

A CATEGORIAL SEMANTICS

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ABSTRACT: In this paper, I present a categorial theory of meaning which asserts that the meaning of a sentence is the function from the actualization of some potentiality or the potentiality of some actuality to the truth of the sentence. I argue that it builds on the virtues of David Lewis's Possible World Semantics but advances beyond problems that Lewis's theory faces with its distinctly Aristotelian turn toward actuality and potentiality.

There are three recognizable features that consistently accompany a theory of categories going back to Aristotle's treatment of the topic in his *Categories*.¹ (1) Categories are associated with linguistic predicates. In fact, the words 'category' and 'predication' have the same etymological foundation. In this way, categories are equated with the activity of identifying things according to characteristics that can be rightly attributed to them. Since these characteristics are semantically consistent and able to be predicated of more than one thing, categories are often associated with universals.

(2) Categorial terms are very "broad" when considered both (2a) intensionally and (2b) extensionally.

(2a) The intension of a term is the meaning of the term, which helps fix the reference of the term and ideally identified with the necessary and sufficient conditions for the correct use of the term. If we think of predicates in terms of the meaning they express, they reveal a discernible hierarchical nature among them in such a way that some are said to "fall under" others.² Predicate P is said to fall under predicate Q when the intension of Q is explicitly contained in the intension of P but not necessarily vice versa. For example, the predicate 'giraffe' explicitly expresses what is expressed by the

¹ For a helpful general overview of the topic and bibliography see Thomasson.

² For a discussion of Frege's view on the different senses of 'is' see Hintikka & Knuuttila, p. ix.

predicate ‘animal’ and so ‘giraffe’ falls under ‘animal.’ Categories are associated with those predicates that have the most predicates that fall under them and so are most broad in nature. For Aristotle, these broad terms are ‘substance,’ ‘quantity,’ ‘quality,’ ‘relation,’ ‘place where,’ ‘position,’ ‘time when,’ ‘habit,’ ‘action,’ and ‘passion.’

(2b) The extension of a term is related to its reference;³ the particular things referred to when the term is used. If predicate P falls under predicate Q , any name of an object that has P correctly predicated of it also has Q accurately predicated of it, but not necessarily vice versa. This can be expressed within a set theoretic framework: suppose that set A has predicate P accurately predicated individually of each of its elements and set B has predicate Q predicated individually of its elements. When P “falls under” Q , all members of A will be included in B (although there might be some members of B not in A). When understood extensionally, categories are most broad in nature in that they refer to the largest sets (of real objects, which is addressed by condition ‘(3)’ below).

(3) Categorical terms provide a meaning nexus ordered to an understanding of the “real world as real.”⁴ Categories provide the fundamental ground of meaning so as to express the structure of reality. Classically understood, real objects—with which categories deal—were opposed to mental objects. Category theory provides a way of limning the isomorphic relationship between meaning and reality. In order for category theory to provide a fundamental theory of meaning flexible enough to account for this

³ Although some do not equate extension with reference. Oftentimes, extension is understood to mean just the objects in a set. For example, the extension of redness is just the set of red things (such as cardinals, etc.). In contrast, reference is often used to indicate not just objects but even aspects of objects.

⁴ For example, Aquinas divides being into real and mental being. Real being is being that is divided fundamentally by categories.

isomorphism, it must be concerned with perceptual content and the structure of human experience (psychology). In addition, a categorial theory will have to be integrated both with logic and the canons of reason, and the basic function of language. In fine, a category theory must provide not just a structure of reality, but a radical theory of meaning articulating a plausible semantic intercourse with reality.

In this paper, I shall provide a semantic theory that incorporates a categorial functionality which integrates these three features traditionally assigned to categories. There has been an inclination to favor ‘(1)’ and ‘(2a)’ over ‘(2b)’ and ‘(3)’ by philosophers when presenting theories of categories. I shall argue that categories should be thought of as providing semantic integration of the regions of perception, logic, language—including the sense and reference of our terms and the fundamental divisions of reality—and I shall do so in the context of a possible worlds truth functional theory of meaning as my point of departure. To wit, not only do categories provide the structure for determining fundamental properties for things in the world, but they also are essential in the determination of the very structure of objective meaning, which span both actual and possible objects of reference. By providing a way around intractable problems faced by recent semantic theories, I hope to bring categories back to its rightful place as key theory for unifying fundamental elements of the world, experience and reality. David Lewis presented his “General Semantics” (1970) and with help from his possible world truth functional semantic theory,⁵ I present here a preliminary “Categorial Semantics.” The essence of categorial semantics is that the meaning of a sentence is the function from the

⁵ For a clear presentation of possible world as a foundation for semantics, see Jacobson, chapter 2, “Semantic Foundations.” Especially helpful is her use of set theory to explicate meaning as a function.

actualization of some potentiality or the potentiality of some actuality to the truth of the sentence.

I.

In order to make progress when investigating a semantic theory, one must distinguish two closely related questions: “What do our words mean?” and, “In virtue of what do our words have meaning?”⁶ In this section, I shall seek out an answer to the first question within the context of contemporary semantic theory, broadly and selectively, understood. In section ‘III.’ I shall bring in the question about how words obtain meaning.

The fundamental meaning of a sentence is related to the conditions under which, or the possible conditions under which, the sentence would be true.⁷ Just as the meaning of a sentence is related to the conditions under which the sentence is true, so too the meaning of the words fundamentally depend on the meaningful sentence as a whole that they compose.⁸ However, at the same time, in order to explain how humans are able to understand right away sentences not previously experienced, it is clear that there is a compositionality between the sentence’s words and the meaning of the sentence as a whole in such a way that the meaning of the sentence is built up from the meaning of its words (and the relations or structures that exist in and among them). In fact, the meaning of a sentence is a function of the meaning of the words that make it up. So, if someone

⁶ Lewis (1980), p. 18.

