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Inferentialism, Compositionality and the Thickness of Meaning

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Abstract

The aim of this paper is to introduce Robert Brandom's Inferentialism (Inferential theory of meaning) and Fodor and Lepore' compositionality objection, and to protect Inferentialism from the objection based on compositionality.

According to Inferentialism, To grasp or understand a concept is to have practical mastery over the inferences in which it is involved. However, Fodor and Lepore oppose Inferentialism by offering the compositionality objection. They argue that compositionality is needed to explain productivity, systematicity and learnability of language, meaning is compositional. Since inferential role is not compositional, however, meaning is not an inferential role. Against Fodor and Lepore's objection, I present Brandom's responses and develop my own views.

The aim of this paper is to (1) introduce briefly Robert Brandom's *Inferentialism* (Inferential Theory of Meaning) as an alternative to the Referential Theory of Meaning (the meaning of a word is dependent on its reference), which is the existing dominant philosophy of language viewpoint, to (2) take a look at Fodor and Lepore's objection on Inferentialism based on *Compositionality* and to (3) protect Inferentialism from Compositionality objection.

In simple words, Brandom's Inferentialism states that meaning is an inferential role. Namely, according to Inferentialism, to have conceptual content is to play a role in the inferential game of making claims and giving and asking for reasons[1]. To grasp or understand such a concept is to have practical mastery over the inferences in which it is involved. Additionally, 'inference' in Inferentialism has different usage from normal one. In Inferentialism, inferential role is not a functional role in a user's psychological system, but the inferential role in *public use* of a term and the inferential role of a linguistic expression includes *circumstances* that the expression is adequately applied and *consequences* of its application. Also, inferential role includes not only formal Inference, but also

1 Concerned with relation between language and thought, I don't discriminate between meaning (language) and concept (thought) in this paper.

material inference that the correctness of inference is given by the content of the concepts involved in that inference (e.g. It's raining. Therefore, the ground will be wet).

Opposed to existing general strategies which explain inference through semantic terms like representation, reference and truth, Brandom tries to reinterpret representation, reference and truth by having inference in the center of the focus.

Meanwhile, Fodor and Lepore attack Brandom's bold project with Compositionality as a weapon. Normally, people can understand infinite complex concepts through finite simple concepts (*Productivity of language*) and people who understand the sentence 'Bob loves Sally' can understand related sentences such as 'Sally loves Bob' (*Systematicity of language*). A way to simply explain these linguistic phenomenons in existing linguistic argument was to assume that the complex expressions' meanings depend on their constitutive simple expressions' meanings and combination rules. That is, to assume that the complex expressions' meanings can be understood if simple expressions' meanings and their combination rule are understood (*Compositionality of language*). Fodor and Lepore, based on this original discussion, argue that inferential role cannot be meaning because it is not compositional. For example, it can be said that the meaning of 'pet fish' depends on the meaning and the syntactical structure of 'pet' and 'fish'. In other words, the meaning of pet fish is compositional. On the contrary, the inferential role of 'pet fish' depends on not only inferential role of 'pet' and 'fish', but also auxiliary beliefs that you might have about pet fish (e.g. pet fish are creepy). That is to say, inferential roles are not compositional. In conclusion, Fodor and Lepore argue that meaning cannot be an inferential role.

However, Fodor and Lepore continuously reinforce their arguments, having year 1998 as a starting point. They want to reinforce their position by adding *reverse* compositionality of 'if you can't understand simple expressions, you can't understand complex expressions' to *forward* compositionality of 'if you understand simple expressions, you can understand complex expressions'.[2] Fodor and Lepore's core argument is that *learnability* needs reverse compositionality but since inferential role doesn't satisfy reverse compositionality, inferential role cannot be meaning. In the following paragraph, we will take a look at the argument more closely.

Suppose that learning inference from [fish] to [typically it lives in lakes and rivers] is part of learning a simple word, 'fish'. Here, since inference from [pet fish] to [typically it lives in a fish tank] may be established, normal inferences which includes 'pet fish' become counterexample to introduction of the vocabulary, 'fish'. Since this argument can include repetition of adjective modification (from 'pet fish' to 'big pet fish', from 'bit pet fish' to 'big beautiful pet fish' and so on), it can have countless counterexamples in lexicons. These countless counterexamples make it impossible to learn a language. The only way to avoid this conclusion is to accept that the meaning of 'fish' is limited to only such a meaning that fish has in random complex expressions. In other words, each

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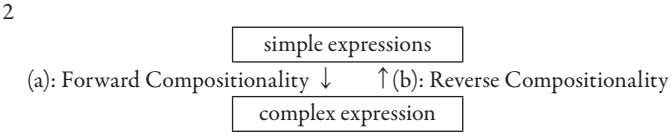


constituent expression contributes the whole of its meaning to its complex hosts. (The meaning of complex expression determines the meaning of simple expressions). People cannot understand complex expressions without understanding simple expressions (meaning is reverse composition).

