The Semantics of Natural Kind Terms: A Critical Reflection on Experimental and Theoretical Issues[1]

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1. Introduction

The approach to natural kinds and to the semantics of natural kind terms defended by Kripke and Putnam (from now on, the KP approach) has been discussed, objected to, and defended, since it was proposed in the early 70's.[2] Kripke and Putnam endorse an externalist (or causal-historical) approach to semantics, according to which facts that are beyond the cognitive grasp of a competent speaker can contribute to the determination of the reference of the speaker's use of a term. Kripke's arguments and, in particular, Putnam's Twin Earth

[1] A disclaimer about the title is in order. There are interesting metaphysical issues as regards natural kinds. However, I do not think natural kind *terms* constitute a distinctive *semantic* category. "Tiger," "gold," "pencil," or "philosopher" in my view behave semantically the same way, namely, they designate kinds or attribute membership to kinds. I think that this applies also to so-called social kind terms. As I will argue below, this does not entail that there are no descriptive kind terms. In this paper I focus on a discussion that raises issues about some natural kinds, in particular, biological kinds, and also about the use of those terms, hence I will often fall in line with the tradition of talking about "the semantics of natural (or biological) kinds." I thank Katarzyna Kijania-Placek for discussion of this issue and Andrea Bianchi for prompting me to address it.

[2] See Kripke's 1970 lectures (1980), especially lecture 3, and Putnam 1973 and 1975. There are important differences between Kripke's and Putnam's respective stances, for instance as regards the role of the appeal to experts (see Kripke 1986 for discussion). Those differences will not be relevant for this paper, but it should be kept in mind that talking about "the KP model" or "the KP approach" is an oversimplification.

story, are meant to dislodge the classical descriptivist paradigm that was generally accepted at the time especially as regards terms such as "gold," "water" or "tiger" (as an aside, it should be noted that for Putnam, at least at some point in time, the considerations against descriptivism applied also to terms such as "pencil").

The debate around the KP approach has taken different forms. Some authors have argued for or against the model putting forward arguments that focus on the scientific practices of naming and classifying in different disciplines, or on the theoretical commitments of specific scientific theories. For instance, one of the early dissenters, John Dupré (1981), examining how classification is conducted in the biological sciences, argued that the KP model was inadequate, and others have brought to the fore arguments that rely on scientific practice in chemistry, physics, and other disciplines.[3]

The debate has been conducted also on the basis of experiments that seek to collect data by asking participants in the experiment to respond to questions after being exposed to stories similar to the ones envisaged by Putnam in the Twin Earth scenario. The discussion based on this methodology is not just a recent phenomenon circumscribed to philosophers. Although some studies on categorization led entirely by psychologists obtained results that suited some aspects of the KP approach (see for instance Rips 1989), other studies (see for instance Braisby, Franks and Hampton 1996) obtained results that were not in line with what are taken to be crucial assumptions of the model.[4]

The discussion of the KP model has taken another turn as of recent with the publication of some studies by experimental philosophers (some of them conducted in collaboration with psychologists) on biological kind terms. Following the strategy exemplified by Braisby and colleagues and other psychologists, experimental philosophers test the general population by presenting them with stories involving natural kinds and deriving from their responses some conclusions

[3] The list of disputants for and against is extremely long.

[4] Braisby, Franks, and Hampton focus on the role of essence in categorization. Doubts as to whether essentialism is a fundamental commitment of KP's semantic model are discussed below.

about the use people make of the terms that designate those kinds. This is in line with the methodology applied by experimental philosophers, in general, to test whether the counterfactual scenarios that philosophers envisage to reach what they take to be intuitive conclusions (for instance about the correct application of a term) provoke the same kind of reaction among the population at large.

In this paper I will discuss critically some of the conclusions presented in recent studies performed by experimental semanticists.[5] Before focusing on the discussion, and in order to put some issues in context, I present some general reflections about experimental philosophy in general.

