INSTRUMENTS, ARTIFACTS AND CONTEXT*

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Abstract

It is notoriously difficult to model the range of application of vague predicates relative to a suitable sorites series. In this paper I offer some critical remarks against an interesting view that has received little attention in the literature. According to it, the sharp cut-offs we find in our semantic models are just artifacts of the theory, and, as such, they are harmless. At the end I discuss a contextualist view that, at a cost, may be able to get around the problems related to sharp cut-offs incurred in by other theories of vagueness.

KEY WORDS: Vagueness; Philosophy of Language; Instrumentalism.

Resumen

Es sumamente difícil modelar el rango de aplicación de predicados vagos relativo a una serie sorites apropiada. En este artículo ofrezco algunos comentarios críticos en contra de una postura interesante que ha recibido poca atención en la literatura. De acuerdo con ella, los cortes precisos que encontramos en modelos semánticos son simplemente artefactos de la teoría, y, como tales, son inofensivos. Al final del artículo discuto una postura contextualista que, no sin sacrificios, podría ser capaz de evadir los problemas relacionados con cortes precisos que otras teorías de la vaguedad poseen.

PALABRAS CLAVE: Vaguedad; Filosofía del lenguaje; Instrumentalismo.

1. Introduction

Predicates are tools of undeniable importance. We use them to draw classifications (i.e. we use the predicate “x is food” to classify some things as food, and others as something else). This makes it possible to communicate and to speak truthfully. Understanding classifications does not seem to be particularly challenging, until we take vagueness into account. Then any confidence we may have about this subject goes out the window. Vague classification has proven to be extremely puzzling —as a result, vague predicates become quite problematic. Let’s take a moment to appreciate some of these puzzling features. We shall proceed by way of an example.

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Example: Good Runners

> You are observing the leading runners of today's 5k. They are very fast and in excellent shape. Of course, the speed and athletic excellence of the runners gradually decreases as time goes by. The runners towards the middle are not quite as fast and athletic. After some time you see the last participants. They are slow and out of shape. This is a nice sorites series. A friend approaches you and asks, "Did you have a chance to see good runners?" To which you reply, "Yes, the fast ones are good runners".

Based on your assertion, we can certainly classify some members of the series as good runners. The leading runner is clearly a good runner, given that she is very fast, and others close to her count as good runners as well. It is also clear that you did not classify some members as good runners; the last ones have not been classified as good runners. Thus, you have used "fast'" —and "good runner"— to classify some runners, but not others, in a certain way. To my mind this should be quite uncontroversial.

Now, it is also clear that based on your assertion we cannot find any good reason that would help us identify *the* last member of the series that has been classified as a good runner. The default position is that this is so because there is nothing like the last member of the series that is *determinately* a good runner.[1] The existence of such a member would entail that there is a pair such that the first member is determinately a good runner, but not the second, even though their running abilities are indistinguishable for all practical purposes. The existence of such a pair seems, prima facie, absurd.

Let's take a moment to appreciate how odd this kind of phenomenon is. There are classifications with positive cases at one end and negative cases at the other end. However, there is no point at which the positive cases stop and no point at which the negative cases begin. Given this, how can there be a transition from the positive to the negative case? If there is no point at which the positive cases end, how can the negative cases come to be? There is a paradox in sight. The nature of vague classifications is extraordinarily odd, and yet, we use them in a very familiar way.[2]

[1] Of course, Epistemicists are the notable exception.

[2] Admittedly, vagueness comes in many shapes and forms. See Weatherson (2010) for arguments in favor of this claim. In this paper we will only focus on paradigmatic examples of vague classifications. Most of what we say here, if not all, can be said of other instances of vague classifications.

Before we move on, it is important to explicitly avow an important assumption of this paper. It could very well be that, relative to every sorites series, our linguistic practices and the way the world is fully determine a sharp cut-off between positive and negative cases at a *determinate* location. Thus, for all we know, Epistemicism may be true.[3]

Yet, it is important to acknowledge that, at present, we have no clear idea of how this could be so. A sharp division of this kind has to be such that someone who is, say, 1.79m is tall, but someone who is a millimeter shorter is not tall. We may think that if something determines such a cut-off, it has to be our linguistic practices in conjunction with the way the world is. However, we are clueless about how these two elements could deliver such a sharp cut-off, *rather* than some other sharp cut-off within a millimeter difference.

