But Without . . . ? Reflections on Pietroski's *Conjoining Meanings*[*]

Michael Glanzberg
Rutgers University

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Paul Pietroski's book *Conjoining Meanings* (Pietroski, 2018) is the culmination of a long research project.[1] The goals of the project are ambitious. One is to offer a forceful and thorough challenge to the program of truth-conditional semantics; indeed, Pietroski's goal is to convince us to give up on this project. Semantics is a broad field, and maybe it is fool-hardy to try to say what the dominant approach to semantics is, but in the areas of formal linguistics and philosophy of language, the truth-conditional program is central, mainstream, and perhaps seen as the only game in town. Pietroski challenges that program from the very perspective of formal linguistics and philosophy of language, so his challenge is all the more powerful. But in addition, Pietroski offers us an alternative approach, that does away not only with truth conditions, but a great deal of the formal apparatus that typically goes with truth-conditional semantics; especially, does away with type theory.

One of the important features of Pietroski's positive proposal is a link between meanings and concepts. Pietroski's proposal thus offers a certain rather specific kind of internalism about meaning, in line with a broadly Chomskian view of the language faculty and the place of semantics in it.

[*]Thanks to Ernie Lepore and Paul Pietroski for extended discussions of Paul's work during a reading group we held in 2019. Thanks also to John Collins for many discussions of ideas closely related to Paul's.

[1]Building on such work as Pietroski (2003, 2005, 2010, 2012).

For some time now, I have been working on a project that was always inspired by Pietroski's work; and especially, agres with the general idea that meanings involve relations between words and concepts. But unlike Pietroski, I have offered this project as a way of supporting a limited form of truth-conditional semantics, and showing how truth-conditional semantics can interact fruitfully with the broader cognitive sciences.[2]

You might imagine two builders assessing an old and much-loved building that is showing signs of falling over. I find myself suggesting that if we shore up the foundations and do some structural repairs, we can keep an old lovely building in its glory. Pietroski, we might say, suggests that the case is hopeless, and the responsible thing to do is to knock it down and put up something better in its place.

To continue our metaphor. The strange thing is I have repeatedly found, when Pietroski and I make our proposals to the client, that I get asked what the difference in result really is. In this short note, I shall try to illustrate a few of the key differences. I shall not really try to argue which is right, just explain where there are choices.

1 Agreeing and Agreeing to Disagree

There is one point where Pietroski and I agree fully. We have both emphasized the importance of *concepts* for lexical meaning. The idea here is simple and familiar. A child learning their language must learn to associate the sound /dɔg/ with a meaning. It is a common assumption in a great deal of work on language acquisition that they do so by associating that sound with a concept, DOG. Thus, the main thing that gives the meaning of *dog* is the concept DOG.

As a kind of motivating idea, there is much to like about this proposal. But, there are many many reasons to be dissatisfied with it in detail.[3] Depending on what one means by 'concept' this might be far too narrow an idea to account for the range of word meanings. And of course, the implicit supposition in the story is that the learner has the concept already in place, and then associates a sound with it. That may be true in some cases, but it is dubious as an explanation of all our word leaning.

[2]For instance, Glanzberg (2011, 2014, 2018).

[3]A nice illustration is a handbook article by Clark (1983), who uses the idea as an introduction, but almost immediately takes it back.

All of those are points where Pietroski and I are happy to agree, both about what is easy and hard about the main idea. There is, however, one point of likely disagreement over this leading idea. Pietroski is friendly to a kind of Fodorian atomism about concepts (Fodor, 1975, 1998), while I have stressed the importance of the internal structure of concepts for how concepts relate to truth-conditional semantics (Glanzberg, 2018). For this discussion, I shall simply put aside this difference.[4]

Another point of disagreement is much more central, but I shall also put it aside for now. A great deal of Pietroski's view is motivated by issues of polysemy. Because of this, he most definitely does not say that we link a sound to a single concept. Rather, we link a sound to an address, at which a cluster of concepts is stored. Any one of them may be selected. Hence, we get for most every word, a family of polysemous meanings. This is important, as many of Pietroski's arguments against truth-conditional semantics stem from problems of polysemy. I shall set this issue aside too. Not because I think it is a small matter, but because I think there are a range of issues to focus on once we resolve polysemy.