2. Some remarks about experimental philosophy and "the armchair"

The vast majority of experimental philosophy studies consist in telling people a story (or having them read a vignette) and then asking them certain questions. Experimental philosophers often describe their objectives as "testing the intuitions" of a population, to determine whether their intuitions and those of professional philosophers coincide, or to test whether experts agree in what they consider an intuitive response. This has led to interesting discussions of what intuitions are or what kinds of intuitions are relevant.[6] I will not engage in that discussion because it seems to me that the kinds of tests in which people are given a vignette and then answer some questions test what I would characterize as *initial reaction*s or *initial responses* to the story told. In those tests, participants are presented with a story and then they are expected to provide the answers that seem natural to them. So, I believe it is right to think of the data collected as initial responses. And I am using "initial" because the declared objective of experi-

[5] In the past I have argued in support of the KP model for natural kinds and for kind terms. See Hoefer and Martí 2020 and Hoefer and Martí 2019 which is a response to Häggqvist and Wikforss 2018. Other participants in this very recent debate include Raatikainen 2021 and Häggqvist 2022. None of these discussions involve arguments about experimental philosophy tests.

[6] A lot of the debate is inspired by Williamson 2004 and Devitt 2010.

mental philosophers is, in fact, not to collect heavily reflected on data.

So, this raises an issue: what should we philosophers do with those initial reactions? This is a question that deserves some thought, because we often find experimental philosophers claiming that the results of their tests should have consequences for philosophical theories. Just to give a couple of examples: Machery, Mallon, Nichols and Stich in their seminal 2006 article claim that their results raise "questions about the nature of the philosophical enterprise of developing a theory of reference" (B1). And Cova et al. (2019), after performing tests on aesthetic judgements, conclude that "the traditional way of approaching the debate over the nature of aesthetic judgement is fundamentally misguided" (Cova et al. 2019, 335) and that "philosophical inquiries about the nature of aesthetic judgments should no longer take [certain assumptions] as a starting point" (ibid., 337).

I often teach philosophy of language and I explain to students that an essential part of semantics is the theory of truth conditions. And since it is important to get clear about what we mean by "truth conditions" I ask the students this question: "If we called birds 'pigs', would pigs fly?"[7]

About 80% of the students raise their hand: yes, if we called birds "pigs," pigs would fly. And the majority of the remaining 20%, I suspect, don't react because this must be a tricky question and "the obvious answer" may not be right. So, what do I do with this? What do I do with their initial reaction? Well, I discuss it and I reflect with them.

I do not conclude that evidence collected year after year of teaching introductory philosophy of language supports the claim that laypeople think that all you need to do to make a pig fly is just a matter of changing the words we use.

I proceed to explain that when we ask ourselves whether what we say when we use a given sentence would be true under different circumstances (i.e., whether what I say when I utter "pigs fly" would be true in the circumstances described) we are not asking whether the sentence, if uttered under different circumstances would be true, or express a truth. We are

[7] That, by the way, was one of the questions asked to applicants to the undergraduate degree of Philosophy at Oxford University.

asking whether what we in fact say would be true in a scenario that differs from actual circumstances only in the fact that birds are called "pigs."

It doesn't take too long for my students to see that they interpreted the question as the question whether "pigs fly" would express a truth if uttered in a scenario in which we called birds "pigs," and that this interpretation is not what we are after when we ask ourselves about the truth conditions of our utterances of "pigs fly."

When they understand that, they understand what it means to say that if two utterances of sentences have different truth conditions, they must be expressing different things, and they can thus master tools that we need to advance in our philosophy of language course.

And of course, they also learn that the only way pigs could fly would be for them to grow wings (something that, I don't doubt, they knew all along).

All this suggests, in my view, that it is not even clear at all that people's initial reactions are evidence of what they really think. As philosophers we need to ask ourselves what we can use as the raw material to start the philosophical enterprise: immediate, knee-jerk reactions, or subsequent reflective responses?

