

Minimalism and a Meaning First View

Uli Sauerland, ZAS
Artemis Alexiadou, HUBer & ZAS

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Abstract

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5 1 Introduction

The Minimalist Program seeks to solve the central puzzle of language: how could such a uniquely complex system could have evolved in our species within what is in evolutionary terms a very brief time period. Minimalism has developed into an extraordinarily productive and rich research paradigm as the contributions in this volume no doubt attest. Minimalism also has generated a number of predictions that were then confirmed by later research, such as the copy theory of movement and the reducibility of many analyses to interface properties.

In this article, we take a look at Minimalism from a variant based on a modification of one of its basic assumptions: the status of the central structure building operation Merge. While Merge in Minimalism is the biological innovation underlying language, we have argued that it may be fruitful to explore an approach where Merge is not part of language, but an operation of a language-independent, conceptual system (Sauerland and Alexiadou 2020). We have called this the Meaning First Approach. The Meaning First Approach, though it rejects a central tenet of Minimalism, is an exploration building on the insights of Minimalism and shares a lot of its properties. At this point, our exploration of the Meaning First Approach is only at the beginning, and perhaps one its major benefits at this point may be to allow a clearer understanding of the role of the Merge assumption with the intellectual bundle of assumptions that is the Minimalist Program.

Our contribution first reviews the Meaning First Approach, highlighting differences with mainstream Minimalism. Then we discuss the status of what in Minimalist analyses are purely syntactic properties in the Meaning First Approach. And thirdly, we sketch an Meaning First Approach to explaining human uniqueness.

2 The Meaning First Approach

The Meaning First Approach rests on several assumptions that are shared with Minimalism, but differs on two central assumptions: 1) that merge applies at the conceptual level creating complex conceptual representations and 2) that language provides a compression function that can map conceptual representations to an external realization of the type used in human

communication. Before we discuss these two differences in a more detail ,
briefly consider some key common properties of the two approaches: Both
40 assume that language is closely related to recursive data structures that represent thoughts. The MFA also accepts that their role in communication is only a secondary function of these recursive structures, and that their primary function is thought (Everaert et al. 2015). In fact, the initial motivation for the Meaning First Approach in Sauerland (2018) derives from the
45 observation that some constraints apply at the thought level independent of their realization in language. Thus, the MFA takes the thought-language relation to extend beyond constituency and include other aspects of *logicality of language* (Chierchia 2013).

The first defining assumption of the MFA is that the operation building
50 complex structures is not part of language, but applies in the conceptual system. Otherwise the operation is essentially identical to the Minimalist operation *Merge*:¹ Given a set P , we assume that the set of unordered binary tree structures over P is the set of all potential concepts C . In this perspective, Merge maps any two concepts, a and b , onto a single concept $a:b$, and is
55 commutative (i.e. $a:b = b:a$). C can also be described as the commutative free magma over P . Of course, Minimalist Merge is a recursive operation within language and its output is “interpreted at two interfaces, conceptual-intentional (C-I) and sensorimotor (SM)—the former yielding a ‘language of thought’ (LOT), perhaps the only such LOT.” (Chomsky 2015). We identify Chomsky’s LOT with the subset of C of licit structures (we discuss the
60 efficiency constraint on LOT below).

In difference to the Minimalist conception of Merge, we assume that LOT-structures are primary and then mapped to an articulation. One immediate consequence is that the Meaning First Architecture assumes a different
65 structure of grammar: Minimalism in all its current variants assumes the T-structure Chomsky describes above. The Meaning First Architecture assumes instead an straight arrow from the LOT-structure to the articulation. A cyclic operation is equally compatible with both conceptions. A second consequence is that while Minimalism allows uninterpretable or
70 semantically vacuous elements to be among the basic units Merge operates upon, the Meaning First Approach is more restrictive: Because the primitive concepts are language independent, they must have some semantic content. In practice this means that while Minimalism works with an interpretation function mapping syntactic entities to concepts, syntactic primitives do not
75 exist in the Meaning First Approach. The terminal nodes of the binary tree structures in P are semantic objects. Complex structure can be semantically evaluated and be mapped to an articulation.