There are also, of course, questions about how much internalism about meaning is correct. Both Pietroski and I are opting for something more internalist than many philosophers would expect (though many cognitive scientists would find entirely obvious). I think there are interesting questions about how far the internalist motivations about meaning go, but again, I shall not pursue them here.

There is another family of issues that I think is well worth pursuing, and is important to Pietroski's work, but I shall not explore in any depth here. This is the family of issues about what the right tools are for semantics. In particular, as Pietroski rightly notes, a great deal of truth-conditional semantics, perhaps since Montague (1973) and certainly since Partee (1975), is done using the apparatus of the simple theory of types, and the treatment of variables in semantics is broadly Tarskian, in the tradition of Tarski (1935).[5] Pietroski gives an extended discussion of why he finds this to be a fundamental mistake.

Here, I do disagree, but again, I shall not say much about why. To go back to our metaphor of the builders, this is an important issue between

[4]For an overview of work on concepts, see Murphy (2002).

[5]Some programs make even strong use of type theory. See, for instance, van Benthem (1991).

builders, but not of much interest to the client. Which tools work, which are dangerous, and what they produce is important to bulders, but it is only of interest to the client to the extent that they produce visibly different results.

Another point along these lines is about the technical issue of lexical decomposition. I have described my view of the lexicon as a 'pointers and packaging' approach, which has each lexical entry point to a concept, but also contain a great deal of specifically grammatical structure that 'packages' the concept into a word meaning (Glanzberg, 2018). For illustration's sake, I have presented this in the form of a lexical decomposition, following the tradition of Dowty (1979) and more recently Rappaport Hovav & Levin (1998). Pietroski again disagrees, but in a specific technical way. He does not have much (if any) packaging in the lexicon. But, he has a great deal of syntax that builds complex 'words' from simpler roots, following a different tradition, from Borer (2005), Hale & Keyser (2002), and Ramchand (2008). So, he does not really reject all packaging, but does put it in a different place. There are lots of questions here, both empirical and methodological. But again, they are more a matter between builders than for the client.

What I think is of interest to the client is what the result is. In this case, if we think that meanings link to concepts in the right way, and that concepts are at first pass internal mental representations, what is left for truth-conditional semantics?

2 Go Fetch?

Pietroski's core idea is that meanings are instructions to, as he puts it, *fetch* a concept from a given address in long-term memory. As I noted, he argues that at any such address is a family of concepts, but still the main semantic instruction is, as he puts it ***fetch***. To fill in a little more, each lexical item gives an instruction to fetch a concept at an address, so the meaning of *cow* is the instruction ***fetch***@cow. Find the address linked to *cow*, and fetch a concept from there.

The issue I want to focus on is what fetches. For Pietroski, that is the core semantic operation. So, any meaningful morpheme will fetch. I shall sugest another way to look at this.

As is well-known, 'words'—morphemes, lexemes, or whatever our theory tell us to use—come in two classes. There are open and closed classes, and maybe a few in-between. Open classes are just they sound like: open. We

can add to them as our hearts and interests desire. In English, and many languages, these correspond to the major lexical categories: nouns, verbs, and adjectives/adverbs. We can add nouns and verbs easily. Examples are familiar. *Carburator, transistor, transduce* are relatively late additions to English. Looking at the *Oxford English Dictionary's* new word list for 2020 I found *'hend', adv. and prep., sense 2: "In a diligent or skillful manner; adeptly, nimbly"*.[6] (Apparently some link to older phrases for knighthood.) The open classes of words grow, and they seem to grow along with our concepts. Discovering the concepts of transduction or mitosis help us to make the words *transducer* and *mitosis*.

But there are also closed-class words. Expressions that give us tenses, quantifiers, moods, and a number of other 'grammatical' terms form stable classes, that do not change; or if they do, they change at the glacial pace of grammatical change. We cannot add a new tense or quantifier to our languages the way we can add a new noun or verb. Perhaps the more natural class here is what linguists call *functional* items. These are roughly grammatical elements, like tenses, moods, quantifiers, but also number markers, light verbs, and many more. They overlap with the closed classes more or less. (Whether pronouns or prepositions are functional can be argued. That is perhaps the main potential difference.)