⁷ Davidson, p. 311.

⁸ This has been referred to as the “context principle” and can be found in Frege, section 60.

has some knowledge both of the content of a given word and some rules (such as syntax, etc.) for using the word to build a meaningful sentence, one can anticipate new meanings at the sentential level, and ultimately at the truth conditional level.

Since the meaning of a sentence is dependent on its truth conditions, it is important to identify a general theory of truth. According to Possible World Truth Functional Semantics (PWTFS) the meaning of a particular sentence is the conditions under which that sentence would be true in some possible worlds or state of affairs.⁹ For example, the meaning of the sentence, “A red bird flies swiftly” is the set of possible worlds in which “A red bird that flies swiftly” is true. Since this is an extension of the notion of the meaning of a sentence based on the truth conditions that hold in the actual world in relation to that sentence, and there are a vast number of possible worlds in which non-actualized sentences are true (and each of us have a sense of these broader possibilities) a more general (and plausible) theory of truth conditions is obtained. Since the truth value of complex sentences are determined by the semantic and truth functional elements of its constituents—regardless of the world that is being referred to—the truth conditions of sentences at a more complex level can be logically analyzed in virtue of its sentential parts.

PWTFS ultimately establishes meanings as weighted toward a referential or extensionalist account. That is, meanings work by picking out the right sets of possible or actual objects from some specific set of worlds in which the sentence expressing the meaning is true. To use the example given above, “A red bird flies swiftly” means the function by which a set of possible worlds gives as its output the right set of objects as

⁹ See Lewis (1970) and Weisler.

the conditions for the truth of the sentence: namely, those in which a red bird flies swiftly. When one takes into consideration the theory of compositionality, the meaning of the sentence is all the possible worlds in which there is at least one object that exists in the intersection of the sets: of red objects, of birds, of flying objects and of swiftly moving objects.

Advantages of this theory of meaning abound. In employing possible worlds for filling-out truth conditions—and consequently, meanings—some intensional functions seem to be obtained automatically from this analysis. A problem with purely extensional theories of meaning is that they are usually unable to distinguish intuitively different meanings for co-referring terms. To use Quine’s example, the extension of the term ‘animal with a heart’ is identical to the term ‘animal with a kidney.’ Since in the actual world there is no cordate being that is not a renate being, and vice-versa, if the meaning of these terms is based purely on its extension in the actual world, then on a pure extensional theory the meanings will have to be identical. However, on PWTFS since there is a possible world in which some animal has a kidney with no heart and vice versa, the meaning of these terms are able to be distinguished and captured for each. In this way, more subtle meanings are captured indirectly: meanings are obtained for co-extensive words through the diversity among worlds where even very similar sentences will turn out to have different truth-values.

Another advantage of this view is that it does a good job at adumbrating the meaning of modality (necessity is a proposition that is true in all possible worlds, etc.).

However, PWTFS has considerable problems facing it. After I spell-out some of these, I shall build on its strengths in what I call a ‘categorical semantics.’

II.

Problem 1: *A sortalist theory is required to provide truth conditions for identity statements.*

A full theory of meaning needs to be able to give unambiguous answers to identity questions for most objects. However, as David Wiggins and others have argued, even if one presupposes a non-relative notion of identity, asking whether x and y are the same thing cannot yield an unambiguous answer. Such a question requires the identification of some sortal term—which answers the question, “The same what?”—in order to be able, in principle, to be answered.¹⁰ Similarly, in order to count something, one must count individuals as sorted by some kind. For example, one cannot simply count objects in a room, but one must count objects under some sortal concept (such as books, or pieces of furniture, or some combination). Due to the objective status of possible worlds and the principle of compositionality, sortals are required within each possible world, corresponding to each thing about which an identity claim can be made. Thus, not only are there objects in most possible worlds, but there are also sortals that correspond to these individuals. Specifically, objects will be in their respective sets if and only if they have sortal properties.

Possible worlds are not intrinsically structured.¹¹ However, in order for sentences to be true and to have meaning, there needs to be some principle that determines objects to the set in which they belong. For example, not only would the set of horses have

¹⁰ Wiggins, *Identity and Spatio-Temporal Continuity*.

¹¹ Or, what amounts to the same thing, they are fundamentally fractured and promiscuous. That is, there is a set for any conceivable collection of objects.

something in common for their set membership but even the most fundamental particles and metaphysical simples need sortals associated with them in order to have identity and countability.¹² Philosophers should seek to say something about that structure when theorizing about the meaning of sentences. Such a structure would work well with the theory of compositionality.

Problem 2: It cannot handle substitutivity in certain propositional contexts.

Genuine synonymy between two terms (say) is obtained by there being two sentences with so-called synonymous terms that are true in exactly all the same possible worlds. Yet, on PWTFS there are some contexts in which (otherwise) obviously synonymous terms yield different truth-values. For example, it might be true that “John believes that an actor works on a stage” but false that “John believes that a thespian works on a stage.” Thus, it seems that this view cannot be a sufficient account for the meaning of synonymous terms.¹³

Problem 3: It cannot handle transworld identity.

That one and the same (identical) thing is understood in opposing states of affairs seems a part of the general meaning of sentences. If the meaning of a sentence were a function of possible worlds to that sentence’s truth, then it would be a mistake to think that there is no transworld identity for those objects named in the sentence. For example, it would

¹² Although sortalists will recognize that at fundamental some of the prominent features of identity will break down, but not entirely. See Lowe, *The Possibility of Metaphysics*, chapter 3.

