Respects for contradictions

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Abstract

I discuss the problem of whether true contradictions of the form "x is P and not P" might be the expression of an implicit relativization to distinct respects of application of one and the same predicate P. Priest rightly claims that one should not mistake true contradictions for an expression of lexical ambiguity. However, he primarily targets cases of homophony for which lexical meanings do not overlap. There exist more subtle forms of equivocation, such as the relation of *privative opposition* singled out by Zwicky and Sadock in their study of ambiguity. I argue that this relation, which is basically a relation of general to more specific, underlies the logical form of true contradictions. The generalization appears to be that all true contradictions really mean "x is P in some respects/to some extent, but not in all respects/not to all extent". I relate this to the strict-tolerant account of vague predicates and outline a variant of the account to cover one-dimensional and multi-dimensional predicates.

Dialetheism is the view according to which some sentences are both true and false: that is, false and true are not mutually exclusive properties, sometimes they cooccur. This is centrally the case of the Liar sentence: on the dialetheist view, the Liar is both true and false, and as a result it is also true and not true, false and not false.

Over the last decade, several papers have documented the fact that the use of contradictory sentences of the form "x is P and not P" it not confined to dialetheist theorizing, nor limited to the predicates "true" and "false" in relation to Liar-like sentences, but that it is common in ordinary speakers in order to describe the borderline applicability of vague predicates. In a seminal study, Ripley (2011a) found that a square and a circle whose distance is intermediate between two more extremes cases is readily described by participants as "near and not near"; similarly, Alxatib and Pelletier (2011) found substantial

assent to descriptions of the form "tall and not tall" to apply to a man of middling height; and further studies have evidenced that these "borderline contradictions" (in the words of D. Ripley) are used in a wide range of gradable adjectives, including color adjectives (viz. Egré et al. 2013 on "yellow and not yellow") and relative gradable adjectives more generally (Egré and Zehr 2017).

The commonality of those contradictory expressions lends prima facie support to the dialetheist view. Opponents of dialetheism, on the other hand, need not take these expressions at face value. An epistemicist about vagueness might contend that an utterance of the form "*a* is tall and not tall" is a mere *façon de parler*, expressing a form of metalinguistic hesitance regarding the actual status of *a*. For the epistemicist, the real intent of such expressions should be to report epistemic ambivalence, viz.: "*I am tempted to say "a is tall", and I am also tempted to say "a is not tall", I just don't know which one is in fact correct*".

The problem with that objection, as forcefully put to me by Sam Alxatib (in a private communication), is that one does not see then why it appears illegitimate to use the same locution in cases of factual uncertainty. Suppose I am uncertain as to whether the binary Goldbach conjecture is true (as I should be in 2018, given the current state of mathematical knowledge). I have reasons to think it's true (it has not been disproved, moreover the ternary version was recently proved), and reasons to think it is not true (similar conjectures have been disproved for large numbers). It would be no good though to use the sentence: "Goldbach's conjecture is true and not true" to mean that I am tempted to say either, and just don't know which one holds as a matter of fact. There is more to the relation between vague predicates and borderline contradictions than the mere expression of factual uncertainty.[1]

A distinct and more delicate objection for dialetheism is to say that a sentence of the form "*a* is tall and not tall" really is shorthand for: "*a is tall in some sense, and not tall in some other sense*". This view is for example sketched by Kamp and Partee (1995), and it can be traced to Lewis's contention that acceptable contradictions in fact trade on some form of ambiguity or equivocation (see Lewis 1982; Priest 2006; Ripley 2011b; Kooi and Tamminga 2013; Cobreros et al. 2015b; Egré and Zehr 2017). That view, unlike the epistemicist view, does not rule out the simultaneous truth of both conjuncts. For "*a* is tall" and "*a* is not tall" can then express propositions that are true together, only true under different disambiguations of "tall".

(Priest, 2006, 286-287) grants the objection:

> "this may indeed be true; this is true; but this goes nowhere towards meeting the arguments for dialetheism. In any case, there seems to be little reason to believe, for most of the contradictions to which *In Contradiction* points, that they arise because of ambiguity. 'This sentence is false' for example, is hardly

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[1]See Schiffer (2003); MacFarlane (2010) on further arguments against the epistemicist attempt to reduce the ambivalence felt in vagueness to a form of factual uncertainty.

ambiguous in the way that 'He was hit by a bat' is. But even if it were, if there is no hope of disambiguating in practice, which would seem to be the case for such contradictions, there is effectively very little difference between such a view and dialetheism".