Given this, we should take very seriously the hypothesis that vague classifications are sharp cut-off free. Thus, in what follows we shall operate under the assumption that Epistemicism is false and that there are vague classifications of the kind that has been described. I don't intend to be dismissive towards this view; it doesn't lack plausibility, especially when its merits are compared to those of alternative views. However, pending an important discovery regarding the determination of sharp classifications by way of using vague predicates, it is good practice to consider serious alternatives.

Primarily, the view I want to discuss in this paper claims that there is nothing wrong with semantic models where vague predicates draw sharp cut-offs relative to a suitable sorites series. This might sound shocking at first, since one may think that what distinguishes vague predicates from other kinds of predicates is that they do not draw sharp cut-offs of that kind. I call this kind of view *Instrumentalism*. As we shall see in section 3, this view has compelling arguments to the effect that we shouldn't worry about those sharp cut-offs. The key idea is that those sharp cut-offs are nothing but useful idealizations of our semantic models.[4] Also in section 3 I offer a battery of argument against Instrumentalism. This is where the main contribution of this paper can be found.

In section 2, before discussing Instrumentalism, I offer a quick overview of the most popular way of attempting to model the range of

[3] See Williamson (1994) and Sorensen (2001).

[4] This is what distinguishes Instrumentalism from Epistemicism. Whereas Epistemicism claims that those sharp cut-offs are semantically determined, Instrumentalism claims that they are nothing more than useful idealizations we make when construing our semantic models.

application of vague predicates without drawing sharp cut-offs —the strategy is to exploit the phenomenon of higher-order vagueness. As part of the overview I will point out some well-known problems that this kind of approach has. The point of introducing section 2 is to help contrast the most popular approach with Instrumentalism. In particular, by considering the problems had by the popular approach, one can appreciate better why Instrumentalism may feel like an attractive view.

Finally, in section 4, I draw attention to a kind of theory that promises to avoid the problems witnessed by the other two. According to it, it is a mistake to think that vague predicates have a range of application relative to a sorites series. If this is correct, then the problem of modeling the range of application of vague predicates relative to a sorites series vanishes right away. At the end of the paper I discuss some difficulties of this kind of theory.

2. Exploiting higher-order vagueness

Here is a popular way in which theorists of vagueness have attempted to account for the puzzling features of vague classifications.[5] Relative to a sorites series for predicate *F* there is a range where it is indeterminate whether the predicate applies. We call the objects in that range the *borderline cases* of predicate *F*. Think of the borderline cases of predicate "*x* is tall" as those people that neither tall nor not tall: they are tallish. So, according to this kind of view, there is no sharp cut-off between the positive and negative cases of application of a vague predicate because the borderline cases lie in between. But, of course, one should worry right away whether this kind of view is trading a sharp cut-off between positive and negative cases for a different cut-off: one between positive and borderline cases on one side of the series and another one between borderline and negative cases on the other. This kind of sharp cut-off is as unjustifiable as the one between positive and negative cases.[6] There seems to be something terribly wrong with this kind of theory.

Of course, things are a bit more complex. The theorist we are considering would complain that the kind of criticism we have been entertaining overlooks the phenomenon of higher-order vagueness. This kind of approach uses a determinacy operator (*D*) to argue that there is no sharp cut-off between clear cases and borderline cases, and negative

[5] The classic paper introducing this kind of approach is Fine (1975).

[6] Sainsbury (1996) provides detailed arguments for this claim.

cases and borderline cases. Thus, if *DTall(Sol)* then Sol is determinately tall. If *D¬Tall(Sol)* then Sol is determinately not tall. In addition, if ¬ *DTall(Sol)* and ¬*D¬Tall(Sol)* then Sol is borderline tall. However, it may appear that there is a pair of adjacent members of the series, let us say Natalia and Carlos, such that *DTall(Natalia)* and ¬*DTall(Carlos)* ^ ¬*D¬ Tall(Carlos)*. This may look problematic given that the difference in height between Natalia and Carlos is quite small. This looks just like an unwanted sharp cut-off.

Nevertheless, according to this kind of view, there is no sharp cut-off between determinate cases and borderline cases (between Natalia and Carlos) because even though Natalia satisfies *DTall(x)*, she also satisfies ¬*DDTall(x)* ^ ¬*D¬DTall(x)*. Similarly, even if Carlos satisfies ¬*DTall(x)*, he also satisfies ¬*DDTall(x)* ^ ¬*D¬DTall(x)*. Thus, one might think, the sharp cut-off is not there; neither Natalia is determinately tall, nor Carlos is determinately borderline tall. The strategy is, then, to convince ourselves that the cut-offs are not there by looking down from higher-orders of vagueness.