¹³ This objection is modified from Lycan (2008), p. 131.

seem that the meaning for the sentence “Sue is a medical doctor” should involve only Sue and those persons identical with her in the possible worlds that spell out the meaning of the sentence. The meaning of the sentence involves only Sue.¹⁴ A helpful account of meaning will include transworld identity.¹⁵

Problem 4: *Something like mental content is required to support this theory of meaning.*

Given the theory of compositionality, it is more plausible to hold that meanings are built up from not only truth functional connectives and set theoretical sorting but also in some way through the lens of perceptual content.

Due to the theory of compositionality, the meaning of a sentence is determined by the terms that make up the sentence. The truth functional features (such as the conjunction ‘and,’ etc.) through which complex sentences are obtained are without content. The content for the terms comes from the basic meanings of the terms themselves. Such content is fundamentally related to, and commensurate with, perceptual content. If this were not the case, then it would seem possible for every possible world to be extremely different from the way it would be possibly perceived by us, in which case a theory of meaning would have nothing to do with our experience and perceptual interaction with the actual world. Thus, it seems that the fundamental meaning of our words includes some basic relationship to perceptual content. PWTFS takes a non-mentalist approach to semantics. However, it seems that some specific relationship to “mental content” is

¹⁴ Lewis (1986).

¹⁵ Lycan (1991 517) makes a similar complaint. Working from a Montague inspired semantic theory, Cresswell, in contrast to Lewis, holds “the same basic individual can exist in more than one world, though its manifestations may be different in different worlds” (p. 94).

required for shaping up a theory of meaning for sentences in order to account for the fact that meaning is in some sense mind-dependent and integrated at the ground level with human intention, communication, and experience. Such a desideratum must be taken in light of the important distinction for a theory of meaning between what a sentence means, and that in virtue of which the sentence has meaning.

Problem 5: *Given ‘Problem 4’ above, if a mentalist point of view is brought in there are puzzles in the interaction between the meaning of a sentence and what a person means by uttering a sentence.*

Involved with sentence meaning seems to be what the speaker of the sentence intends or understands the sentence to mean. Puzzles arise when considering especially the referential meaning of a sentence. On PWTFS, the reference of the sentence is fixed by the meaning of the terms as a function from possible worlds to the sentence’s truth. This can be different from what the speaker means. As a result, in the case where someone (mistakenly) utters the sentence, “*Hens* crow too early in the morning”—meaning it to be about the annoying practices of *roosters*—the sentence would literally be false, although it seems reasonable that since the speaker meant to refer to roosters, it should be true at the level of speaker intention. Thus, a theory of meaning that can integrate literal and speaker meanings would be advantageous.

Problem 6: *It lacks a robust account of propositional inference.*

A theory of inference based on the relationship among meanings instead of material truth conditions of possible worlds would be preferential since it is a more intuitive account of

inference. Regarding logical inference, PWTFS strikes one as involving “logical luck” or “cosmic coincidence.”

III.

We shall first look at the categorial semantic theory in general. In the next section, the theory will be investigated to see how it can handle individual sentences.

Although Aristotle’s theory of categories is often associated with the specific list of them in the second chapter of his *Categories*, we take inspiration for categorial semantics in the structural insights about categories from his first chapter:

Of things themselves, some are predicable of a subject, and are never present in a subject. Thus 'man' is predicable of the individual man, and is never present in a subject.... Some things, again, are present in a subject, but are never predicable of a subject. For instance...a certain whiteness may be present in the body (for colour requires a material basis), yet it is never predicable of anything. Other things, again, are both predicable of a subject and present in a subject. Thus while knowledge is present in the human mind, it is predicable of grammar. There is, lastly, a class of things that are neither present in a subject nor predicable of a subject, such as the individual man or the individual horse.¹⁶

This passage is understood to generate a matrix in which universals and particulars are matched with accidents and substance. However, Aristotle advances the matrix to show how they are integrated in such a way that primary substance (that which is neither predicated of another nor in another) is that upon which the others are founded. The universal exists in virtue of the particular and the accident exists in virtue of the substance. The dialectic of actuality and potentiality is a vital way for understanding these items in relationship to each other.¹⁷ On my view, the more universal a thing is

¹⁶ Aristotle, *Categories*.

¹⁷ It seems likely that Aristotle is at pains to show how these four items relate to each other in favor of an imminent realism that gives priority to individually existing substances to overcome a problem raised

understood to be from the individual substance, the more potentiality it expresses.

Similarly, the more universal an accident is understood from its accidental particular, the more potentiality is also expressed.¹⁸

In order to illustrate the role of potentiality, we start from the ground up, imagining a nascent person seeing for the first time. What the person sees has a certain shape and color and appears to the person as such. As that person has more experiences with other shapes and colors, she starts to catch onto similarities and continuities among the variety of things of her experience. She begins to shift from an immanent and solipsistic awareness of images (adventitiously popping into her mind), in the broadening of her experience and grasping more common notions, to formulating a referential notion of these images. In other words, she proceeds from the notion of particular shapes and colors to the more general notion of ‘color’ and ‘shape’ to the categorial notion something like Aristotle’s ‘quality.’ Through this process she realizes that included in the notion of a quality is the notion that any quality is a quality *of something*; specifically, the notion of a corporeal body in which the quality resides. In this way, the notion of reference to something substantial is realized as that in which the quality resides. The object is able to be seen by her from different sides and so provides some unity to the various qualities through which it is experienced. The various ways in which the dimensionality of the object is experienced yields general concepts for understanding

against the Platonic view of forms as transcendent and existentially removed from material things in Plato’s *Parmenides*.

¹⁸ The structure is very similar to the schema among Lowe’s (2006) four “categories,” except I add the relationship of actuality and potentiality as well.