Priest makes two different points here. The first is a rejection of the idea that lexical ambiguity is in principle the right model to explain the acceptability of true contradictions. The second is a concession that it might be the right model, but the denial that this perspective should alter the dialetheist perspective on contradictions. In this paper I propose to clarify both points in relation to the semantic treatment of contradictory sentences involving vague predicates.

The issue I propose to examine in this paper is whether acceptable contradictions might be the expression of a phenomenon of multidimensionality rather than ambiguity, as suggested by Kamp and Partee, and drawing on recent work by Galit Sassoon on multidimensionality in adjectives and nouns. One claim of this paper is that the acceptability of contradictions involving adjectives in particular (including "true") might indeed be grounded in the availability of multiple respects of application, but provided those respects of comparison are closely related to each other in a way that is constitutive of the vagueness of the expression in question.

To show this, I start with a review of various examples of acceptable contradictions, and then go on to clarify the relation between those and the phenomenon of lexical ambiguity. My analysis, based on the classic work of Zwicky and Sadock (1975), draws particular attention to a distinction one can make between two forms of equivocation: equivocation based on homophony for lexemes that do not overlap in meaning, and equivocation based on lexemes that do overlap in meaning. Zwicky and Sadock mention in particular a relation of meaning overlap which they call "privative opposition". In section 2, I highlight the importance of that notion with regard to acceptable contradictions. In section 4, I show that the relation in question is congruent with the relation between strict and tolerant meaning used in our joint work with Cobreros, Ripley and van Rooij to model the acceptability of borderline contradictions. I outline a different version of the semantics for one-dimensional and multi-dimensional predicates, basically such that "x is P and not P" means "x is P to some extent, but not to all extent". I conclude, finally, with some remarks on whether or not this perspective should affect the ontology of dialetheism.

1 Acceptable contradictions

The notion of a contradiction can be defined in various nonequivalent ways. In what follows, I call a contradiction a sentence of the form "x is P and not P", or one that is equivalent in virtue of classical logical rules. The Liar, for example, is not of that form, but it entails a sentence of that form, and is entailed by it, under minimal assumptions. And I say that a sentence of that form is an acceptable contradiction if the sentence can be

used informatively. Acceptable contradictions in that sense come in at least two distinct linguistic forms, which may be called "and"-descriptions vs "neither"-descriptions (Egré and Zehr 2017). If you consider the Liar, the dialetheist accepts both:

(1)   a.   The Liar is true and not true.
          b.   The Liar is neither true nor not true.

From a logical point of view, both types of sentences appear to be equivalent, admitting de Morgan's laws, and the law of double negation to convert them into each other (see Ripley 2011a,b).

(2)   a. $Pa \wedge \neg Pa$.
          b. $\neg(Pa \vee \neg Pa)$

From a linguistic point of view, however, the two types are not always used interchangeably (see Egré and Zehr 2017). In this paper I focus on the "and"-descriptions, for one can find instances of "neither"-descriptions that seem not to have to do with the existence of true contradictions. This concerns, in particular, cases of presupposition failure (Spector 2012; Egré and Zehr 2017). Spector points out that in a situation in which John never smoked, there is a clear contrast between:

(3)   a. *John stopped smoking and did not stop smoking.
          b.   John neither stopped smoking nor did not stop smoking.

The latter is acceptable in response to someone asking: "when did John stop smoking?", but the former is clearly ruled out to convey the same thing. (3)-a may be acceptable to convey that John is a borderline case of someone having stopped smoking, but only if John was indeed a smoker. Setting vagueness aside, (3)-a and (3)-b mean different things.

Which examples of sentences of the form "x is P and not P" can we identify as common in ordinary language? The rest of this section lists some representative examples.

Multidimensional adjectives   The first and probably the most common kind involves multidimensional adjectives like "intelligent", "beautiful", "good", and so on (see Klein 1980; Sassoon 2013). It is easy to imagine a context for the acceptability of:

(4)   John is intelligent and not intelligent.

I could use the sentence to mean that John is intelligent because he is a very good mathematician, but not intelligent because he fails to have empathy for others, and sometimes takes wrong decisions because of that. I therefore intend to convey that John is intelligent in the respect that concerns mathematics, but not intelligent in the respect that concerns empathy and the understanding of other fellows. Similar occurrences can be found for a host of gradable adjectives, as soon as multiple respects are relevant. "John is rich and not

rich" can be used to mean that John is rich in the respect of coming from a family with a large estate, but not rich with respect to his income; "this is good and not good" is often heard to mean that the situation referred to has both an upside and a downside, and so on.

