clear requirements regarding work roles and powerful stimulants for workers to provide better customer service if they are capable and disposed to do so. (Chen et al., 2015)

2. Beneficial Influences of Servant Leadership on Main Organizational Results

Workers' self-identity entrenched in the group, which comprises self-efficacy and group identification (Mihăilă et al., 2016), conveys the influences of servant leadership on employees' performance behaviors. Group competition atmosphere improves frontline workers' inclination to associate their service operation behaviors with their self-identity entrenched in the group. Recognizing that their own importance stems from their group belonging (Nica, 2016; 2013), people become institutionalized to their group and empathize with the other fellows. Servant leaders further frontline workers' service operation through the latter's self-identity, implied by their self-efficacy and group identification. Mediocre servant leaders are self-centered, being unsuccessful in showing a selfless and developmental predisposition that is significant in service contexts. (Chen et al., 2015) Effective leadership demands that followers be regarded before leaders. The latter should assist their followers so that these can develop into relevant actors who assist their organization (Popescu Ljungholm, 2015) and who can accomplish better outcomes than the leading participant would be able to create independently. Servant leadership tackles individuals who aim to be servant leaders as it demands them to annihilate their own inclinations, necessities, and/or intentions to foremost satisfy the topmost prime concern necessities of their followers. Servant leadership is established in a for-profit entity by a servant leader displaying managerial expertise and coherence in assisting followers work out the diverse issues that they tackle every day, by complying with followers' workplace demands in order that the latter commit themselves thoroughly to their activities in the entity (Popescu and Ciurlău, 2016), and by generating an atmosphere where teamwork and synchronization are appreciated among followers when they accomplish their activities. (Ozyilmaz and Cicek, 2015)

Communication is an essential element that will interact with leadership features and workgroup results. Successful individual behavior in the workplace may be most highly accomplished by a powerful cognizance (Bondrea and Ștefănescu-Mihăilă, 2014a, b) and compliance to cultural standards and desirable communication approaches in the workplace. Leader–member mannerliness of exchange is an indication of the culturally suitable interactive exchanges that take place between leaders and fellows. The social and cultural standard exchanges between leaders and their group fellows are essential to the servant leadership process within the workgroup. Servant leadership concerns to the level to which a leader performs as a role pattern for an individual's followers and displays consideration for the followers' advancement and development. (Bakar and McCann, 2016) Being a servant leader

incurs dedication to make personal renunciations to develop other individuals to their greatest capacity. In servant leadership connections the leaders function as stewards: their followers are individuals who have been assigned to them to be lifted to their superior selves (Popescu and Predescu, 2016) and to be what they are qualified of becoming. Followers are likely to react well to servant leaders as they have established themselves reliable as servants. The authentication of servant leaders is their intentional option to assist individuals. Servant leadership is an integrative and value-laden leadership pattern that enables individuals to be both successful and ethical, providing a ground-breaking leadership fabric around which entities can establish beneficial work settings that regard profit as an essential means. (Sendjaya, 2015)

3. The Mechanisms via which Servant Leadership Impacts Outcomes

Servant leaders tend to regard their followers to be supportive and responsible fellows and consider them in an egalitarian manner, encouraging followers' communion aim and stimulating them to become more uncompelled and caring to their customers (Popescu, 2016; 2014; 2013), and influencing frontline workers to manifest more citizenship behaviors. Servant leaders' developmental, self-reflective, and selfless predisposition makes them successful in altering all features of workers' service operation. Servant leaders display consideration and recognition toward their followers. From the latter's view, servant leaders regard them as proficient and trustable service suppliers. (Chen et al., 2015) As servant leaders do not employ coercive power in their interplays with followers, a social exchange link in the type of services supplied to followers (Popescu, 2015a, b) is utilized by servant leaders to compel their followers to perform well. After the followers obtain services from their servant leaders, they feel constrained to return them by using servant leadership behaviors that serve their followers: the social interplay between a servant leader and her followers generates a psychological atmosphere as grasped by followers that is advantageous to their professional advancement. (Ozyilmaz and Cicek, 2015)