Some qualms regarding this kind of project remain. Rather than exploring the technical subtleties surrounding this topic, I will offer an informal presentation of the main issues. It is natural to think that if a theory *needs* to appeal to higher-order vagueness in order to defend the plausibility of the first-order theory, it is probably because it got first-order vagueness wrong. Theorists typically appeal to higher-order vagueness when they attempt to cover the tracks of unwanted precision.[7] When one points at the cut-off between positive cases and borderline cases, they direct you to what they call second-order borderline cases. When you point at the cut-off between the second order determinate cases and the second order borderline cases, they direct you to third-order borderline cases. This game can be iterated for a long, long time. The crucial thing to notice is this: if this kind of theory didn't posit some kind of unconformable division between the first-order determinate cases and the first-order borderline cases to begin with, higher-order vagueness would not be playing such a central theoretical role.

Even if this particular kind of appeal to higher-order vagueness was not wrongheaded to begin with, there are pressing questions that put a substantial amount of pressure on this kind of view. One issue is that, relative to a finite sorites series, there can only be a finite number of borderline cases.[8] Therefore, if we go high enough in the orders of

[7] Tye (1994) and Sainsbury (1996) have made this point already.

[8] The paradoxes of higher-order vagueness can be used to argue for this claim.

vagueness, we can point to a cut-off between some determinate cases and some borderline cases, without being able to hide this under any higher-order-borderline-region-rug. Thus, if we go up one more order, we can see that the cut-off is determinately there. If we are suspicious of Epistemicism because it postulates a cut-off between the tall and the not tall, we should be equally suspicious of a theory that postulates a sharp cut-off at a really high order. If there is nothing in our linguistic practices and the way the world is that could determine the first cut-off, there is nothing in them that could determine the second one.

Perhaps there are ways around these concerns. Maybe a proper understanding of the phenomenon of higher-order vagueness will dismiss these objections right way.[9] However, there is another alternative. There is an interesting and completely different approach to the problems we have been discussing. This kind of approach postulates sharp cut-offs in their semantic models, and they don't try to hide them —in fact, they argue that there is nothing wrong with those cut-offs at a theoretical level. As we will see this view is substantially different from Epistemicism. It holds that these cut-offs do not represent any real feature of vague classifications: they are just artifacts of our semantic models. Despite some of its attractive features, this kind of approach has received little attention in the literature. Next section I will present the view with some detail and argue that, despite its merits, it has some serious difficulties.

3. Instrumentalism

The problem faced by standard theories of vagueness resembles that of epistemic logics that validate the principle of epistemic closure —$(p \rightarrow q) \rightarrow (Kp \rightarrow Kq)$. If we could only assume that if we know that *p* we also know all the consequences of *p*, things would be much easier at the theoretical level —there would be no need to explain the hard problem of epistemic access to the consequences of what we know. Similarly, if we could only assume that there are sharp semantic divisions separating the most subtle semantic categories, then our vagueness models would be quite tractable. We ignore all the consequences of what we know,

Of course, they could also be used to argue that this kind of approach to vagueness is inconsistent. See Wright (1987), Gómez-Torrente (2002), Fara (2003), Fine (2008), Wright (2010), Fara (2010), and Zardini (2013) for this kind of argument. For a different perspective on higher-order vagueness see Heck (2003), Soames (2003), Priest (2003), Asher et al. (2009), Cobreros (2011) and Raffman (2014).

[9] Bobzien (2013, 2015) represent serious attempts to carry out that project.

and when vagueness is at issue there are no sharp semantic divisions separating the subtlest semantic categories. Of course, there are moments when we want to idealize away our cognitive limitations, vagueness, and other problematic facts. But to do it when our goal is to theorize about those problematic facts is bad timing, at best.

Bullet biting aside, there is one line of defense for those who think that there is nothing wrong with using precise mathematical resources in the standard way to model vague languages.[10] According to it, the precision that comes with those mathematical resources is not incompatible with the phenomenon they seek to model. The only reasonable way in which one can support this view is by arguing that the proper way to think about those mathematical resources is as some kind of useful idealization (notable proponents of this view are Edgington 1997, Cook 2002, and Rayo 2008). If this is correct, then perhaps we should not worry about those cut-offs; they are just side effects of useful idealizations, and it is a mistake to take them seriously. Those who use precise mathematical tools to model vagueness may find a safe home within this line of reasoning.