One-dimensional adjectives

(5)   John is tall and not tall.

As we know from the experimental studies of Ripley (2011a) and of Alxatib and Pelletier (2011), a sentence like (5) is acceptable to depict to a man whose size is intermediate between more extreme heights, to mean that the person is borderline tall. Egré and Zehr (2017) replicated the effect over a larger sample of similar adjectives, asking participants to imagine cases intermediate between more extreme ones.

A reason to distinguish "tall" from "intelligent" or "rich" is that "tall" fundamentally means "tall with respect to height". Note, however, that (5) could be uttered by reference to distinct points of comparison along the height dimension. Suppose child Mary describes her friend John as "tall" to her mother because John is significantly taller than her. The mother could respond "well, he is tall and not tall", thinking: "true, John is tall compared to you, but you know, he is not (so) tall compared to other teenagers of his age" (see Klein 1980; van Rooij 2011a; Burnett 2016 for the relativity of adjectives to a comparison class argument).

Nouns   Kamp and Partee give the example of the following sentence as an acceptable contradiction:

(6)   Bob is a man and not a man.

They don't give much context for their example, but the sentence would for example be acceptable if "man" is taken to mean "male" in the first occurrence, and "brave man" or "aggressive man" in the second. It would mean that Bob is a man with respect to gender, but not a man with respect to the stereotypical respect of being sufficiently brave or sufficiently aggressive for a man (depending on what the speaker intends).

Many similar examples can be found. For instance, Pluto is considered a "dwarf planet" according to Resolution B6 of the International Astronomical Union, but also not a "planet" in the stricter sense of "planet" defined by the IAU in its Resolution B5(1) (see Egré 2013). Given the two resolutions, it would be perfectly sensible to say that according to the IAU:

(7)   Pluto is and isn't a planet.

to mean that Pluto is a planet with respect to being in the category of "dwarf planets", but not a planet with respect to the more restricted category "planet" defined by IAU

Resolution B5 (it fails, in particular, to have "cleared the neighborhood around its orbit", IAU's discriminating criterion to rule out Pluto).

Verbs The availability of multiple respects is not restricted to adjectives and nouns, but also occurs in verbs. Consider the following example:

(8)   Q. Do you like John?
       A. I like him and I don't like him.

The sentence is perfectly natural to convey that I like John in some respects (for instance because he is charming, and generous, and funny), and that I don't like him in other respects (because he is so self-centered, never calls you unless you call him first, etc).

Summary The examples just surveyed are not meant to form an exhaustive list of acceptable contradictions. What appears from the list, however, is that each time contradictions can be paraphrased by means of an explicit specification of distinct respects of application. Our next task is twofold: first, to examine whether this availability of multiple respects is adequately viewed as a form of ambiguity. And secondly, whether it provides us with an adequate basis to semantically analyze contradictions.

2 Forms of ambiguity

2.1 Homophony

Priest's first remark is that there is little reason to think that the acceptance of contradictions is akin to ambiguity. Priest is right, but it matters, in order to substantiate his claim, to define ambiguity more precisely. Typical cases of lexical ambiguity involve homophonous expressions that can be paired with meanings that are *disjoint* or *disconnected* in conceptual space (see Pinkal 1995; Bromberger 2012; Dautriche and Chemla 2016).

Consider Priest's example of the homophone "bat": a member of the Chiroptera species and a baseball bat are objects with very distinct properties, both functionally and in respects of perceptual similarity (Dautriche and Chemla 2016). We can say:

(9)   John was hit by a bat and John was not hit by a bat.

But in practice, one will forestall misunderstanding by putting different stress or using different gestures to mark the difference: "he was hit by a bat [gesture indicating a baseball hitting], not by a BAT [with gestures indicating a flying animal]". Also, as pointed by Ripley (2011a), it appears infelicitous in this case to use ellipsis to express the same thing (see Zwicky and Sadock 1975 on conjunction reduction):

(10)   #John was and wasn't hit by a bat.

Ripley notes that for a borderline case of nearness, on the other hand, it is fine to say:

(11)   The circle is and isn't near the square.

I think the same is in principle possible for the "planet" case we reviewed:

(12)   Pluto is and isn't a planet.

(12) can be used in my opinion to report that Pluto is both a planet in the sense of "dwarf planet", and not a planet in the sense of "having cleared the neighborhood around its orbit". What is the difference with this case and the case of "bat" here?