In any case, although knowing the initial reactions of my students is extremely useful (among other things, it alerts me of confusions that need to be resolved), the data does not have, and should not have, an impact on the theory of truth conditions. Philosophical, and philosophically guided, reflection on the data is necessary. In general, rather than attempting to base or debunk philosophical theories by appeal to the kind of data collected in experimental philosophy surveys of initial reactions, it might be more fruitful to think about the data in question as the starting point to deliberate on the sorts of considerations that once highlighted lead to reflective and reasoned responses on the part of the participants in experimental tests, and a fortiori, on the part of the general population.[8]

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[8] That is not just an abstract philosophical point. I believe that experimental philosophers have the responsibility to clarify their stance on this issue, especially in an era of instant, non-reflected, evidence-blind opin-

It is tempting to conclude that, although experimental philosophy may provide interesting data for philosophical reflection, so-called *armchair philosophy* continues to have a decisive role. I myself would be happy with that conclusion if it weren't because I am not sure what the term "armchair philosophy" is supposed to apply to. The papers mentioned in the previous section, pieces that engage in a debate on metaphysical and semantic issues involving kinds and kind terms, present arguments based on scientific theories and consider examples taken from past and recent history of science. Putnam (1975) himself has physical and chemical facts and theories very present in his arguments. And in 1990, justifying the simplification of regarding water as essentially constituted of molecules of H_2O he writes: "I shall stick to high school chemistry because the actual quantum-mechanical picture of the structure of water is immensely complicated" (ibid., 57, fn. 3). These works present philosophical reflections on scientific results and on scientific theories. I am not sure if experimental philosophers regard them as products of armchair theorizing. And if they do, why that is so. In any case, the "armchair philosophy" metaphor needs sharpening.[9]

3. Biological kind terms. Experimental and theoretical issues

There have been as of late several experimental studies on the use of kind terms, often with widely different results. Some of those studies report substantial disagreement among partici-

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ions and reactions. Of course, this is not to say that knowing the immediate, unreflective responses of people are never of value to philosophical reflection (see footnote 15 below).

[9] A related issue is raised by Brian J. Scholl (2007) who expresses the concern that the traditional experimental philosophy studies that consist in having participants read vignettes and answer questions "rather than telling us anything about underlying mental mechanisms, may instead often tell us more about how subjects respond to bizarre questions and scenarios." And he encourages instead experiments that use "more implicit response measures that help to ensure that the results reflect underlying mental mechanisms…" (580–581). For a discussion of the effects of the failure to distinguish implicit mechanisms from explicit responses in a particular study see Contesi et al. (forthcoming).

pants and even a good number of contradictory responses by individual participants. In this paper I will discuss the conclusions of some these studies and reflect on their impact on the theory of reference for kind terms. The literature on this topic is rather extensive, so I will focus on some of the most recently reported results on the use of biological kind terms.

Haukioja, Nyquist and Jylkkä (2021) as well as Devitt and Porter (2021) use a mixture of elicited production or EP (where people are asked to use the terms being studied) and truth-value judgements or TVJ (where participants are asked to answer "true" or "false" when prompted with some sentences). Although Devitt and Porter ultimately criticize some aspects of the methodology followed by Haukioja, Nyquist and Jylkkä, both studies agree in concluding that "both mainstream externalist and traditional internalist theories of reference are mistaken" (Haukioja, Nyquist and Jylkkä 2021, 401) and so that "we should abandon the common assumption that any one theory of reference fits all natural kind terms" (Devitt and Porter 2021, 1) because "there are indeed *both* descriptive and causal historical elements to the reference determination of biological kind terms" (Devitt and Porter 2021, 27). A more recent article draws similar conclusions from further tests (Devitt and Porter, 2023).

In a prior study, involving proper names, Michael Devitt and Nicolas Porot (2018) had used elicited production and truth value judgments. The use of elicited production was particularly important since their study came in the heels of prior surveys that obtained results in line with the predictions of a descriptivist approach to the semantics of names, but that relied heavily on questions eliciting referential judgements from participants, i.e., questions that constituted evidence of the participants' opinions as regards what uses of names referred to, not evidence of how they themselves used the names. Performing tests that did target the participants' usage of proper names Devitt and Porot obtained results substantially consistent with the causal-historical non-descriptivist picture.