It is worth noting that this kind of defense can take several forms. One can think about these mathematical resources as idealizations, tools, instruments, artifacts, or what have you. However one calls them, this view holds that a proper use of those tools does not get in the way of theorizing about vagueness. I will argue now that if we set the goals of our theory of vagueness reasonably, those idealizations are far from harmless.

First we need to understand the view under discussion with more detail. How to articulate this line of defense is not a trivial matter. On the one hand this view contains a very plausible component: it is desirable to introduce some idealizations in our models, or to think of certain aspects of our theories instrumentally. Any theory that is about a fairly complex phenomenon has to indulge in some kind of idealization. It is common practice to work with frictionless Newtonian systems, to assume that some molecules are perfectly elastic and spherical —as in

[10] It should be mentioned that, for example, Soames (2003) has claimed that there are sharp cut-offs at fairly low orders of vagueness. The reason he offers not to be worried about this is, in my view, unsatisfactory: "However, it is a line which, by its very nature, one would not expect speakers to notice. Hence, it is not embarrassment to the theory that they don't" (p.149). It is important that the theory can predict that speakers are not able to detect the sharp cut-off. However, unless the theory has something substantial to say about the determination of the precise location of cut-offs it is quite premature to say that there isn't an ugly problem to be faced.

Boyle's Gas Law— or, in economics models, to assume that subjects are perfectly rational. On the other hand, this is not to say that any aspect of our theories can be subject to idealization: this would be a license to do whatever we want. If one is to idealize, one must do it responsibly.

What we need is a clear idea of which aspects of the phenomenon that we seek to understand must be captured by our theories and which ones can be idealized away. Once this is clear, it is a further question whether this distinction can be used to solve higher-order vagueness concerns. In what follows I will consider an attempt to flesh out with some detail this particular kind of view. Then, I will offer a battery of arguments against this view.

Cook (2002) has the most developed version of the view according to which the precision that comes with standard mathematical resources should not be taken seriously when modeling vague languages. On his view —which echoes Edgington (1997) quite clearly— a theory of vagueness should not be thought of as a realistic description of the relevant phenomena: that would be an unrealistic request. Rather, the proper way of thinking about theories of vagueness is as models. Hence, models, unlike realistic descriptions, are intended as "merely one tool among many that can further our understanding of the discourse in question" (Cook 2002, p. 234). As such

> [I]n building models it is often advantageous (and sometimes unavoidable) to introduce some simplification. The idea is that we can eliminate, or at least reduce in complexity, aspects of the phenomenon that we find less interesting in order to examine more easily aspects we do wish to investigate (Cook 2002, p. 236).

Thus, in building a model we must identify the aspects of the phenomenon we are interested in, and then simplify the aspects that are of less interest to us as much as is required.

Cook introduces a useful distinction in order to flesh out these ideas. On this picture, every model has two kinds of elements: *artifacts* and *representors*.[11] This distinction is just what you would expect: "Call those aspects of the model that are intended to correspond to real aspects of the phenomenon being modeled representors, and those that are not intended to so correspond artifacts" (Cook 2002, p.237). Presumably, the artifacts correspond to those aspects of the phenomenon we idealize or plainly misrepresent (sometimes intentionally), and the representors to

[11] For a more detailed discussion of this distinction see Keefe (2012).

those aspects of the phenomenon we care about. Now, the challenge this theory faces is to explain how to choose artifacts and representors in a way that is not detrimental to one's theory of vagueness.

In order to get a feeling of what this kind of theorist has in mind, it is useful to start with a simple example.[12] Consider a scale model of the famous Spanish ship, Victoria. Call it "Little Victoria". Let us say that the builder's goal is to represent with a certain level of precision the external shape of the ship. Given that this is the goal it is easy to figure out what the artifacts and representors are. The internal sticks in Little Victoria are clearly meant as artifacts. Similarly, within reason, all the ways in which Little Victoria differs from Victoria can be taken to be artifacts of the model, so long as these differences do not translate into differences in the external shape. What are the representors? Well, all the aspects of Little Victoria that are directly relevant to the external shape of the model are representors. Thus, the shapes of each individual external part, and the proportions of each part with respect to the rest are taken to be representors. Presumably, we can say that Little Victoria is a successful model, because its representors line up nicely with the aspects of Victoria that we want to model and the artifacts do not get in the way of doing so —they only misrepresent aspects we do not care.