If this reverse compositionality is required for theory of meaning, inferentialism cannot be proper theory of meaning. Inferential role cannot be reverse compositional. The inferential role of 'pet fish' does not determine the inferential role of 'pet'. You and I may have tendency to draw basically the same inference including 'pet fish'. However, you may think that pet snakes are dangerous while I may not, conclusively, we may have different inferential role on 'pet'.

How does Brandom answer to these objections? Brandom does not reject the productivity of language. Brandom, by referencing '*two-stage compositionality strategy*' and '*recursiveness between compound expressions*', tries to explain the possibility of productivity, systematicity and learnability of language without compositionality. He states that productivity of language is possible through differentiating (a) non-compositionality (holism) within *a* compound expression and (b) recursiveness between compound expressions.

(a) Brandom states non-compositionality is established within *one* compound expression. For example, the inferential role of such compound expressions like 'blue blood' cannot be calculated from its components' ('blue' and 'blood') inferential roles. However, inferential role of 'blue blood' is decided by many material valid inferences connected with 'blue' and 'blood'. This is the intention of meaning holism. (b) On the other hand, Brandom argues that recursiveness is established among compound expressions. Each compound expression's inferential role can be completely calculated from less complex expression's (other than what constitutes *that* compound expression) inferential roles.

Take a look at the sentence 'This is blue blood and that is a blue watermelon'. This is a logically compound sentence composed of a logical connective 'and (&)'. Here, the inferential role of the compound sentence that 'this is blue blood and that is a blue watermelon' cannot be directly calculated by its simple components, 'this is blue blood' and 'that is a blue watermelon'[3]. Therefore, a compound sentence's inferential role is non-compositional in one unit (sentence). However, the inferential role of the compound sentence, 'this is blue blood and that is a blue watermelon' can be completely calculated by using many other material inferences (as well as related background knowledge) related to 'blue', 'blood', 'watermelon', 'this' and 'that'. In this sense, recursiveness is established among compound expressions.

If so, what connections do *recursiveness* and *productivity* have? It may be understood through Brandom's argument that compound expression's meaning is made up of simple expressions, combination rule and *auxiliary background knowledge*. Although our knowledge is limited, we can create infinite new sentences by using limited background knowledge, simple expressions and combina-

3 Inferential role of 'this is blue blood and that is a blue watermelon' may contain background knowledge that 'blue blood' does not exist in our world.

tion rule. The reason why people can understand a totally new sentence like 'If you happen to climb Kwan-Ak mountain in year 2030, do not carelessly consume colorful mushrooms that grow there' (productivity of language) is that they already grasp the meaning of each small parts of the sentence through material inferences and that they can *project* them in understanding or producing new sentences. This is what recursiveness means. However, these projection processes are not transparent. That is, in spite of your knowledge of simple parts and grammatical rules, it is possible in some case for you not to understand right away the meaning of the combined compounds (A compound is not a function of its compositions and combination rules). In order to understand the above sentence completely, you will have to know the related background knowledge ('if a mushroom is colorful, it is poisonous) which is not included in the meaning of each word in the sentence.[4]

What is my diagnosis of the two opposing arguments? I reject Fodor and Lepore's reverse compositionality argument by claiming that children can learn a language against countless many counterexamples. Children learn vocabulary through similar sentences that are heard *typically* and *often*. Though there can be many counterexamples including 'pet fish', children have much more occasions to encounter typical sentences that include the word 'fish' and they learn from that. Therefore, reverse compositionality argument does not hold. At most, only forward compositionality is needed. I agree with Brandom's position which argues that productivity of language can be explained through '*two-stage compositionality strategy*' and '*recursiveness among compound expressions*'. In the end, forward compositionality is not so much a required condition in theory of meaning. Recursiveness is enough. Based on these arguments, I concretize simplified Brandom's theory of how 'two-stage compositionality can explain productivity of language through '*the theory of repeated hypothetical two-stage compositionality*'.

Let's hypothetically describe the process of a child mastering the meaning of the word 'red'. The following process is chronological, but the order is of no importance.

(1) At first, the child personally encounters red objects and comes in contact with 'red'. The child experiences adults telling him/her that 'this is a red hat', 'this is red blood', 'this is a red book' and so on (this includes experience or contact through phonetics of a language). At this time, the child experiences material inferences from circumstances encountering red objects to linguistic expressions related to red. By repetition of this kind of exposure, a general concept of the color red is established.