In extending the Devitt and Porot methodology from singular to kind terms, Devitt and Porter tell us that their hope was that the correct methodology would confirm the results that Devitt and Porot had obtained using similar methods for

proper names, results that gave overwhelming support to the causal-historical picture.

But the results of the tests with biological kind terms came as a surprise: "The results… were neither what we expected nor what we had hoped for. Far from showing that the Kripke–Putnam causal-historical theory is correct after all, they confirmed the main conclusions of earlier… tests: Reference is to be explained partly descriptively and partly causal-historically (nondescriptively)" (Devitt and Porter 2021, 9).

In their 2021 paper Devitt and Porter perform an EP test in which, after presenting participants with a vignette, they put forward two statements, one of which corresponds to a descriptivist take on the story and another one that corresponds with a non-descriptivist take. And they also perform two TVJ tests in which each group of participants is given one statement, descriptivist or anti-descriptivist and asked whether the statement is true or false.

On the basis of the results, Devitt and Porter examine different proposals as to how the reference of biological kind terms is to be accounted for: an ambiguity theory or a hybrid theory and they ultimately defend a hybrid theory. I will not discuss these proposals to focus exclusively on the test and the surprising results.

Thus, consider some of the results of some of the tests performed by Devitt and Porter:

> 1. Faced with both nondescriptivist and descriptivist options at once, participants' choices were *close to 50–50*, with only an insignificant preference for the nondescriptivist one […]
>
> 2. Faced with the nondescriptivist statement without having been presented with the descriptivist statement, an extremely significant proportion of participants chose the *nondescriptivist* one […]
>
> 3. Yet, faced with [the] descriptivist statement without having been presented with the nondescriptivist statement, a highly significant proportion of participants chose the *descriptivist* one […] (Devitt and Porter 2021, 17)

These results, they claim, support strongly the presence of "descriptivist and non-descriptivist reference determination

of biological kind terms" both within the community and also within individuals (ibid., 17).

Some confusions about the theoretical assumptions underlying the discussion of natural kind terms, independent of the experimental issues raised in these papers, are worth mentioning and should be avoided.

The disagreement between descriptivist, or internalist, and causal-historical anti-descriptivist, or externalist, approaches to semantics is presented by Devitt and Porter (2021) as follows:

> [According to causal-historical theories, a] biological term like "tiger" does not refer to an animal in virtue of its having the superficial properties picked out by speakers' associated descriptions but rather in virtue of its having the same deep structural properties (the same underlying "essence")… (ibid., 2).

It is common to associate the causal-historical picture to the postulation of deep natures or essences. Devitt and Porter (2021) also endorse the association, and so do Haukioja et. al. (2021). The latter often mention in their discussion "evidence of ambiguity between superficial and deep features in categorization" (ibid., 396) as a sign of the internalist and externalist pull in different directions. But this is based on a confusion, on two counts.[10]

First, the description associated with a term may well be a description of the deep nature of a kind or a substance. Nigel Sabbarton-Leary (2010) mentions the case of the term "tungsten." The meaning of "tungsten" is given by the description that captures the essence of tungsten: "the element with atomic number 74." Any application of the term "tungsten" to a sample that does not satisfy the description is just incorrect and incompetent. So, obviously a descriptivist approach to reference is not contrary to the postulation of deep natures, and it does not automatically deny them any role in the determination of reference.

Second, we should not forget that a crucial component of Putnam's approach is the idea that we classify by similarities.

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[10] The confusion affects not only the debate in experimental philosophy; it is pervasive and so, it is worth clarifying it.

And the similarities in question may well not be deep structure, although the appeal to deep structure is a way to argue for the externalist stance that *meaning ain't in the head* (or at least not all of it).