With a better grasp of the artifact/representor distinction, the question we should attend is this: how should one choose artifacts and representors for a theory of vagueness? Different theorists of vagueness would answer this question in a different way. Let us consider what a degree theorist (Machina 1976, Edgington 1997, Smith 2008) may say —our criticism can be used against other theories as well. Recall that this kind of theory easily predicts that a pair of individuals with a minimal difference in height can be such that for one of them it is true to degree 1 that she is tall, but for the other it is only true to degree .99 that she is tall. Or it could be that it is true to degree .5 that one of them is tall, but only true to degree .49 that the other one is tall. Instrumentalism would recommend to say that those sharp transitions are just artifacts of the model, whereas the existence of degrees of truth and the logical relations between sentences predicted by precise models should be taken to be representors.

Thus, given this choice of artifacts and representors, what this theory cares about is the existence of degrees of truth and the logical relations obtaining between sentences; the rest are just artifacts. If this

[12] The following example is based on an example in Cook (2002).

is the right way to think about this issue, then it would be unreasonable to complain that such a theory misrepresents vagueness by making it look precise. This seems to be exactly what Cook (2002) has in mind:

> We are misdescribing our linguistic practice only if we assert that the sharp cut-offs provided by assignments of real numbers to sentences represent real qualities of the phenomenon [...] If the problematic parts of the account are not intended actually to describe anything occurring in the phenomenon in the first place, then they certainly cannot be misdescribing. (Cook 2002, p. 237)

Part of the view, then, is that only representors can misdescribe and, given that all the cut-offs are merely artifacts, degree theory isn't misrepresenting the phenomenon of vagueness. If degree theorist has chosen their artifacts and representors correctly, then this line of thought seems to be in order.

Now, the question is whether this is the right way to think about mathematical precision in our vagueness models. I shall argue that it is not.[13] My argument rests on the view that the correct choice of artifacts and representors is goal relative. Hence, when selecting artifacts and representors one must observe the following guiding principle:

> The choice of artifacts and representors is dependent on the goals of the model: it may be that different goals do not allow for the same artifacts and require different representors.

For instance, if our goal were to build an exact Victoria scale replica, Little Victoria would not make the cut. If Little Victoria is to be an exact scale replica, it had better be that her interiors look a lot like Victoria's. Relative to this goal we need fewer artifacts —the sticks inside our scale model have to go. This is so even if relative to less demanding goals the sticks inside Little Victoria can play the artifact role without this affecting the adequacy of the scale model. Thus, whether the sticks inside little Victoria can play the artifact role depends on the goals of our scale model. Here is another example. If our goal is to explain how objects move across high-friction surfaces, we cannot idealize away friction and call it an artifact of the model. But if our goal is to explain movement on a surface to middle school students, then we can idealize away friction and call it an artifact of the model. Thus, whether we can

[13] For a different set of criticisms see Keefe (2012).

idealize friction away depends on the goals of the model. It is clear that the correct choice of artifacts and representors is goal dependent.

What, then, is the goal of a theory of vagueness? The answer to this question might be revealed by paying attention to what has been obsessing philosophers of vagueness over the past four decades. What is it that we find so incredibly puzzling? The first thing that comes to mind is the Sorites Paradox. However, a moment of reflection shows that this paradox is only a symptom of something that goes deeper. What motivates the Sorites Paradox to begin with is the thought that vague predicates classify without setting sharp boundaries, without drawing any cut-offs —that is the core feature of vague predicates. As such, *the main goal* of a theory of vagueness ought to be to explain the semantic features of vague languages in a way that honours the fact that vague predicates do not draw sharp cut-offs.[14] Hence, the choice of artifacts and representors must be guided by this goal. A theory of vagueness may have other objectives as well —like an account of the logical relations between vague sentences, and a solution to the Sorites Paradox. Of course, these goals also have a say in our selection of artifacts and representors.

Given these considerations we cannot just wave our hands and call the uncomfortable cut-offs artifacts of the model. Doing so is not too different from allowing for a theory of motion that postulates a mysterious force that permanently fixes objects in their precise location. One cannot simply say, “In my theory of motion I idealize space away. The theory is much simpler this way”. A theory of vagueness cannot afford to have cut-offs dividing two different semantic categories as artifacts, or as anything else. The postulation of those cut-offs is not a useful idealization, it is the practice of giving substance to shadows. Vagueness is a very delicate phenomena —a simple cut-off in the wrong place is enough for it to vanish.