2.2   Polysemy

The answer, it seems to me, again has to do with Pinkal's suggestion that for a typical case of an ambiguous expression, the distinct meanings are in fact completely disconnected (they lack a common more inclusive meaning). For a vague expression, on the other hand, Pinkal suggests that the various more precise meanings are connected and close to one another, with a common part (a form of polysemy, what Dautriche and Chemla 2016 call "motivated homophony").

In the case of "planet", the two meanings do indeed overlap in a sentence like (12). A dwarf planet, like a planet in the strict sense, needs to *orbit around the sun*, must *not be a satellite* of some other object orbiting the sun, and must have a *nearly round shape*. The difference between a dwarf planet and a planet in the strict sense is only that it lacks one characteristic feature that planets in the strict sense have. Hence the word "planet", as used by the IAU in 2006, is equivocal between a broad sense (inclusive of dwarf planets and planets in the strict sense) and a narrow sense (exclusive of dwarf planets), but the two senses are closely related, they overlap and are closer to each other than the two senses of "bat" are.

We may wonder if the same applies for other cases reviewed in the previous section. Consider:

(13)   Bob is and isn't a man.

Can the sentence be used to mean that Bob is male, but that Bob is not an aggressive male? I think the answer is positive. The case is similar to the previous one. "Aggressive man" implies or even presupposes "male" in this case, and thus the more restricted meaning overlaps with the more inclusive one.

What about:

(14)   John is and isn't rich.

Again, I think this will be fine to mean that John is rich with regard to his estate, but not rich with regard to his income, because both more precise meanings can in this case be

subsumed under a common more inclusive meaning (such as: "having possessions ensuring material security") (see again Pinkal 1995). The sentence thus conveys that John is rich to some extent, but not as rich as one might expect.

The same is arguably the case with Ripley's "near and not near", or with Alxatib and Pelletier's "tall and not tall" examples: the more precise meanings that "near" or "tall" might have when negated and when not negated must be sufficiently close then. This will happen, and the sentence will be consistent, if the meanings overlap in such a way that the unnegated occurrence of "near" or "tall" is entailed by the negated occurrence (for example if "tall" means "taller than 180cm" in the first occurrence, and "taller than 186cm" in the second).

Likewise, consider:

(15)   I like John and I don't.

Several enrichments are compatible with the sentence. Typically as we saw it means that I like John in some respects, but don't in others, and therefore that I fail to like him in all relevant respects. Overall it conveys that even though I like John *to some extent*, I don't like him *very much*, compatibly with the verb "like" maintaining a constant meaning.

Based on the previous examples, we therefore see that in all acceptable contradictions of the form "x is P and not P", each occurrence of P is open to adverbial modification. As a general template for this enrichment, we can consider the following schema:

(16) x is P [in some respects], and x is not P [in some respects].

The whole sentence is informative if the respects relevant to the second conjunct are distinct from the respects relevant to the first. An equivalent way of stating (16) is as follows:

(17) x is P [in some respects], and x is not [in all respects] P.

Although logically equivalent, (17) strikes me as a more significant way of representing the intended meaning of acceptable contradictions, in particular when quantification is done over extents instead of respects, as we shall see below. For adjectives in particular, this is a way of representing that P is instantiated to some extent, but not to all extent, and thereby of characterizing the borderline status of x relative to P.

2.3   Privative opposites

The relation between the two understandings of the main predicate in (17) can be linked to an observation that Zwicky and Sadock (1975) made concerning what they called *privative opposites* as opposed to *polar opposites*. They define privative opposites as follows:

> "U_1 and U_2 are *privative opposites* with respect to F if U_1 can be represented as identical to U_2, except that U_2 includes some specification for F that is lacking in U_1"

As examples of privative opposites, they give the case of the non-homophonous expressions "parent" and "mother" relative to the feature gender, and the examples of the homophonous expressions "dog" vs. "dog" relative to the same feature. "Dog" can mean a dog in the generic sense, or a male dog in the more specific sense. Importantly, it is possible to say of a female dog:

(18)   It is a dog and not a dog.

On the other hand, it is not possible to say of a father:

(19)   *It is a parent and not a parent.

in order to mean that the father is a parent but not a female parent: "parent", unlike "dog", does not have a more specific conventional meaning.[2] Zwicky and Sadock surmise in their paper that "ambiguities involving privative opposites are extremely difficult to argue for with *any* syntactic test" (p. 24, emphasis theirs). However, I am not sure if it is entirely felicitous to use conjunction reduction to say of a female dog:

(20)   (?) It is and it isn't a dog.