Martí and Ramírez-Ludeña (2016) put the point as follows:

> It is often taken for granted … that the Kripke–Putnam approach to the semantics of general terms is committed to essentialism, the postulation of shared underlying natures that are not immediately accessible or observable and can be discovered only by scientific investigation. But the commitment to essentialism is not constitutive of the approach. On the Kripke–Putnam model some samples or individuals are treated as paradigms, and other instances are classified as members of the same kind by virtue of their similarity to the paradigms. The similarity could well be superficial (based on how new yet to be classified objects or samples appear or look), or based on sameness of function. The Kripke–Putnam model does not impose that the relevant criterion is essence. The novelty of the view is rather that it *opens the door* to the possibility that the similarity that is responsible for certain classifications into kinds be entirely external to the minds of speakers. (Martí and Ramírez-Ludeña 2016, 126)

And of course, the appeal to the microstructure of water in the Twin-Earth case makes the point dramatically, since hardly anything could be more out of cognitive access than a yet unknown microstructure.

In any case, the dissociation of the externalist stance from the postulation of the role of shared underlying natures is not just a charitable re-interpretation. Putnam himself was very clear on this:

> Another misunderstanding that should be avoided is the following: to take the account we have developed as implying that the members of the extension of a natural-kind word necessarily *have* a common hidden structure. It could have turned out that the bits of liquid we call "water" had *no* important common physical characteristics *except* the superficial ones. In that case the necessary and sufficient condition for being "water" would have been possession of sufficiently many of the superficial characteristics. (Putnam 1975, 159)

In the recent article, Devitt and Porter (2023, 6) report that Andrea Bianchi has alerted them in conversation of the inaccuracy of the association between the causal-historical approach and the commitment to reference being fixed by deep structural properties. Devitt and Porter report that the issue does not affect their results, since they suggest descriptivist and anti-descriptivist leanings on the part of participants, even without the assumption of underlying natures (ibid., 18). They do not report if they have also taken into account the dissociation of descriptivism and superficial features mentioned here. Namely, they do not report if descriptivist and anti-descriptivist leanings on the part of the participants are detected *on* the assumption of underlying natures. In any case, independently of whether the results of the Devitt and Porter experiments can be considered robust, the theoretical point stands: the quick association of the externalist stance and the appeal to hidden essence is, indeed, too quick.[11]

In any case, Devitt and Porter (2021 and 2023) and Haukioja, Nyquist and Jylkkä (2021) claim that people are pulled in different directions: the causal-historical direction when then they classify samples according to their deep nature, and the descriptivist direction when they classify according to superficial features.

There are some hypotheses about why and when this happens. Tobia, Newman and Knobe (2020) suggest that the variation is driven by context. Participants that had to judge whether something was a salmon tended to rely on superficial features in legal scenarios, something that appears to suggest that in practical contexts uses of kind terms are con-

[11] To be more precise, we should also distinguish the distinction deep/superficial from the distinction essential/accidental. There is nothing in principle wrong with a view according to which some essential properties are superficial and observable. On the other hand, the claim that microstructural properties, such as having the molecular structure H_2O are important physical properties that classify certain samples as samples of water, does not by itself automatically entail that the property in question is a necessary property of the kind (nor of the sample, obviously, but that is beyond doubt). Plausible as the association deep/essential might be, a subsequent metaphysical argument is required. In general, the discussion surrounding the KP model takes for granted the association without finer distinctions.

sistent with the predictions of descriptivism, but Devitt and Porter (2023) find no evidence supporting that hypothesis: according to their results the variations are not driven by context, but rather by whether a term is or is not of practical interest. In their tests Devitt and Porter (2023) compare a term with no practical interest ("Rio de Janeiro Myrtle") with a common term with obvious practical interest ("rice") and they report that whether in scientific or practical scenarios, "the results support a Causal-Historical Theory of 'Rio de Janeiro Myrtle' and are evidence against a Causal-Historical theory of 'rice'" (ibid., 18).[12]

It is not my purpose here to discuss the details and relative merits of the different studies. But one aspect of the "rice" case invites reflection.