¹We use more abstract algebraic terms, rather than the concrete set-theoretic implementation of Merge of Chomsky’s in order to side-step some uncertainties the latter has given rise to. (Sauerland and Paul 2017)

The second central assumption mentioned above, Compression, applies to the mapping to articulation. The MFA is committed to a realizational perspective where linear order and the phonological content of both lexical and functional concepts must be determined after a structure is formed. Minimalism is compatible with a range of different models for the PF-realization, including ones where linear order and phonological content are determined late, and proposals for such late linearization (Fox and Pesetsky 2005, and others) and insertion of lexical content (Halle and Marantz 1993, and other work in distributed morphology) have been discussed. The MFA builds on these conceptions, but integrates it with Chomsky's insight that structure generation is not well adapted to be used in communication.

The MFA assumes that articulation is constrained in an way that LOT-representations are not. A Thought is assumed to be a complex internal data structure that is entirely unsuited for communication: It lacks serial order and it may contain representational redundancies – elements that facilitate the internal, mental processing, but the presence of which is predictable for a fellow human from a partial representation of the LOT structure. In communication, humans do their best to use their body to quickly share a Thought with others by linearizing it and by not articulating any recoverable parts of it. One concrete example is the Overt Pronoun Constraint, which disallows the linking of an overt pronoun to a formal variable, in contexts where the overt pronoun is in contrastive distribution with a zero pronominal element (Montalbetti 1984).

Compression predicts ellipsis to be obligatory whenever it occurs. This prediction seems at odds with most cases of ellipsis recognized by Minimalism, where ellipsis is assumed to be optional. But even in Minimalism several varieties of obligatorily unpronounced material exists – traces, silent pronouns, silent operators, and incorporated heads. The MFA assumes that these are the representative cases of ellipsis, and that optionality is only apparent. Subtle differences in emphasis, need for clarity, and other factors must account for the variation.

Other differences between Minimalism and the MFA proposal of Sauerland and Alexiadou (2020) are in our view orthogonal to the two central differences we discussed in this section. In particular this holds for the MFA assumption that a third interface between language and other cognitive system accounts for some aspects of socio-emotive meaning. Sauerland and Alexiadou (2020) assume that social and emotional signalling extends beyond humans and beyond language, but that this mechanism in humans can intrude in interesting ways upon the expression of logical thought by language. But should this turn out to be disconfirmed, the MFA could omit the third interface, just like Minimalist theory could incorporate a third interface – in fact, some work seems to be open to this possibility: "So construed, language is I-language (internal language), a state of the computational system of the mind/brain that generates structured expressions, each of which

can be taken to be a set of instructions for the interface systems within which the faculty of language is embedded. There are *at least two* such interfaces: the systems of thought that use linguistic expressions for reasoning, interpretation, organizing action, and other mental acts; and the sensorimotor systems that externalize expressions in production and construct them from sensory data in perception.” (Chomsky (2007), emphasis ours)

3 Purely Syntactic Entities

Syntax is the origin of formal work in linguistics, and is the core component of many grammatical frameworks. In the Minimalist Program, however, a number of phenomena (for example, binding, scope, ellipsis) were seen to be better accounted for as being properties of the semantics-syntax interface. But for other phenomena, specifically movement, case and agreement, syntax is seen as crucial, and the notion of a syntactic feature is linked to the account of both. The MFA leaves only room for language-independent, conceptual properties to enter structure formation. While the MFA can built on some aspects of minimalist proposals, the MFA perspective requires a rethinking of these phenomena in terms of conceptual structure building and compression. Fully worked out solutions will take time, and we hint at some directions we find interesting to pursue and consider first movement, then syntactic features, and finally case and agreement.

Movement: In view of the fact that head movement has a controversial status within Minimalism, and perhaps is not really part of Syntax, we will only consider cases of XP movement here. Overt movement on the MFA could treated within the broader realm of ellipsis phenomena. This would allow a simplification of the Minimalist understanding of identity. In Minimalist Theories, two different notions of identity are distinguished: identity qua being two references to the same material and identity qua being two occurrences of the same material. Two references (or copies) provide the Minimalist account for movement dependencies as in (1), where only one occurrence of *which boy* can be pronounced. Two occurrences of the same material, on the other hand, would both be pronounced (e.g. *Which boy did which boy’s mother kick?*).