Already for (18), contrastive stress on the second occurrence may be needed to make the sentence meaningful. The issue here is whether the two senses of "dog" are, like the two senses of "bat", stored as separate mental representations. My intuition on this case is that, despite the closer relationship in meaning between the general and the specific meaning, the case remains more similar to "this is a bat and not a bat" than it is to "this man is tall and not tall" to talk of a borderline tall man. However, I also think "tall and not tall" is closer in structure to "dog and not a dog" than to "bat and not a bat", that is, it can be viewed as a specific form of privative opposition. In agreement with Pinkal's remarks on the difference between vagueness and ambiguity, one may argue that the relevant meanings for "tall" are mentally much closer to each other than even the two meanings for "dog" are.

3   Polar opposites

Is the proposed form for acceptable contradictions stated in (17) correct? Does it apply to all acceptable contradictions of interest to the dialetheist? To answer, we must consider whether some contradictions may not be acceptable even with predicates that stand in stronger opposition than privative opposites do, as do the antonymous adjectives "true" and "false". Those are cases of so-called "polar opposites" in the sense of Zwicky and Sadock, namely expressions that do appear to exclude each other completely. Zwicky and

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[2]Compare with Zwicky and Sadock's minimal pair: "This dog is not a dog", vs. "*This parent is not a parent".

Sadock's definition is as follows (in their definition U_1 and U_2 stand for "understandings" of one or several terms, and F is a feature):

> U_1 and U_2 are *polar opposites* with respect to some semantic feature F if they are identical except that U_1 can be represented as having $+F$ where U_2 has $-F$ or the reverse.

Zwicky and Sadock assume that the features $+F$ and $-F$ are mutually exclusive. An example given by Zwicky and Sadock concerns the pair "father" and "mother", which are supposed to exclude each other relative to the feature "male".

The definition of polar opposites should in principle exclude their cooccurrence in a single object, but as with "True" and "False", it is easy to find counterexamples. First of all, contradictions involving polar antonyms are in fact acceptable in some contexts. Consider the polar opposite adjectives "rich" and "poor" (relative to the feature "having wealth"), and the following description of John's status:

(21)   John is rich and poor.

The sentence can perfectly be used to convey that John is rich in some or most respects, but also not rich, and therefore poor, in some distinct respects.[3]

A second problem for the exclusion idea is that even polar opposites can overlap in some cases. "Male" and "female" are polar opposites according to Zwicky and Sadock's definition (relative to the feature sex), but as we know from biology, the definition of those terms is problematic, and there are cases of overlap (see Fausto-Sterling 2000). This includes in particular cases of hermaphroditism. Snails for example are described as follows:

(22)   Different snails reproduce differently, but most snails are "hermaphrodites." Being a hermaphrodite means that any given snail can be both male and female at the same time.[4]

Hermaphroditism is a case where the same individual has two functional capacities that are exclusive of each other in most other species, but that coexist in it. Consider now the following two sentences:

(23)   Snails are male and female.

(24)   (?) Snails are male and not male.

The first is attested. The second seems not to be attested (according to a Google search of occurrences), and to me a more natural way to express (23) by means of negation would be

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[3]J. Zehr and I have empirical evidence indicating that polar contradictions of the form "x is P and $ant(P)$" (where $ant(P)$ is the lexical antonym of P) are less accepted than syntactic contradictions of the form "x is P and not P", but they are not systematically rejected. See Egré and Zehr (2017) for a brief mention of the finding, and Zehr (2014) for a discussion of antonymous adjectives.

[4]From `http://scienceline.ucsb.edu/getkey.php?key=2578`.

to say: "snails are male and non-male", using predicate negation. Even if it were attested, however, (24) ought not mean that snails have some but not all of the features that are constitutive of male reproductive character. Instead, what is intended is that snails are *fully* male but *in part of their constitution*, and *fully* something other than male (namely female) *in part of their constitution*. In other words, the description in (24), supposing it were attested, has more to do with lack of *homogeneity* than with vagueness proper (or lack of clarity).[5]

An analogy that may help see the difference is by comparing a chessboard that is constituted of clear red squares and clear blue squares alternating, versus the same chessboard where all squares are of the same orange-reddish color. The former may be described as "red and blue", or as "red and non-red", to mean some of its parts are clearly red, and others clearly not red. The second may be described as "red and not red", but this time to refer to the fact that its homogeneous hue is neither clearly red nor clearly not red.[6]