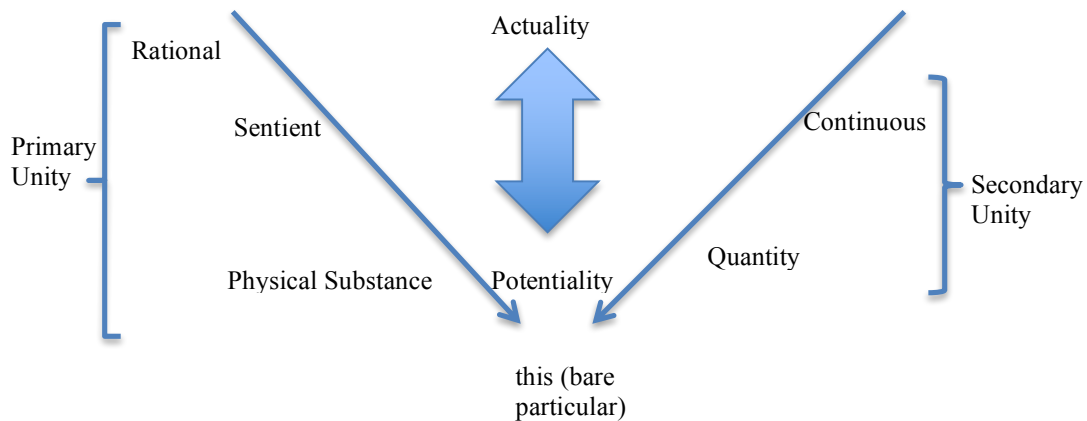
such objects, and the notion of quantity as a category is realized.¹⁹ Like quality, quantity also has a reference to something else beyond it, which ultimately is quantity of a substance. Substance provides unity of the object over and above the diverse quantities and qualities associated with objects and both are understood to depend on it as that in which they exist.²⁰ As with generic accidents such as quantity and quality, there is both a generic and more specific way of understanding a substance. Most generic is “substance,” simply speaking, which can be predicated of all substances; more specific than “physical substance” is “living” then “sentient” and finally “rational.”²¹

¹⁹ It might seem strange that I am jumping right in without argument to some of the particular categories of Aristotle: quality, quantity, and substance. However, like myself find it plausible. For example, McMahon says the following: “the categories can be said to account for the major syntactic/semantic roles in language, and any term which can be taken as categorematic can in some sense be included within them.” Regardless of what the categories are in content (which is outside of the scope of this paper), I am arguing for the truth of the structure of categories in terms of actuality and potentiality as a foundation for sentence meaning.

²⁰ It is at this level that some developmental psychologists have described as the grasp of an essence of an object. Similarly, this is a movement from a process of identifying directly perceptual similarities to similarities in concept in which the similarities are hidden. Categorial semantics offers a perspective on the vexing issue for psychologist in clearly distinguishing between perceptual and conceptual categorization (Rakison & Oakes 7).

²¹ There are some significant differences between this view and Lakoff’s “Idealized Cognitive Models.” Unlike Lakoff, the category theory I am presenting has a metaphysical as opposed to a purely cognitive ground. Like the classical view of categories, the view I am presenting pertains to ‘extramental reality’ as opposed to a mental framework. Also, whereas Lakoff’s account holds ICMs as abstract, they are not flexible enough to fit every situation. The view that I am presenting is flexible to fit every situation since

Figure 1



There are a few things that need to be explained about this account (and *Figure 1*) given above. The first is that potentiality becomes more salient as the level of “a this” or “bare particularity” is approached. ‘This’ can be understood either in terms of primary unity or secondary unity in which “the this” is potentially referred to by the consideration of some quality or quantity such as “this thing” in which they inhere; or, it can be identified as potentially being the substance itself (rational animal) that is Obama, or Hillary Clinton, etc. At such a level of deep potentiality it could be anything (in a fully modal and real sense) since this description—‘this!’—applies generically to everything! Second, ‘this’ has the semantic force of a basic referential focus or the ultimate target of the arrow of one’s conscious intentionality and as such serves as the basis of the referential function of language. All attributes are contained in the notion of being “a this” insofar as “this” is potentially rational, or sentient, etc. The focus of rationality is “this” such that the rational is “this rational (thing)” as having a simple reference and gives it its status as a particular object (thing). Third, potentiality is a function of

they are equated with openness and potentiality to that which can be realized in reality (as opposed to the traditional notion of ‘abstract’ that Lakoff is using as removed from reality).

vagueness. When something is being understood as a sentient thing, it is vaguely a particular sentient thing while not being any sentient thing in particular! ‘Sentient thing’ is to be understood as itself a vague object that is ontologically indeterminate (it is vague which sentient thing it is and whether it a human being or a dog, etc.). Conversely, as you go higher in the hierarchy, the less vague things become. This is because higher in the hierarchy are specifying and determining properties of those that are lower in the hierarchy. This is seen in the fact that one does not experience in the real world “animals” as such but rather certain types of animals. At the highest level of actualization the object has “actual being,” which separates it from mere potential being: it actually exists as opposed to only possibly or potentially existing. In a manner of speaking, it is what differentiates the actual world from the merely possible world.

Finally, one and the same thing has, objectively speaking, potentiality and actuality at different levels. Although potentiality can be separated-off from actuality as its own vague object, the vague object is (potentially) the same as the actual object except that the potentiality is an objectification of the actuality at a lower level of actuality. This is seen in the fact that when one sees a patch of color, although on one hand in itself it is vaguely just a patch of color that could be associated with any actual object, it is also the patch of color of an actually existing substance! Importantly to this theory is the fact that in an objective sense, a patch of color in itself is potentially some individual other than what it is: although it is actually the patch of color of the substance of Obama, as such, it is potentially something other than Obama, such as potentially the patch of color of

Hillary Clinton or even of some inanimate object.²² Regarding unity, simple unity obtains when the different levels on the hierarchy are components of the same thing, whereas secondary unity is such that that which is at the lower level of the hierarchy refers to “the this” which is a substance as that in which it exists.