Servant leadership and dyadic mannerliness of exchange influence performance evaluations when team fellows perform in accordance with culturally suitable interactive exchanges (Devine, 2015): a leader who can stimulate team fellows' association and dedication to the activity and objectives of the workgroup is well balanced to accomplish better outcomes. Servant leadership is appropriate to advance workgroup fellows' operation, particularly when leader and fellows interplays within the workgroup are compatible with cultural arrangements: the servant leader, instead of participating in time-serving behaviors, is involved in the separate group fellow's growth and career improvement. (Bakar and McCann, 2016) Because servant leaders

maintain their prime concerns on the followers, they persistently inquire themselves whether they accurately configure individuals (Mircică, 2014), or shape their personal intentions and employ the latter to accomplish them. Servant leaders are moral participants who strive to take part in moral undertakings and their followers, while being assisted, are reconstructed into moral participants and finally servant leaders themselves. Servant leadership demands that leaders guide followers for the latter's own eventual advantage. The precondition of servant leadership is followers' holistic moral and ethical advancement. The genuineness of servant leaders arises out of a spiritual and moral source of inspiration (Nicolaescu, 2015) moderated with an unselfish inclination to assist other individuals. Servant leaders depend on unbiased moral values external to themselves to obtain their assessment regarding what is right and wrong: they would not establish their decisions and undertakings exclusively on their presumed idea of morality. Team fellows' affect-based trust in the servant leader stimulates them to characterize themselves regarding their link with the leader. (Sendjaya, 2015)

4. The Direct and Mediating Influences of Servant Leadership on Job Contentment

Servant leadership has a developmental, self-reflective, and considerate inclination: servant leaders show a powerful developmental and selfless predisposition (Mihăilă, 2011), which may encourage workers' irregular subsequent thinking and make it more probable that the latter perceive each other as fellows, and not autonomous, distinctive persons. Self-efficacy and group identification moderate the link between servant leadership and the measures of workers' service operation. Individuals tend to associate their behaviors with their identity if they think it significant to preserve and support those identities. (Chen et al., 2015) When the topmost prime concern requirements of workers are satisfied via servant leadership, separate workers grasp the work setting as a place where leaders are proficient and consonant (Petcu, 2015), workers pursue fully on commitments, and everyone collaborates to accomplish the organizational goals. Followers return the services that they acquire from their servant leaders by displaying and expressing their contentment with the intrinsic and extrinsic characteristics of their responsibilities. The more workers are psychologically accomplished by the practice of assisting other individuals and the more persons gain from the undertakings of their servant leaders, the more the followers will be pleased with the intrinsic and extrinsic characteristics of their responsibilities. (Ozyilmaz and Cicek, 2015)

The worker-oriented focal point of servant leadership is revealed in a greater recognition of leader–member dyadic mannerliness of exchange within

the workgroup: the servant leader's "subordinate first" stress assists the leader in accomplishing better operation of workgroup fellows. When the latter are aware that the leader is interested in their advancement, they are likely to more thoroughly accept group objectives (Nica, 2015a, b) and mechanisms via their interplays with the workgroup leader. The effective link between servant leadership and group member operation is more noticeable when leaders and fellows in workgroups are relevant in mannerliness of exchange in their interplays. Leader–member dyadic mannerliness of exchange generates the exchange of culturally accepted duties. (Bakar and McCann, 2016) Leader's decision making process and organizational structure function as barrier requirements for servant leadership to influence worker job satisfaction. Psychological capital is the process via which servant leadership affects employee participation (Lăzăroiu, 2013; 2012; 2011) and workplace abnormal behaviors. Servant leadership arises from a personal belief to alter other individuals with moral boldness and spiritual comprehension into what they are competent of becoming. Followers are likely to react positively to servant leaders as they have confirmed themselves reliable as servants. Whereas servant leaders attempt to alter other individuals to be more servant-like (Pera, 2015), there is a more relevant goal that both the leaders and servants reciprocally strive to carry out. Instead of employing power to assist their demands, servant leaders abandon personal rights so they can successfully assist other individuals. Being a servant represents the self-notion of the servant leader: servant leaders' main purpose to assist may emerge from their self-notion as selfless people. The self-sacrificial character of servant leaders supplies a foundation for their behaviors to be readily mirrored by their followers. (Sendjaya, 2015)

5. Conclusions

Followers return their servant leaders' behaviors by evidencing comparable serving behaviors, generating intended employee behaviors (Bratu, 2015) that further a psychological and social setting in which significant organizational duties can be carried out. Reciprocation arises from a series of exchange processes that take place at a distinct level of the managerial pecking order (Nica and Potcovaru, 2015a, b, c) in which each servant leader assists to stimulate her followers to become servant leaders. Acquiring servant leadership furthers valuable employee positions, behaviors, and psychological atmospheres at work. (Ozyilmaz and Cicek, 2015)

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