- (1) Which boy did the girl kick?
[which boy] did the girl kick which boy?

Drawing a distinction between strict and loose identity in this way is a theoretical choice though, not a necessity. Similarly, we may say $1 = 1$ in a weak sense, but $1 \neq 1$ in a strict sense. But arithmetic as a system only contains the first notion of identity. We suggest that (1) could have

160 conceptual representation similar to (2) containing two descriptions *the boy at x*, where x is an abstract location of the type visible in sign languages.²

(2) $\lambda p [[\text{exists} [= [\text{the boy at } x] [\text{at } x]]] [p = [\text{did the girl kick [the boy at } x]]]]]$

The concept `exists` would existentially quantify over minimal extensions
165 of a partial assignment g adding a boy to location x .

(3) $[[\text{exists } r] s] (g) = \exists g' \in \min\{g' \supset g \mid [r(g') = 1]\} s(g') = 1$

That the second occurrence of *the boy at x* must not be realized in (2) follows from compression, which also needs to account for exceptions to this non-realization of trace copies. Namely, in some complex structures it is blocked in English, and some languages must always realize traces at least
170 in part.

The above accounts for A'-movement phenomena that are present in the conceptual structure. Movement that is invisible to conceptual structure (i.e. total reconstruction) must be analyzed on the MFA as linearization not fully conforming to the conceptual constituency, i.e. PF-movement. Many
175 A-movement phenomena can optionally totally reconstruct, but when they don't reconstruct need not contain a description other than an abstract location (Takahashi and Hulsey 2009) as illustrated below. They suggest that case determines whether more lexical material is required at the trace, which we think is compatible with the MFA.

180 (4) A couple seems to be winning the game.
[[exists [= [a couple] [at x]]] [seems [the at x] be winning the game]]

Syntactic Features: A syntactic feature in Minimalist syntax is a feature that is accessible to the syntax. For example, having an initial vowel or being
185 edible are not syntactic features, while person, tense, case and agreement are. In the meaning first approach, structure building accesses only semantic concepts, so it is predicted to be sensitive only to semantic properties of the items. Therefore, phonological properties like having an initial vowel are similarly excluded from structure building. Semantic properties like
190 being edible is excluded from affecting structure building by the distinction between logical and non-logical properties in the MFA.

We mentioned above that the account of logicity beyond mere constituency is a core motivation for the MFA. Logical properties of structure

²The example under discussion would not require x , but other examples do (Sauerland 2007).

affect what structures can be formed. Meyer (2013, 2015) argues that her
195 principle of efficiency blocks a structure if a more efficient structure is avail-
able to account for data like the following:

(5) # Mary didn't study math or physics or both. (Meyer 2015)

Sauerland (2018) extends the efficiency analysis to different scopal struc-
tures, in particular reducing scope and binding economy of Fox (2000) to
200 Meyer's efficiency. Sauerland (2018) furthermore suggests generalizations of
Meyer's proposal to account for superiority phenomena, for restrictions on
type changing morphemes, and also for ungrammatical analytic sentences
as studies by Gajewski (2009), Chierchia (2013) and others.

We suggest exactly the logical concepts are accessible to structure build-
205 ing. Logical concepts can be characterized as permutation invariant (van
Benthem 1989) or as independent of experience. The experience-based con-
cepts are furthermore those that vary between individuals. The property
edible is excluded from structure building by either conception. In (Sauer-
land and Alexiadou 2020), we discuss the property *symmetry*. The logical
210 characterization of syntactic feature is more explanatory than then list pro-
vided by Minimalism. Some strands of Minimalism furthermore stipulated
an linear order of the syntactic features in sequence. But alternative ac-
counts of the relevant phenomena do not seem implausible to us at this
point.

215 **Case and Agreement** Over the past 30 years, the analysis of Case and
agreement has been central to work in the Minimalist program. We can't
foresee at this point whether the MFA can be even remotely as fruitful in
this domain of phenomena.