There are two hypotheses we can entertain about the functional expressions, and this marks an important point of difference between my view and Pietroski's. One option is that functional elements fetch concepts, like most other morphemes. I think this is Pietroski's view. Now, these need not be entirely ordinary fetches. The addresses at which these expressions fetch may have a more limited or more specialized range of concepts. So, we may find less polysemy. The concepts involved may have different sources than other concepts, and they may be special in other ways. Pietroski expores these questions in depth. But in the end, the semantic job of a functional expression is to fetch.

There is another option, and it is one I have endorsed. Functional elements do not fetch. In effect, their meanings are part of the grammar, and we not need to fetch anything extra-grammatical to provide them.

To make this clear, let me say a little more about another very high-level assumption that is common across Pietroski and me. We both adopt a broadly Chomskian view of language. This is far too big an issue to state

[6]Accessed at https://public.oed.com/updates/new-words-list-january-2020/.

quickly. But the main idea is clear enough. There is a language faculty. This is a part of human cognition. It is a distinctive cognitive system. It is one that is substantially innate. Most importantly, it is one whose principles and parameters make up Universal Grammar (Chomsky, 1986, 2000; Collins, 2004).

So, with this background, we can ask a reasonably clear question about what is part of grammar: what is encoded in the language faculty. It should be clear enough that the full force of Chomsky's views is not really required to ask this question. So, for instance, just what is innate is not immediately at stake. Any reasonably strong domain-specificity for grammar will suffice, but Chomsky's views are common ground between Pietroski and me, so we might as well go for the stronger hypothesis.[7]

With this idea in mind, we can think about ***fetch***-ing. As I understand it, this operation asks an expression to link to something outside of the language faculty proper. This is not surprising with lexical items. The source of words like *carburator* is not our native linguistic ability, it is our extra-linguistic ability to build, think about, and then talk about, cars and their parts. So, the instruction to ***fetch***@carburator is a link to something outside the language faculty.

As I have said, I think this is plausible, with some minor disagreements, for the major lexical categories. But should we extend it to the functional ones? Here we reach the first point of disagreement I shall highlight. I, and many proponents of truth-conditional semantics within a Chomskian framework, would argue that the meanings of some functional elements are within the language faculty, and so are strictly part of grammar.

A second question is what the meanings of those sorts of expressions are like. Functional expressions are the ones that are discussed in most detail in standard expositions of truth-conditional semantics. It is thus a well-motivated hypothesis that the tools and methods of truth-conditional semantics are the right ones to describe their meanings. The two ideas combine, to indicate that substantial parts of truth-conditional semantics describe parts of grammar, by describing the meanings of the functional elements.

We thus seem to have a very stark difference in views. On the one hand, we have a language faculty filled with semantics in a truth-conditional style. Perhaps not as much as some views of semantics might suppose, but nonethe-

[7]For some thoughts on domain-specificity, see among a huge literature Hirschfeld & Gelman (1994), and the many references therein.

less, a rich semantics within the language faculty. On the other, we have a highly restricted language faculty, with a very few semantic operations, whose main job is to access extra-linguistic concepts, and combine them in simple ways.

But as we begin to look at what differences these two starkly different pictures make in practice, it becomes harder to distinguish them. The point is illustrated from both sides. From my pro-truth-conditions side, I freely admit that the notion of truth conditions is being stretched rather far. All I claimed is that the familiar apparatus of truth-conditional semantics, applied carefully to specific points, is useful. As is well-known, this apparatus is quite rich and flexible, and so one might well ask how substantial such a general claim is. At the same time, from Pietroski's side, we see a range of concepts that are closely tied to grammar, like closure operators and indices, and so on. Of these, Pietroski comments that we find "expressions that can be used to build T-concepts, which bear an intimate relation to certain truth-evaluable *thoughts*" (p. 316). And in a number of cases the glosses on those concepts are close in nature to what the truth-conditional program would say. For instance, Pietroski (with due caution) endorses a Reichenbachian account of tense. This is one among several that can be articulated with standard truth-conditional apparatus. So, in the abstract we might clearly distinguish between a semantically rich language faculty or a semantically minimal one. But in practice, we see something much harder to identify: it might be a rich language faculty which makes special and partial use of truth-conditional apparatus, or a semantically sparse language faculty that creates strong links to extra-linguistic concepts that have exactly the same truth-conditional properties.