Let us see how far set theoretical considerations can take us towards a clearer understanding of this theory. We begin with an actual substance, Barack Obama. He exists in the set of actual “thises.” He also exists in the set of actual substances, sentient beings, living beings and rational beings. He also exists in the set of actual Presidents. However, in virtue of his membership in these actual sets of various kinds, the “this” which is referenced to when he is actually being referenced is potentially a lot of other things. For example, to be a President is the actualization of the potential of “holding public office” and as such, since that potentiality is contained implicitly in this actualization, Obama is potentially something other than President that falls under that potentiality, such as being “secretary of state.” Deeper potentialities are present as one moves closer to the limit which is that at the categorial level (in this case, quality). At a radical level, since Barack Obama is a “this” there is potentiality for the focus of reference of him to not refer to a human being at all, but possibly a star or tree. Of course, Barack Obama himself could never be a star or a tree since Barack Obama is essentially a human being and we think of his name attached to the continuing actually existing substance.

²² An interesting feature of this theory is that on one hand, similar to Frege’s view of sense a potentiality is what the mind grasps, and the actuality of that potentiality makes the sentence true or false. A difference with Frege’s view is that on categorial semantics, in some and perhaps all cases, the sense and the object are one and the same.

Corresponding to the metaphysical structure of reality is the act and potency that exists in relation to human cognition, and it is at this point that we seek an answer to the question of how words obtain meaning. The categorial semantics holds a very broad—if not permissive—view of “acquaintance”;²³ namely, that a necessary condition for being acquainted (in a semantic sense) with an actually existing object is for one to experience something that is potentially associated with the actually existing object. Suppose someone catches a glimpse of a patch of color that is speckled mixture of black and grey. It turns out that in actuality it is the color of Barack Obama’s hair. However, as such, since that patch of color is potentially the color of a rather large number of actual things that have that color, the perceiver of the patch of color has obtained a degree of acquaintance with all of those things. Similarly, say that one sees an animal approaching but one cannot make out exactly what kind of animal it is: as such it is potentially any number of actual animals that exist and in virtue of this one becomes acquainted to a degree with all of them.²⁴ Words gain their meaning through a process of actualization of potentiality and potentiality of actualizations. Words are potentially meaningful, and the

²³ Cf. Russell’s view of acquaintance as contrasted with knowledge by description.

²⁴ Note that regarding the psychology of concept development, in moving from potentiality to actuality in one’s understanding of the world, young children will have an easier time distinguishing between things at more fundamental levels (the difference between a living and non-living thing) than within higher stages of actuality (the difference between a dog and a tiger). This appears to line up with recent advances in developmental psychology: “18-month-old infants responded to the superordinate-level categorical distinction between animals and vehicles but not to basic-level contrasts within these domains such as dogs versus horses” (Rakison & Oakes 9).

crispness of their meaning increases in relation to the deeper actuality that is obtained at the level of cognition.²⁵

IV.

In light of the analysis given in the last section, in this section I offer semantic analysis of a group of sentences, which serves as vehicle to explicating categorial semantics.

(1) “Barack Obama is a human being.”

Since the meaning of a sentence in categorial semantics is the function from the actualization of potentialities or the potentiality of an actualization to the sentence’s truth, the conditions for the truth of this sentence will be some potentiality named by Barack Obama that is actualized as a human being. Barack Obama needs to name an actual individual and so what is named by Obama requires the actualization of fundamental existence of “a this.” Beyond the actualization of an individual, further actualizations are required: it is not only a sentient living substance, but rational as well. When these conditions are met, the sentence is true.

Like PWTFS, the meaning of this sentence is the conditions under which it is true, specifically, the condition in which Barack Obama is a human being, including all possible worlds in which the conditions are such that the sentence is true. On a logical analysis, the possible worlds in which this sentence is true are worlds in which the item

²⁵ As is clear, the objective of categorial semantics is to find deep properties and structures of language. However, instead of identifying a set of rules that pick out well formed sentences in which the “bracketing of deep structures was done in terms of fairly traditional grammatical categories” (Lycan 1986 5), the categorial semantics method takes a combination of a metaphysical (including cognitional ontology) approach, which is facilitated by the notion of truth conditions.

named 'Barack Obama' belongs to the set of human beings. If someone thought that this sentence meant that Barack Obama is a good chess player that person would not understand the sentence since the conditions are such that there are some possible worlds in which Barack Obama is a human being but is not included in the set of good chess players and yet the sentence is still true in those worlds.

On a categorial semantics, meaning tracks the answer to the following inquiry: what actualization of some given potentiality needs to be realized in order for the sentence to be true? Specifically, the sentence is true when the actuality of some patch of color, etc., which is potentiality Barack Obama is actually Barack Obama (according to secondary unity with this actually existing "this") and "this" named by Barack Obama is both potentially a human being and actually a human being. Consequently, the sentence is meaningful both because the patch of color, even if it is not the patch of color of Obama, could have been, and the "this" identified through the patch of color is potentially a human being.

What is the relationship between 'human being' and 'Barack Obama'? 'Human being' is a description and 'Barack Obama' is a name. However, 'Human being' is a term associated with Barack Obama in an essential way such that every possible world in which there is Barack Obama, that thing named is a human being (or, while Obama exists, he is human). Associated with the meaning of Barack Obama is that of being a human being. The existence and identity conditions for a human being apply essentially to the existence and identity conditions of Barack Obama. So, we turn now to the next sentence to find its meaning:

(2) “Although Barack Obama is President of the U.S. in 2015, he could have been just a U.S. Senator instead.”