Case and agreement are frequently related to argument structure. Differ-
220 ent ideas about the mereological entities and primitive concepts underlying
argument structure are compatible with the MFA. We exclude conceptions
where verbal predicates relate to concepts that take multiple nominal argu-
ments of the type assumed in Montague grammar and other grammatical
theories based on usage. We think these are empirically untenable, but we
225 may also adopt 6 as a principle of the MFA (Aron Hirsch, p.c.). Since parts
of the meaning of verbal concepts like causation, agency, and change-of-state
are also present as primitives, then verbal decomposition is forced. This is
in line with the work of e.g., Levin and Hovav (2011) and Alexiadou et al.
(2015) among many others.

230 (6) Decompose if you can!

The work on case and agreement by Bobaljik (2006) may be promis-
ing starting point for a fuller account with the MFA. In this contribution

Bobaljik (2006) argues that not only morphological case, as proposed in Marantz (1991), but also Agreement is orthogonal to the basic syntactic licensing mechanisms that regulate the distribution of NPs. Bobaljik (2006) is critical of analyses that motivate A-movement in terms of feature checking as they seem circular. In recent literature arguments have been brought to the fore that syntactic movement for EPP reasons, i.e. to fulfill the requirement that the subject position must be filled in languages such as English is misguided (McFadden and Sundaesan 2018). Rather the factors that condition this seem to be phonological in nature.

4 Human Uniqueness

Especially since (Fitch et al. 2005), work in the Minimalist Program has sought to address what Everaert et al. (2015) as the *Evolutionary puzzle*. We understand the puzzle to be a mismatch between biology and geo-sciences. Biologically humans are in not remarkable in an obvious way of (Herculano-Houzel 2009, and others). But geo-scientist have seen it fit to speak of the *Anthropozene* (Crutzen 2002, and others). The answer to the puzzle, according to standard Minimalism (Chomsky 2013) is the evolution of Merge in humans. Merge may have only required a single evolutionary change, and if so, this step would have enable complex language and thought, view to rely on language as an instrument, and provide a plausible answer to the evolutionary puzzle. The terms of the Minimalist solution to the evolutionary puzzle are not compatible with the MFA, since Merge exists independent of language. But we speculate that a similarly attractive solution could be given within the MFA.

Standard Minimalism predicts that complex thought structures are accessible via language. More concretely, Spelke (2003) proposes that only the compositional semantics of language allows the complex concepts. But as far as we understand, work on animal cognition has show unexpected abilities (e.g. Weir and Kacelnik 2006) and the field is equivocal on whether non-human animals can form complex thoughts (Andrews 2014). There are also debates concerning animals' ability to communicate sequences with internal complex comparable to the sentences of language, but it seems to us that the evidence for human uniqueness of the sentence is strong (Schlenker et al. 2016, Sauerland 2016).

Our understanding of animal cognition provides no compelling reasons not to consider an MFA alternative to the standard Minimalist solution for the evolutionary puzzle. If Merge has arise independently of language, other properties of language would need to provide the answer for the evolutionary puzzle. One candidate seems to us to be linearization. Since linearization is a counterpart of Merge, but logically independent, this would closely echo the standard Minimalist answer to the evolutionary puzzle. Linearization

has an enabling role for communication of complex structures. [sauerland20]
275 suggests that, in combination with compression, it may also support complex
thought: namely, a highly compressed verbal sequence of a complex thought
may play a facilitation role in complex processing.

5 Conclusion

We have summarized and extended the MFA (Sauerland and Alexiadou
280 2020), and highlighted some key differences to standard Minimalism: con-
ceptual structure building, compression, the rejection of the T-structure,
different accounts of movement, syntactic features, case and agreement, and
finally of human uniqueness. Nevertheless we see a lot of common ground
and expect that it will not be easy to discern between the two views. One
285 insight from our preliminary exploration of the Meaning First Approach is
though the following: The significant consequences of changing essentially
only one assumption of Minimalism – assuming that compression is neces-
sitated by relocated merge to the conceptual system – shows how tightly
woven an intellectual package Minimalism is, to its great credit.

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