Now, the goal of one’s theory may be to explain logical relations between sentences of a language admitting several degrees of truth. This is a legitimate theory, with a legitimate goal. This goal can be achieved in a perfectly precise model. This is what Degree Theory shows. However, it is not at all clear that this is a theory of vagueness —a model that cannot host a given phenomenon cannot model it. The bottom line is this: if one’s goal is not to model vagueness, it is a good

[14] I am assuming here that vagueness is a semantic phenomenon. If one thinks otherwise, then one can understand the main goal of a theory of vagueness in a slightly different way.

idea to draw artificial cut-offs; but if that is our goal, a simple cut-off is enough to cut off vagueness altogether.

Of course, someone like Cook could reply that it is a mistake to think that a Degree Theory model cannot host the phenomenon of vagueness. After all, he thinks that all the sharp cut-offs are just artifacts of the model and, as such, we are not asserting that whatever is being modeled has those features. The considerations I have presented in this section should be enough to dismiss —or at the very least seriously question— this kind of reply, but let me offer a different argument that complements the previous ones. The point of the argument is to make clear that a theory like the one Cook proposes cannot be a full theory of vagueness —it leaves out something that is quite central to the phenomenon of vagueness.

Let us consider a Degree Theory model that has the kinds of artifacts Cook has in mind. Consider a sorites series for "tall" and suppose that according to the model under consideration the first thousand members of the series are such that it is true to degree 1 that they are tall, but that the person occupying position 1,001 is such that it is only true to degree .99 that she is tall. Cook would like to say that clearly that's an artifact of the model —we don't assert that according to the model ·tall· draws a sharp cut-off between the person occupying position 1,000 and the person occupying position 1,001 in our sorites series. That is fine, but *we don't assert* either that according to the model *it is not the case* that it is true to degree 1 that the person occupying position 1,000 is tall, and that it is true to degree .99 that the person occupying position 1,001 is tall. Such a claim would make the model, or our interpretation of it, inconsistent.

But then, and here's the catch, it could very well be that the model is true and no predicates are vague. To put it in slightly more theoretical terms, there are possible languages that can be adequately modeled by this model and that are not at all vague —these are possible languages that actually draw a sharp cut-off between members 1,000 and 1,001 of our sorites series for "tall". But, of course, a model of vagueness that can be true of languages that are not vague has missed out something quite important. This is just another way of making a point I already made in this paper: if the goal of our theory is to model the phenomenon of vagueness, sharp cut-offs are not a good choice of artifacts.

Notice that this is not to say that a model like this cannot capture any important features of vague languages. Edgington (1997) has shown that her version of Degree Theory can validate the so-called penumbral connections —sentences like "Something that is blue is not orange". She has also argued in a very plausible way that her theory captures logical inferences that should come out as valid in languages containing vague predicates. These are very important features of vague languages, but it is crucial to notice that languages that are not vague can also include such features. After all, Edgington's theory is based on models that allow sharp cut-offs as artifacts in just the way we have been discussing. So with this kind of model we can capture properties in languages that may or may not be vague. What these models seem to be unable to capture are the properties that are possessed *only* by vague languages. This is, of course, due to their choice of artifacts.

We find ourselves in a difficult position. There is one main requirement that theories of vagueness must respect, but it is incredibly hard to see how one could possibly fulfill that requirement. One response is to take this requirement to be unrealistic and allow for theories of vagueness that do not satisfy it. This is precisely the option that Edgington recommends:

> The demand for an exact account of a vague phenomenon is unrealistic. The demand for an account which is precise enough to exhibit its important and puzzling features is not. I do not deny that there is higher-order vagueness —that a sorites can be run on "clearly red". However, I am urging that we can get a good enough understanding of what is going on in a sorites series on "red", while ignoring higher-order vagueness (Edgington 1997, pp. 308-309)

As we have seen, I do not recommend this option.[15] I do not think Edgington's theory —brilliant as it is— helps to explain any puzzling features of the phenomenon. The bare existence of borderline cases of various degrees is quite interesting, but it is hardly puzzling. That is what Degree Theory can explain —along with logical relations between sentences in a language that admits of degrees of truth. What is deeply puzzling is that predicates can classify without sharp boundaries, and

[15] It is instructive to compare Edgington's view with what Stalnaker (1991) thinks is the best reason —but not one that we should endorse— to accept the principle of epistemic closure. The reason is a pessimistic one: "Perhaps the best we can do is to get a logic of the knowledge of an idealized knower, or of knowledge in some special idealized sense. Perhaps we know how to give a clear account of a concept of knowledge from which it follows that the knowers to which it applies are logically omniscient, but that there are insurmountable problems with any account of knowledge we know how to give that lacks this consequence." (p. 245)

it is not at all clear that the kind of instrumentalism discussed here is of much help solving the puzzle.