This is an interesting sentence since it has some unactualized potentiality associated with it. The antecedent of the sentence is clearly meaningful on categorial semantics: as President, there is an actualization of the potency of Obama to be President, and Obama himself is the actualization of a substance potentially being a human being. This corresponds with a person who has proceeded from potentialities to actualizations in their semantic grasp of the antecedent as well. She has proceeded from seeing a patch of color that is potentially a number of things to further actualizations and narrowing of that potentiality to the point where not only is the antecedent meaningful for her, but she also believes it to be true. Note as well that even if she wasn't aware of the existence of Obama, and so did not believe it to be true, the sentence is still meaningful for her because she has acquaintance with human beings and Presidents and so has acquaintance with Obama being President without believing it to be true. Finally, even if it is not meaningful for her, the sentence is still meaningful in itself since it is the case that at a most fundamental level “this thing,” no matter what it is actually is potentially Barack Obama, the human being, who is President.

The consequent of the sentence is also meaningful. Although Obama is not actually a U.S. Senator in 2015, he is actually a human being. As such, he potentially is a President or a U.S. Senator. This is where the meaning is grounded: in the potentiality of an actuality. Thus, since the meaning of the sentence is the function of the actuality of potentialities to the sentence being true, since Obama is a human being (as per ‘(1)’ above) since human beings are potentially U.S. Senators in virtue of this, ‘(2)’ is true

under that condition of potentiality. Notice that the sentence is true only up to a certain level of actuality—the actuality such that Obama is a human being (which itself is actuality of more basic potentialities). Although Obama is actually a President and actually a human being, as a human being he is in potentially both with respect to being a President and to being a U.S. Senator.

However, the name ‘Barack Obama’ has a reference to “a this” as such and so does not stop with the being that actually is Barack Obama. Since Obama is not just a particular substance of a certain determination, he also is merely, and actually, “a this.” Since ‘a this’ can be anything, the name ‘Barack Obama’ picks out the thisness of Obama that could be a different actual thing than it actually is, although Obama specifically names only the actual thing that is Obama. To put it another way, thisness includes the meaning of potentiality, which can be anything. Yet, the thisness is that which is actually unified with the determinate sense as a potentiality for actuality. This point of view comes in handy when considering the meaning of the next sentence:

(3) “A unicorn is cheerful.”

The term ‘cheerful’ would express an accident of a would-be unicorn. It refers to a substance beyond itself in which it exists. As described above, when properties (such as ‘cheerful’) is experienced, it is indifferent to which thing it modifies. But what about the reference of ‘unicorn’? Since a good number of rational things can be cheerful, the reference will be the vague object that includes rational beings—regardless of whether they exist or not (and so unicorns will potentially be such cheerful things). The meaning of this false sentence is still clear. The kind of thing that can be cheerful is something that is rational but there is required more actuality than what is expressed in the potentiality of

the sentence in order to be true. Specifically, the potentiality of a rational animal would need to be realized by the further actuality of being equine; and this equine rational being would need to be cheerful. In this way the truth conditions are met and so the sentence is meaningful. Similarly, the sentence,

(4) “The present king of the France is bald”

is false. The meaning of this sentence is that the potentialities expressed in the sentence are actualized in a way that is true of the actual world. Although there are some potentialities that are grounded in actuality, it doesn't go all the way to correspond to the actual state of affairs. Specifically, France potentially has a king but this state of affairs is not actualized. So, it is meaningful on a truth-theoretical perspective but false.

The next sentence is a little bit more difficult than ‘(4)’:

(5) “A square circle is an usual geometrical figure.”

It is difficult because although square circle is what is being referred to in the subject of the sentence, square circles are impossible objects; in other words, there is no potency in the kind “geometrical figure” to allow for this. However, there is room to allow for a reference function for the subject of this sentence. The notion “this” is not something that requires the kind of unity appropriate for substances. Thus, someone could point to a set of books on a table and refer to that collection of substances as ‘this.’ Thus, the subject of the sentence can have reference because in order to be ‘this’ there is no required substantial unity. The sentence will be false, though, since the predicate expresses a notion of unity appropriate to a geometric figure. The meaning of the sentence will be that ‘this’ is able to have actualities such that it is a square circle and will be unusual.

Since ‘this’ does not have the potentiality of the vague object geometric figure to be a square circle, the proposition will not only be false but necessarily false.

Being a human applies to more than just Barack Obama, but to many others such as George Bush and Hillary Clinton. These individuals have a special link to this predicate such that they can be understood as properly falling under the predicate “human being.” This “falling under” clearly occurs at higher levels as well such as with the sentence:

(6) “Every human being is an animal.”

This is interesting in this respect because human being is a fuller actualization in itself than animal which is a potentiality to be human. Thus, it will be true in virtue of the notion of human being and the level of actuality it contains.

The meaning of the universal quantity of the sentence is uniquely obtained as well on categorial semantics. However, unlike modern logical perspectives on universal quantification in which there is no existential import, in order for the meaning of the sentence to be the function from the conditions for the actualization of potentialities or the potentialities of actualities to a sentence’s truth, ‘every’ is proportionate to the actuality of the subject ‘human being’ in the conditions for the truth of the sentence. Thus, ‘every’ refers to all actual beings, and that they are all actually animals. A similar situation is true of sentences with particular quantity such as “Some human beings are happy,” in which what is being referred to includes at least one actual human being.

The next sentence deals with synonyms. Extensionalist theories of meaning in which meaning is obtained solely through reference has a difficulty with sentences that

involve substitutivity within propositional attitudes. This is true even for extensionalist theories of meaning that incorporate PWTFS principles into its theory.