Let us look at one specific case: quantifiers. This is a good case for my side, as most any textbook on truth-conditional semantics will have a great deal to say about quantifiers.[8] Even more, Partee (2015) marks discovering the importance of quantifiers as a major event in the development of semantics in generative grammar. I myself have used quantifiers as an example of where we get strong truth-conditional results (Glanzberg, 2014).

The classic theory of determiner meanings as generalized quantifiers from the early 1980s (Barwise & Cooper, 1981; Keenan & Stavi, 1986; Higginbotham & May, 1981) was indeed an impressive achievement. It offers us

[8]Heim & Kratzer (1998) is a much-cited example, but most semantics textbooks do the same.

meanings for the interesting closed class of determiners (in languages like Germanic ones that have lots of determiners). We get meanings for English *all, some, most, few, ...* And of course, we get them couched in the mechanisms of truth-conditional semantics.

Here again, there are a number of questions we should pause to ask. Though generalized quantifier theory was an important step, a great deal of more recent work, both empirically and theoretically oriented, has shown its limits and weaknesses. It is by no means that last word on the semantics of quantifiers.[9] And again, Pietroski does not disagree on the basic meanings of quantifier expressions, nor on the need for some grammar to go with quantifiers (movement, indices, etc.). So, again, where does the larger disagreement show up in practice?

There are a number of more theory-specific points where disagreement becomes sharper. One is about what machinery to use to give the meanings of quantifiers. Standard generalized quantifier theory is embedded in the simple theory of types, which Pietroski finds unreasonably powerful. He observes that the familiar meanings for many generalized quantifiers can also be given in monadic second-order logic. He prefers the Boolos-inspired plural interpretation of second-order logic. I, in contrast, worry that second-order logic itself is far too powerful, even under the plural interpretation. As is well know, second-order logic has a sentence of pure logic that is a logical truth just in case the continuum hypothesis of set theory is true, for instance (see Shapiro, 1991). So here, at least within two research programs, we have a genuine difference in what tools to use.[10] There are also some interesting questions about how to explain some important facts about quantifier meaning, such as the well-known conservativity constraint. A common idea is that this is a semantic universal, and so is simply 'hard-wired' into the language faculty (cf. von Fintel & Matthewson, 2008). This is not really much of an explanation, of course; rather, a claim that no further explanation will be found. Pietroski is not satisfied with this view, and makes a (tentative) suggestion about how a better explanation might be found.

But what we find here is not disagreement on the basic meanings of quantifiers, and between Pietroski and me, not really much disagreement about the grammar either. Again, we find two sorts of disagreement. One

[9]See Beghelli & Stowell (1997), Landman (2004), Reinhart (1997), Szabolcsi (2010), and Wellwood (2019), among many others.

[10]See Boolos (1984), and for subsequent discussion, see Shapiro (1991) and critical discussion by Jané (2009).

is about tools: where they work, how to use them. This is very much a theory-internal kind of disagreement. To return to the builders metaphor yet again, it is a disagreement that is mostly between builders. Our client may not really care. The other is about big-picture issues about what is part of grammar proper. But again, we may find that our client does not really see the difference in practice, and may not worry about it quite to the extent that we do.

3 Get with the Program?

My brief and casual discussion of a few differences between Pietroski's view and my own reveal two sorts of differences. On the detailed, theory-internal side, there are lots of questions about which methods, tools, and analyses are correct. Here, Pietroski argues in favor of a radical departure from the truth-conditional program, while I argue for judicious modification to keep the truth-conditional approach. In her elegant review of Pietroski (2018), Ramchand (2020) suggests many of us will respond to Pietroski's taking our beloved truth-conditional semantics from us by going through stages of grief. She identifies a bargaining stage, and it would appear I am offering to do just that kind of bargaining. I shall, as she puts it, use the traditional tools of truth-conditional semantics, but where and how they work best. I indeed am bargaining, but I think the bargain is a good one.