4. Contextualism

It is remarkably difficult to model the range of a vague predicate relative to a sorites series while avoiding nasty sharp cut-offs. I would like to point at a promising project that offers a plausible solution to this problem. The main move this kind of theory makes is to deny that vague predicates have a range of application relative to a soritical domain.

There are many theories of the kind I want to consider here (Manor 2006, Rayo 2008, Gómez-Torrente 2010, and Pagin 2010). For the sake of simplicity, I will focus on Gómez-Torrente (2010 and 2017). Much of what I say here about this version of the theory should apply to others, with proper modifications and adjustments. A central aspect of this theory is the distinction between two kinds of contexts: regular and irregular.[16] Roughly, an irregular context for a vague predicate F is one where at least some objects that are salient in conversation form a Sorites series for F. A regular context for vague predicate F is one where there is a sufficiently large gap between the objects that are F and those that are not F. Thus, there is no Sorites series for F in context that is regular for F.

To get a better feel of how this theory work, let us consider two examples. In order to do so, let's first introduce some terminology. In Gómez-Torrente's theory, a *contrast class* is quite similar to what I have been calling "context": it is the class relative to which vague predicates are defined. For instance, the comparison class for predicate "is small" contains all the objects that, for the purposes of the conversation, are relevant for the evaluation of sentences containing that predicate. So if we are discussing whether certain apartments are small, the contrast class contains all the apartments we are talking about; these could be all the apartments in a certain neighborhood, a particular street, in a given list, or what have you. Now, of course, in this theory the context is richer than just the comparison class. However, for the sake of simplicity, I will assume that the comparison class is just the context. Also, keep in mind that I am leaving aside some important aspects of Gómez-Torrente's theory of reference fixing —I just want to focus on aspects of the theory that are shared, to some extent, with other similar theories. Having this in mind, let us consider some examples:

[16] Gómez-Torrente (2010) calls them "regular occasions of use". Nothing much hangs on my choice of terminology.

Gómez-Torrente's Examples:

> *Regular Context*: Suppose we are searching for apartments to rent and that we have reduced our options to four candidates. One of them is 65 square meters, and the others are 70, 120, and 125 square meters. These apartments are the only members of the relevant contrast class. Now, if I were to say that the first two apartments are small, this context would count as regular, and what I said is true, given that relative to this context the predicate 2is small2 has an extension and the first two apartments are members of it.
>
> *Irregular Context*: Now consider a conversation where we haven't narrowed down our options significantly. As it turns out we are considering every apartment in a large portion of the city. In a situation like this, there are apartments ranging from 65, to 200 square meters in the contrast class. Let us assume that these are enough apartments to form a Sorites for the predicate "is small". On Gómez-Torrente's view, this is an irregular context, and given this, the predicate "is small" lacks an extension relative to it. Thus, an assertion of "Some of the apartments we are considering are small" is neither true nor false.

With these examples in mind, it is easy to understand how the kind of theory under discussion accounts for the phenomenon of vagueness and the Sorites Paradox. Consider the typical Sorites premise:

> (TOLERANCE): $\forall x \forall y$(if Fx and y is very similar to x with respect to F-ness $\rightarrow Fy$)

(Where what counts as "very similar" is contextually determined.) On this view, TOLERANCE is true in regular contexts, but not in irregular ones. This is not to say, of course, that TOLERANCE is false in those contexts. In Gómez-Torrente's view, the reason why F lacks an extension in irregular contexts is, roughly, because TOLERANCE is not true in those contexts. The point is that something like the truth of TOLERANCE is a preconception that needs to be satisfied if F is to have an extension at all.[17]

[17] The official version of this theory in Gómez-Torrente (2017) is much more complicated. Here I am merely offering a brief sketch of this part of the theory in order to focus on the aspects that are more relevant for the purposes of this paper.