(7) “Although John believes that an actor works on a stage, John doesn’t believe that a thespian works on a stage.”

On an extensionalist view, word meaning is the things that the words stands for. This approach is challenged when there are sentences in which a person is asserted as believing some proposition. Thus, although ‘(7)’ seems like it should be true, it is not possible on an extensionalist account since there can be no difference between ‘thespian’ and ‘actor’ since in every possible world sentences with these words have the exact same truth value.

On categorial semantics, the meaning of the sentence is as follows: with the true sentence that ‘John believes that an actor works on a stage’ what is included is not only the actualities of basic potentialities that correspond to the fact that actors (or thespians) work on the stage, but also this is true regarding the meaning of the sentence to a particular person. On the one hand, human beings are in potentiality toward doing such things, such as performing on the stage, and at that level it is indifferent whether such a person is an ‘actor’ or a ‘thespian.’ On the other hand, the sentence is not just about the meaning of ‘An actor or thespian works on a stage,’ but rather, John’s belief about it. It turns out that the categorial semantics can handle this additional condition because it ties in mental components of meaning; the meaning of ‘(7)’ is related to actuality and potentiality in a complex way. Take a vital component of the sentence: ‘A thespian works on a stage.’ This sentence is true, and so is meaningful, inasmuch as a human being has the potency to be a thespian and included in this actualization is the actualization of

working on a stage. Beyond this, though, when belief about the sentence is considered, the meaning will now stand in potentiality to further actualization: namely, the potentiality of this true sentence being believed by John. Understanding the meaning of the words of the sentence will be a necessary condition for belief. Thus, due to the diversity of words used, there is the possibility for a given sentence in which a belief is reported to be meaningful in that there is an actualization of possibility that is available despite the fact that for John himself the sentence ‘A thespian works on the stage’ is not meaningful (because he is not aware of the conditions under which the proposition would be true).

I should mention that categorial semantics has strong extensionalist features while being able to handle sentences like ‘(7).’ This is because potentiality is derivative from what is actual, and what our language is fundamentally grounded in in terms of meaning is actualities or the objects of reference in which potentialities lie. Also, the dynamic between the basic meaning of a sentence and the relationship that a person has to a sentence can be spelled-out in terms of the act/potency relationship.

(8) “Barack Obama is the Speaker of House of Representatives. Therefore, Obama is a U.S. citizen.”

Questions about sentence meaning as it relates to implications among sentences are also handled by this categorial semantics. Regardless of whether potentialities are actualized or not, there can still be relations of inference among those sentences. That Obama is the President of the U.S. identifies actualities of potentialities that do not just include being a President of the U.S. but also being Speaker of the House. Included in the potentiality of Obama’s actually being a U.S. President is him being the Speaker of the

House. Insofar as he could be a Speaker of the House he is a U.S. citizen such that if he actually was the Speaker of the House it would also be true that he is a U.S. Citizen.

(8) “‘Barack Obama’ and ‘Barry’ are the same person”

This involves the meaning of a statement of numerical identity. Identity has to do with full actuality of the potencies involved since when dealing with potencies one is not dealing necessarily with the same actual individual. For example, due to vagueness, there is no answer to the question of which person is picked out by the term ‘human.’ Thus, the meaning of the sentence is such that in order to be possibly true, ‘Barack Obama’ and ‘Barry’ need to be the names for the same actual individual Barack Obama. The converse of Quine’s dictum “no entity without identity” is applied here: no identity without (actual) entity.

(9) “*Hens* crow too early in the morning” (when the speaker means to refer to a practice of *roosters*).

On extensionalist accounts of meaning, this sentence is simply false. However, on categorial semantics, there is some room to bring speaker meaning in to show that it can be a true sentence. In order for this to be possible, there needs to be a some conditions of actuality of potentialities that determine the sentence as true. *Prima facie*, it seems that there can be no such conditions since no actual hens crow. However, if the meaning of the word ‘hens’ is changed to mean ‘roosters’ then the sentence would be true. Since word meaning is determined by a process of movement from potentiality to actuality in light of perceptual content—any given word is in principle in radical potency to the determination of meaning, and this is why they are understood to be established by convention—the meanings of words can change in light of speaker meaning (which is

drawn from perceptual content). For example, the truth conditions for the sentence involves a chicken actualized by male sexual designation among other factors. In this case, the person asserting the sentence has a corresponding actualization of such a potency in mind (that is, they would deny that female chickens can crow). Therefore, the sentence is not only meaningful but also true due to his irregular use of the word 'hen' in this instance.

(10) "The summer run greasy as car before."

This sentence lacks meaning (and hence, truth value) due to the important role that syntax plays in indicating basic order among actuality and potentiality of elements of sentences together to be able to bring in a truth functional notion for meaning. Grammar and syntax, however, is posterior to the fundamental division of reality into the structures of categories, but a nice indicator (if not conclusively so) of this division.²⁶

IV.