One of Devitt and Porter's vignettes tells the story of a synthetically created seed, that has the same look, taste and nutritional content[13] as *Oryza sativa* (rice) but a completely different genetic structure. A lab assistant takes a bag of the new seed to a restaurant where the chef serves it as rice. And the question is whether what the chef serves is rice.

Although the responses are significantly more in accord with the causal-historical approach, there is a substantial minority of descriptivist answers, supporting the general conclusion, according to Devitt and Porter, that there are both causal-historical and descriptivist elements in the determination of the reference of "rice."

Devitt and Porter, in their 2021 paper are surprised at the proportion of uses that seem to be guided by a definite description associated with the terms tested.

But, how much a surprise should that be? I don't think it should be surprising to us that people be ready to put together things according to the features that are important to them, in particular if the term in question is what Devitt and Porter qualify as a term "of practical interest," and often superficial

[12] It is hard to tell if these results will be confirmed further. Cases such as the different uses of "fruit" established in the community (culinary and botanical) seem to be clearly contextual.

[13] Nutritional content is not a superficial feature, but it is certainly a feature known by the general population and hence, cognitively accessible.

features are important. They are the features that we use every day to identify things.

It is not clear either that Putnam himself would be surprised. In Putnam 1975 we read: "… in one context 'water' may mean *chemically pure water*, while in another it may mean the stuff in Lake Michigan. And structure may sometimes be unimportant; thus one may sometimes refer to XYZ as water if one is *using* it as water" or "we discover 'tigers' on Mars. That is, they look just like tigers, but they have a silicon-based chemistry rather than a carbon-based chemistry… Are Martian 'tigers' tigers? It depends on the context". (Putnam 1975, 157–158).

Now, Putnam seems to assume that the variation in usage depends on context. Devitt and Porter conclude from their experiments that the variation in question is not driven by context, and thus they defend a type of hybrid approach to the semantics of natural kind terms, one that incorporates features of the causal-historical picture and features of descriptivism, features that, sometimes and for different people (and even for the same person), pull in different directions. Their results put pressure on the context-driven explanation of the variability proposed by Tobia, Newman and Knobe (2020). As I said, I will not discuss here this aspect of the debate.[14] The point is that the variability in the use of kind

[14] Devitt and Porter recruited their participants through MTurk, and the results of their test indicate that those participants used "rice" in ways that accord with the causal-historical view and in ways that accord with descriptivism both in a practical context (the one involving a restaurant that serves the new seeds as rice) and in a scientific context (one in which the seeds are taken to a botany class as rice seeds). In fact, there were more responses in line with descriptivism in the scientific context. The presence of descriptivist responses in both contexts is the basis of Devitt and Porter's argument against a contextually driven approach and in favor of a hybrid approach. Perhaps it would have been good to know, though, how botanists themselves would use "rice" in each context. This is, of course, anecdotal evidence, but I think that even expert botanists understand that when we ask them if they put fruit in their salads (a "practical" context), we are asking them if they put apples, pears, strawberries, etc., and we are not asking them if they put tomatoes. But I doubt that in a "scientific" context any of them would argue that tomatoes do not belong to the botanic category of fruits.

terms, sometimes driven by appearance and accidental features, and sometimes driven by the assumption of a common nature, is not a surprise, not even for Putnam.

The observation of the variation in usage leads to the conclusion that "both mainstream externalist and traditional internalist theories of reference are mistaken" (Haukioja, Nyquist, and Jylkkä 2021, 401) and "we should abandon the common assumption that any one theory of reference fits all natural kind terms" (Devitt and Porter 2021, 1).

The presumption here is that the externalist causal-historical position denies that there can be uses of kind terms governed by cognitively accessible definite descriptions. Why else would the presence of responses consistent with descriptivism suggest that externalism is mistaken?

As I have argued in the past, this is to misunderstand the dialectic between descriptivism and anti-descriptivism (Martí 2015, 2020): "Descriptivism is a hegemonic approach to reference. It postulates that reference is always mediated by a definite description: it is *impossible* to refer without the mediation of descriptive material, cognitively accessible to the speaker, that determines the reference, or domain of application, on each occasion of use" (Martí 2020, 337).