The problem of modeling the range of application of vague predicates relative to a sorites series seems intractable. Well, on this view there is no such range of application, so there is no problem. It seems that one doesn't need to tackle the horrors of higher-order vagueness to hide unconformable cut-offs in our semantic models, since vague predicates only have extensions relative to contexts where there is a large gap between the relevant semantic categories (and, therefore, no possibility of sharp cut-offs). For the same reason, Cook's Instrumentalism doesn't even have a role to play. Thus, this kind of view doesn't need to face the problems of Instrumentalism.[18]

Of course, this is not to say that this kind of theory doesn't face some difficulties. I would like to point out a few of them before closing this paper. The first kind of difficulty is that we seem to be perfectly able to communicate relative to soritical domains. The first example in this paper illustrates this point very well. But how can we communicate in this kind of case if the sentences we utter have no truth-conditions?[19] What are the bits of information that we get across in those cases if the contexts of use are deeply flawed as this contextualist theory suggests? Notice that conversations conducted in irregular contexts are quite common. Think of all the discussions we have regarding the problems faced by the world's population. We talk about how *poor* people are, or about how *far* they are from their local schools, or whether they consume *enough* calories per day. It seems to me that these are conversations where we want our contrast classes to contain billions of people, and their respective local schools and calorie intakes. It is quite likely, then, that these conversations are conducted in irregular contexts. However, it seems that we can transmit quite a bit of information in this kind of conversations. To my mind, it is a cost of this theory to predict that there is something wrong going on in all these conversations, and to require an alternative account of how we manage to communicate in these cases.[20]

A further difficulty is related to the vagueness of "regular context". Whether a context is regular depends on whether there is a large enough

[18] Although Rayo's theory does invoke some kind of Instrumentalism when using a theory of pragmatic accommodation to account for certain kind of linguistic phenomena. However, that is not something every Contextualist of the kind being discussed has to accept.

[19] See Gómez-Torrente (2010, 2017) for an attempt to solve this problem. Rayo (2008) also has an account of those kind of cases. We should notice, however, that his account does appeal to some kind of instrumentalism.

[20] Gómez-Torrente (2017) does have a few things to say to alleviate this kind of concern.

gap dividing possibilities, individuals, or what have you. But whether a given gap is large enough is itself a vague matter. When it comes to "tall" a 1m gap between the tall and the not tall is large enough, but a 1/4mm gap is not enough. Consider all the possible conversations about tall people with gaps in their contrast classes ranging from 1m to 1/4mm. Surely, we have here enough material to construe a sorites series for "regular context". The first member is clearly regular, since it has a 1m gap in its contrast class between tall and short people. The last member is clearly irregular, since it only has a 1/4mm gap between people of different heights in its contrast class. And the gap between adjacent contexts of these series is too small to make a difference between a regular and an irregular context.

Now suppose we ask this contextualist theory the following questions. Among all these contexts, which ones are regular and which are irregular? Alternatively, in which of these contexts the sentence "there are tall people" has truth conditions? Given that we are in an irregular context for the predicate "is an irregular context", by design, this theory cannot answer these questions truthfully —whatever the reply is, as long as it is an answer to one of these questions, will lack truth conditions. Of course, notice that the second question does not contain the predicate "is an irregular context". However, according to this theory, one cannot answer that question without deciding whether one is in an irregular context. That is something that this theory cannot do in this particular case.

For analogous reasons, this theory cannot be formulated as quantifying over every possible context of use, and probably not even as quantifying over every conversation that there has ever been, since most likely this will provide enough material to trigger an irregular context for many of the sentences of the theory. This, again, seems to be a cost of the theory. Gómez-Torrente (2017) points out that the theory does have truth-conditions when formulated relative to a suitably restricted domain. For sure that makes the theory quite useful. It is just worth pointing out that when we ask this theory to reflect on soritical domains —cases where the phenomenon of vagueness seems to be most interesting— the theory cannot say anything whatsoever. Whether these problems are decisive or not cannot be assessed in this paper. However, it should be noted that if this problems can be solved, then the solution, whatever it is, *might* be used by competing theories of vagueness.

It seems to be a good idea to avoid the problems of instrumentalism by denying that vague predicates have a range of application relative to soritical domains. However, as we have seen, doing so comes at a price. We need an alternative account of information transfer in the all too common irregular contexts, and we have to come to terms with the idea that our theory lacks truth-conditions relative to some context of theoretical interest.

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