(2) The child unclearly classifies predicates from singular terms in respect of syntactical and semantic characteristics.

4 Some philosophers would say that it is unnecessary that its dangerousness should be involved in the meaning of colorful mushroom. But I think that the boundary of meaning is vague and that it is not easy to establish the criteria of distinction between analytic and synthetic sentences, as Quine said. Moreover, in my opinion, its dangerousness is essential part of meaning of colorful mushroom in terms of human survival.

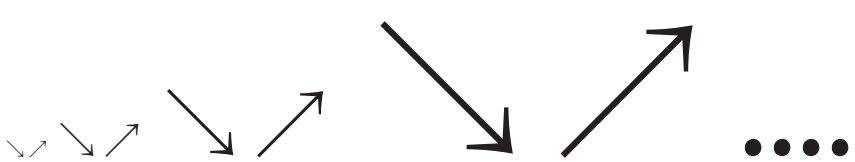
(3) Through steps (1) and (2), the child goes through *primary decomposition process* from compound expressions toward simple expressions.

(4) The child applies what he/she learned from steps (1) and (2) to express those compound expressions. During this process, the child is evaluated by qualified adults. That is, if it was used incorrectly, they would correct him/her and if it was used adequately, the child would be rewarded. The child goes through *primary re-composition process* from simple expressions toward compound expressions.

(5) The child learns blue, yellow, green, etc in the same way as above. The realization of material inference such as 'if this is red, it is a color' is accomplished. The red they know in this case is slightly different from the red they learned only from process (1). While red in (1) was mostly related to the applied circumstances, red in this process includes Consequences such as 'this is a kind of a color and it is different from shape, etc'. Also, through comparison of red with other concepts, its meaning becomes clearer and definite. Then, *secondary decomposition* and *secondary re-composition* are repeated.

(6) As the child obtains more specific knowledge about the world, figurative and metaphorical meaning of red is learned. For example, in relating to 'red blood', such sentences as 'human blood is red but some reptilian blood is green' stipulates the meaning of 'red'. In the case of the rainbow color, the rainbow color understood in this step is slightly different from rainbow color that could be understood in step (5). By obtaining the auxiliary knowledge of 'rainbow colored cows do not exist in our physical world', the meaning of 'rainbow color' is linked with the meaning of 'imaginative, unrealistic and fictional'. By obtaining the common knowledge that 'rainbow colored mushrooms are dangerous', the content of 'it's not necessarily beautiful, it can be dangerous' can be linked with the meaning of 'rainbow color' as well. Here, *tertiary decomposition and tertiary re-composition* are repeated. And these processes can be continued.

These processes may show by a diagram below. (Down-arrows represent decomposition stages and up-arrows represent re-composition stages)



〈As one has more knowledge, the size of arrow become larger. 〉

However, the debate cannot end here. More fundamentally, behind the background of strategies to differentiate the success and the failure of theory of meaning by having compositionality as a basis, there is sharp confrontation of *two intuitions* about the nature of meaning. I claim that the root of the problems is not compositionality, but what I call the thickness of meaning. I think that

there is an inevitable and nonnegotiable gap between *thin* meaning camp and *thick* meaning camp. Thin meaning is, roughly speaking, composed of minimal properties (properties that are restored in simple expressions when 'the fact that simple expressions have only such meanings that is common to random complex expressions' is accepted). Thick meaning includes auxiliary properties as well as minimum properties. Fodor and Lepore argue that since compositionality is formed, the meaning is thin, but the compositionality they talk about is applicable only if already thin meaning is premised. In other camps, it is possible to say that compositionality is not applied because meaning is thick.

If base intuitions are different in essence like this, it is hard to expect one side to completely disprove the other through persuasive argument. I think that meaning is thin on one hand and thick on the other hand in nature and distinction criteria of them are unclear.

Moreover, I think that Fodor and Lepore's arguments have incoherent aspects on compositionality and thin meaning. In Fodor and Lepore (1991), they appeal to the impossibility of analytic and synthetic distinction while attacking inferentialism. They claim that one way to avoid compositionality objection is to distinguish meaning constitutive inference and meaning non-constitutive inference, but it is impossible to distinguish meaning constitutive inference and meaning non-constitutive inference, as it is impossible to distinguish analytic and synthetic inference. In Fodor and Lepore (1991), they depend on the impossibility of analytic and synthetic distinction, but they implicitly rely on the analytic and synthetic distinction possibility in order to support the thinness of meaning. Therefore, I think that we have one of strong reasons to reject Fodor and Lepore's thin notion. If this is right, Fodor and Lepore's objections based on compositionality cannot challenge and/or damage Inferentialism because meaning is not always thin and also because their arguments have a problem.

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