The externalist arguments used by Kripke, Putnam and others show that it is *possible* to refer without the mediation of a cognitively accessible definite description, that, as Keith Donnellan (1970) put it, a backup of descriptions is neither necessary nor sufficient to refer. The arguments are not supposed to show that terms cannot refer, ever, via associated descriptions. Results that show that some uses are guided by the descriptive material people associate with a term are interesting as a report of how people use language, and as such they invite a philosophical reflection. It may be that for some terms, or some classes of terms, application is semantically guided by definite descriptions. But that does not mean that neither internalism/descriptivism nor externalism/anti-descriptivism are entirely correct as Devitt and Porter or Haukioja, Nyquist and Jylkkä's conclude. The externalist (unlike the descriptivist) never assumed that all terms have to fit one mold.

It should be observed also that Putnam didn't take back his Twin Earth case when he acknowledged that we might de-

cide to call XYZ "water." This is, I contend, because deep down, the important point was always metaphysical: whether a substance whose molecular composition was largely XYZ was the same substance as water or a different kind of thing. It is undeniable that both Kripke and Putnam present their views couching the fundamental points in terms of language and meaning. This may be a reflection of the status that language had originally in analytic philosophy as the key to metaphysical, epistemological and ethical issues. I think though that the underlying fundamentality of the metaphysical point is revealed by the fact that Putnam does not revise the Twin-Earth case when he contemplates other uses of "water."

As regards the "rice" case, one wonders what would happen if the story presented to the participants was: you are in a restaurant where the new seeds (those that a substantial portion of people in Devitt and Porter's experiment have no doubt in classifying as rice or a new type of rice) are served in dishes that, in the menu, appear as containing rice, and you are having lunch with your very good friend who is severely allergic to most foods. But she can safely eat rice. Will you order "rice" for both of you?

Similarly, suppose that we call XYZ "water." After all, we shower with it, we wash dishes with it, we even ingest it orally. But suppose we have never had it injected directly into our veins and that no research has been done before to test how the XYZ molecule interacts when human blood is exposed directly to it. If you are severely dehydrated, will you happily acquiesce to having an XYZ saline solution drip?

I, for one, wouldn't recommend the dishes that, according to the menu, contain rice to my friend nor would I happily accept the XYZ drip, without further research using that seed or that substance.

Amie Thomasson (2020) puts the point in terms of concepts, but the claim travels easily to the categorization of kinds:

> I have a child with a nut allergy. It is a matter of life and death ("death in seven minutes", her allergist tells us) whether something is biologically a tree nut or is something *called* a 'nut'. It is a matter of life and death because it enables us to *predict* whether ingesting something will cause a life-threatening allergic reac-

> tion. It is not just a subjective matter whether 'tree nut' is a better concept than one that includes all and only things called 'nut' (including hazelnuts, peanuts, coconuts, nutmeg, and doughnuts (only the first of which is biologically a tree nut), and excluding cashews, pistachios, and almonds). That one concept but not the other is usefully and efficiently *predictive* in this way, which has life-or-death consequences, is all I need to be fully convinced that one set of concepts is objectively better. (Thomasson 2020, 450)

In general, the stories used in experimental philosophy tests, Devitt and Porter's in particular, do not describe high-stakes, life and death scenarios in which decisions have important consequences, consequences that involve us or someone very close to us. So the scenarios do not invite serious reflection. Participants in the experiments are not invited to think hard. They give unreflective responses, in part because the explicit aim of these studies is to collect immediate reactions. And the direct value of immediate, unreflective, reactions to philosophical theorizing is often questionable.[15]

Now, I do not know if these considerations speak in favor of further tests in which life and death stories are presented. I only know that if the results of potential new tests that take these issues into account contradict me, if it turns out that people would happily accept an XYZ drip or would gladly recommend their seriously allergic friend to have "rice," I myself would not change what I think right now. In the circumstances envisaged, I would not have XYZ injected, and I would not risk hurting my friend. For the point is that, without further scientific testing, we would not know if XYZ, or