I suppose I also hold out some more optimism for the prognosis of the patient. Where Pietroski (and Ramchand) are sure the situation is grave, I keep hoping for a turn-around. So, I am more optimistic than Pietroski about how the internal structure of concepts can yield extensions, and more optimistic about fitting a restricted range of empirically robust composition principles within a type-theoretic framework. It is easier to bargain when you feel optimistic about the outcomes.

The other major point of disagreement is more abstract; perhaps more philosophical than methodological or empirical. As I mentioned, my preferred view ends up with a language faculty that is rather rich in semantics, and includes a great deal of truth-conditional apparatus. Pietroski ends up with a very different result. His language faculty has litte semantics beyond ***fetch***. Where I see semantically rich elements of grammar, Pietroski sees elements of grammar that ***fetch*** in specific ways.

I think it is helpful to frame this disagreement in terms of some recent

thinking about syntax, and more widely, grammar. I have in mind the minimalist program, following, among many authors, Chomsky (1995, 2000), or Hornstein (1995). The minimalist program, as a research program, has many components. Some are developments in syntax that have received broad acceptance across a range of approaches to syntax and semantics. Others are more ambitious, and more controversial.

Pietroski endorses the general idea of keeping the language faculty as simple as possible; in particular, to posit as limited a range of operations within the language faculty as possible. He is careful not to endorse any particular version of the minimalist program, though he is clearly sympathetic. He writes "I do find "minimalist" conceptions of syntax attractive on empirical and conceptual grounds" (p. 295).

But, within work in the minimalist tradition, we can find a very stark view of what goes into the language faculty, and such a view makes the difference between Pietroski's position and my own equally stark. An example can be found in Hauser et al. (2002). They offer a proposal about what they call the *faculty of human language—narrow sense*, which is extremely minimal. According to their view, it is little more than an engine that supports recursion, with only whatever combinatorial apparatus is needed to enable recursion. Presumably, that includes something like *merge* as described by other minimalist work, and not much more. It is easy to see that the kinds of semantic mechanisms I have suggested belong to the language faculty are highly unlikely to be part of this sparse faculty. It is much more likely that the kinds of mechanisms that Pietroski proposes could be part of it.

Hauser et al. (2002) also discuss what they call the *faculty of human language—broad sense* which includes some central interface systems, including interfaces with conceptual-intentional and sensory-motor systems. It is not an accident that a fair bit of what traditionally falls within the scope of lingustics falls within the broad, but not the narrow, faculty. The narrow faculty is an extremely minimal recursion engine.

The faculty of human language—narrow sense gives us a very stark picture of what is core to human language. The more we think that is central to grammar, the more unlikely the semantically rich language faculty I have advocated becomes. I think an often unspoken assumption of a great deal of work in truth-conditional semantics in the tradition of generative grammar is that the language faculty, in whatever sense is relevant, is broader than the very stark version offered by faculty of human language–narrow sense

from Hauser, Chomsky, and Fitch.[11] Though fully deciding what goes into a narrow or broad language faculty is no easy task, Pietroski's option is much more likely to fit with a strong minimalist view.

Of course, knowing what really goes into the language faculty (narrow or broad) as opposed to related aspects of cognition, is no easy task. Hence, I think the difficulty in finding clear markers of the practical difference between Pietroski's proposal and mine is not so surprising. If we knew better how to probe for what is in the language faculty, perhaps clearer answers would be forthcoming.[12]

Absent that, I suppose we are speculating, based on what looks like good data and successful theories. My speculations go in a rather less minimal direction, while Pietroski's go more minimal. Mine go more optimistic about the value of familiar truth-conditional apparatus, his go rather more pessimistic. There are some clearer disagreements about tools and some specific data, but they are highly specific, and somewhat project-internal disagreements. To end again with the builders metaphor, we could forgive our client from having trouble seeing just what for them the difference comes to. Absent a sharper understanding of the language faculty, that difference remains elusive.

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[11] Sometimes this is clearly articulated. See, for instance Larson & Segal (1995) and Ludlow (2011).

[12] But, for some thoughts about this, see Crain et al. (2005) and Pietroski & Crain (2012).

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