Although much needs to be explored and fleshed-out concerning the doctrine of categorial semantics, it is clear that it is a flexible and encompassing theory of meaning. Although it is able to deal with issues about the basic meaning of words, it also allows for a corresponding companion theory about how words gain meaning. In addition, the

²⁶ Although he rejects a truth-functional approach to semantics in favor of one grounded in the use of language, Braine agrees about the priority of semantics to grammar/syntax: "if we are presented with a stark choice between grammar dictating basic semantic structures or basic semantic structures dictating grammar, it is only the latter option that is credible. The only way in which the fundamental structures of speech can be 'native' or innate is by their being dictated by the very structure of the activity of communication itself and by our understanding of the world so far as it is given in the general logic..." (p. 42).

theory provides a way of plausibly integrating psychological (or at least cognitional metaphysical) factors with an objective (or extensionalist) semantics. It provides an alternative to possible worlds semantics, while building on it, but without inheriting some of the problems. It brings some clarity to the logical issues of inference and quantification. By utilizing intuitive notions of actuality and potentiality, it is both an extension of a traditional theory of categories and picks up on insights that are currently being developed in contemporary powers ontology.²⁷

Ultimately, it satisfies the requirement of a semantic theory for sentences listed by Harman (1975 42): (1) it provides a finite theory of truth for languages and it satisfies conditions resembling Tarsky's "convention T." Specifically, it takes Davidson's advice that a theory of meaning "provides for every sentence *s* in the language under study a matching sentence (to replace 'p') that... 'gives the meaning' of *s*" (Davidson 1967 309). (2) It minimizes novel rules of first order logic (on categorial semantics: it seems to save much of traditional logic at least). (3) It minimizes axioms (on categorial semantics: logical rules follow from an application of the act/potency theory of meaning). (4) It interprets sentences as implying ordinary sorts of things (on categorial semantics: the experience of potentiality is grounded in basic perceptual experience). (5) It is compatible with syntax (on categorial semantics: categorial structure establishes syntactical potentialities).

²⁷ See Marmodoro.

To sum up, I give the categorial semantic theory by way of an example of a Tarskian T-sentence: ‘Snow is white’ if and only if snow is white.²⁸ Snow is white is the condition under which the sentence ‘snow is white’ is true. Snow is white when there is some potentiality to be snow and white and these are actualized. The meaning of the sentence ‘Snow is white’ is partially grounded in a person experiencing something which has potentiality and that potentiality is actualized in such a way that what is experienced is snow and is white. Since snow being white makes the sentence ‘Snow is white’ true, the sentence ‘Snow is white’ is meaningful. Due to the theory of compositionality, the words in the sentence and their combination compose the meaning of the sentence and so they are in potentiality to be actualized by the meaning of the sentence as a whole.

²⁸ For a clear presentation of Davidson’s use of Tarsky’s theory of truth as applied to semantics, see chapter two of Larson & Segal.

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GLOSSARY

Accident: That which exists in another and does not express an essential property of thing that it exemplifies.

Acquaintance: A condition in which one has mental content that encompasses not only actual content but also potential content associated with individuals.

Actuality: A state of a 'this' which excludes what the thing could be in favor of what a thing is.

Categorial Semantics: The theory of meaning articulated in this paper, which asserts that the meaning of a sentence is the function from the actualization of some potentiality or the potentiality of some actuality to the truth of the sentence.

Category: A broad characterization of things that provide a sense of the real.

Compositionality: A semantic theory that holds that the meaning of the sentence as a whole is made up of meaning of the parts of the sentence.

Conditional Proposition: A compound proposition of the form 'If p then q' which is false when p is true and q is false and otherwise true.

Convention T: Tarsky's semantic theory of truth in which for any sentence 'p,' 'p' is true if and only if p.

Existential Import: Propositions which can be true only if the objects of the proposition actually exist. For example, if there are no unicorns, the proposition "Some unicorns are cheerful" is false due to existential import.

Extension: the meaning of a term which are the particular things referred to when the term is used.

Function: Originating in mathematics, it is a relation among inputs in which each input can only be related to one unique output. In other words, a given input cannot have different outputs.

Generic: A type of concept that requires further specification to more fully capture entities. Due to its vagueness, it is related to potentiality.

Intension: the meaning of the term, which helps fix the reference of the term and ideally identified with the necessary and sufficient conditions for the correct use of the term.

Mentalism: The meaning of terms are fundamentally determined by the mental contents of speakers.

Name: A linguistic label given to an object in order identify it.

Necessity: Something that is true in every possible world.

Perceptual Content: Mental content that specifically has perception as its origination.

Possibility: Something that is true in at least one possible world.

Possible World: A maximally inclusive situation which is so complete and comprehensive that it can be described as a world. The only difference between a possible world and the actual world is that the latter actually occurs.

Possible World Truth Functional Semantics: A theory of meaning in which the meaning of a particular sentence is the conditions under which that sentence would be true in some possible worlds or state of affairs.

Potentiality: A condition of a 'this' by which it can be a number of distinct things it might not actually be or possess a number of distinct characteristics it might not actually have.

Predicate: An expression that signifies some characteristic that can be asserted of a subject. For example, the predicate 'tall' can be asserted of 'Abe Lincoln.'

Primary Unity: The substance taken without its accompanying accidents.

Propositional Attitude: The consideration of a particular mental state as it relates to a proposition. For example, someone can have an attitude of doubt, belief, etc. about a certain proposition.

Quality: An accidental characteristic of substance that indicates the disposition of the substance.

Quantification: An indication of generality in a proposition. Typical quantities of propositions are 'all' and 'some.'

Quantity: An accidental feature of a substance by which it has parts outside of parts and dimensionality.

Secondary Unity: The state of a substance along with its accidental characteristics.

Set Theory: A mathematical theory that deals with well-determined collections of objects.

Sortal: A classification criterion by which individuation conditions are established for objects.

Specific: A technical term for types of concepts that are a production of a genus and specific difference. It corresponds to actuality.

Substance: That does not exist in another thing. For example, a dog or a tree is a substance.

This: A technical term that identifies the basic potentiality to be anything that could be and is a particular.

Truth Function: A function in which if a truth value is the input, it will always have a truth value as an output. For example, $p \ \& \ q$ will have a truth value if p has a truth value and q has a truth value.

Truth Value: The property of a proposition as either true or false.

Vagueness: A situation in which a proposition is neither exactly true nor exactly false about the situation. For example, at certain point of time and place it is neither exactly true nor exactly false that the sun has set.