[15] This is not to say that immediate reactions are never useful as input for philosophical reflection. For certain purposes, they may be exactly what is required. For instance the psychological tests on generics by Cimpian, Brandone and Gelman (2010) elicit immediate reactions that show that people judge that the proportion of satisfaction of a property attributed to members of a group by a generic statement is very high, while at the same time they are ready to judge a generic true on the basis of a much lower amount of satisfaction of that property by members of the group. These data certainly invite a philosophical, and social, reflection on the acceptance of generics about human groups. See also Cella, Marchak, Bianchi and Gelman 2022 for discussion.

the new "rice" have some, so far, unobserved harmful effects. Two sorts of stuff having different underlying constitution may have displayed all the same observable behavior so far. But, in general, we cannot expect that the same behavior will continue in all future contexts.[16] And that's because they are different kinds of things, whether we call them with the same name or not. So, it makes a lot of sense to be cautious.

And, I think, at least some of the participants in Devitt and Porter's studies are in fact quite conscious of that. Devitt and Porter report that they had to modify the vignette because several participants thought that "we were asking them to judge the morality or legality of the chef's actions" (Devitt and Porter 2023, 10). Why would it be immoral or illegal for the chef to serve "rice," if people's use of the word "rice" had always included that seed, as the descriptivist leanings Devitt and Porter detect in the population appear to suggest?

Devitt and Porter modified the restaurant vignette adding "Leaving aside whether this is an appropriate thing for the chef to do… "It is interesting that the actions of the lab assistant that takes a bag of the new seeds from the lab without asking for permission is not a matter of concern in the restaurant vignette, nor in another vignette in which the lab assistant takes the new seeds to a botanics class, also without asking for permission. The concerns are raised exclusively as regards the actions of the chef that serves the new seeds in dishes that, according to the menu, contain rice.

If we have two kinds, it is usually wise to have two words. Of course, this is not always the case. We use "jade" for two different minerals. Nephrite and jadeite have a fundamentally ornamental value, so it may not be important to use different words for them in everyday life. Would we accept to use "rice" for the new seeds if there was the possibility that its different genetic structure provoked unexpected side effects (something that the Devitt and Porter vignettes never bring up)? Would we, if sufficient research definitely showed that the new seeds were as harmless as rice? Perhaps. Paraphrasing Putnam, if tastes as rice, looks like rice and we use it as rice, we may call it "rice." And we might call XYZ "water"

[16] See Hoefer and Martí 2019, section 5 for a discussion of this issue in relation to the Twin Earth case.

and Martian tiger-look-alikes "tigers." After all, we call two different minerals "jade."[17]

But the use of one word or two words should not mask the fundamental issue that rice and the new synthetic "rice" are different kinds of things. Animals with different biological histories, minerals with different compositions, substances with different molecular microstructures and seeds with entirely different origins are different kinds of things. And the predisposition of people to use one word for two kinds (a predisposition that, in my view, has not been properly tested by Devitt and Porter because of their reliance on unreflective responses to humdrum stories) can do nothing to alter the more fundamental fact.[18].

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[17] What to say about the envisaged uses of "water," "tiger" or "rice"? Some may be tempted to chalk them off as pragmatics. But the point is that if the uses become established in the community it is not clear at all that the pragmatic explanation is satisfactory. Take, for instance, the case of "fruit." Even the courts have acknowledged that there are two uses of "fruit" established in the community. One of them, botanical, applies to tomatoes. The other one, culinary, does not. This is not to be dismissed as a purely pragmatic phenomenon. Is the case of "fruit" a case of ambiguity? Is a hybrid explanation required? Is it rather a case of polysemy? For the case of "fruit" at least, ambiguity would seem to be a plausible answer, given that the two uses of "fruit" are lexicalized differently in other languages (in Greek, for instance).

[18] Versions of this paper were read at the Warsaw Sign-Language-Reality Seminar and at the Jagiellonian University (Krakow). I am grateful to the audiences for their comments.

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