We find a corresponding difference between hermaphroditism and cases of intersex: intersex is a case of vagueness, in my view, rather than inhomogeneity. The Intersex Society of North America defines intersex as follows:[7]

> ""Intersex" is a general term used for a variety of conditions in which a person is born with a reproductive or sexual anatomy that doesn't seem to fit the typical definitions of female or male. For example, a person might be born appearing to be female on the outside, but having mostly male-typical anatomy on the inside. Or a person may be born with genitals that seem to be in-between the usual male and female types – for example, a girl may be born with a noticeably large clitoris, or lacking a vaginal opening, or a boy may be born with a notably small penis, or with a scrotum that is divided so that it has formed more like labia. Or a person may be born with mosaic genetics, so that some of her cells have XX chromosomes and some of them have XY."

Because intersex people are persons who, being borderline between typically male and typically female humans, share features of both of the more polar cases, they may be described as follows:

(25)   Intersex people are male and not male.

But this does not mean that intersex people have each of the male and the female reproductive capacities *fully* as respective parts of their constitution. As a matter of fact, the

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[5]On homogeneity and ways of characterizing the phenomenon, see Križ and Chemla (2015).

[6]I am assuming that each of the squares' color in the alternating blue-red chessboard is clearly perceptible as such. Brentano in his writings considers that one might see a homogeneous purple out of inhomogeneous red and blue tiles if the tiles are small enough. This is not a relevant counterexample to the distinction I am drawing, since I am assuming the tiles to be big enough to the eye. See Massin and Hämmerli (2017) for a discussion of Brentano's views on mixtures.

[7]http://www.isna.org/faq/what_is_intersex.

ISNA is explicitly opposed to the description of intersex as "hermaphrodites" precisely on the grounds that intersex are *partially* male, and *partially* female, but are neither fully. They have some male-defining features, and some female-defining features, which is very different from having both dispositions fully but "side by side" as it were (the way snails do in relation to reproduction: hermaphrodite snails, for example, can even self-fertilize, not a feature generally shared by intersex people).[8]

What should we conclude from this discussion of polar opposites? Firstly, polar opposites can also be conjoined and predicated relative to different respects (as the example of "rich and poor" indicates). Since "poor", on some theories at least (see Krifka 2007), is considered equivalent to "not rich", and conversely, the acceptability of conjunctions of polar antonyms is not by itself a challenge to the idea that acceptable contradictions might be a specific form of privative opposition. Secondly, we have seen that a conjunction like "male and female" can be used to express either borderline status (as in the case of intersex) between two polar properties, or inhomogeneity (as in the case of snails) in the instantiation of those properties. We may wonder which of those two cases is most relevant for an expression like "true and not true" as applied to the Liar. Below, I will argue that the "True and False" description of the Liar is better seen as a case of borderline status.

4   Quantifying over extents

The generalization I stated is that "x is P and not P" ought to mean that "x is P [in some respects] and x is not [in all respects] P". In this section, I propose to clarify the semantic analysis we can give of such quantificational paraphrases for one-dimensional adjectives and for multi-dimensional predicates. The basic idea is that relevant respects determine different *extents* to which a property can be satisfied, and those extents can be quantified over. This analysis can be made to account for both one-dimensional adjectives and multi-dimensional predicates.

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[8]See Fausto-Sterling (1993)'s typology, and her remark about human intersex that: "Although in theory it might be possible for a true hermaphrodite to become both father and mother to a child, in practice the appropriate ducts and tubes are not configured so that egg and sperm can meet." Let me add that intersex people who militate for the recognition of a third category distinct from "male" and "female" may possibly be displeased with the description "intersex people are male and not male", and may prefer the description "intersex people are neither male nor not male", because they might prefer a description of their status in terms of exclusion of polar opposites ("neither male nor female") rather than a description in terms of the inclusion of both ("male and female"). If so, this preference could be explained along the pragmatic lines of Egré and Zehr (2017) to account for the overall preference for "neither"-descriptions over "and"-descriptions in relative gradable adjectives (that is by assuming that the default is to interpret "male" and "not male" in the strongest possible sense, see Alxatib and Pelletier 2011; Cobreros et al. 2015a). But this issue lies beyond the scope of the present paper. Incidentally, I note that hermaphrodites too are occasionally described in terms of a "neither"-description. A website on the internet even uses both types of descriptions with polar antonyms in the course of the same paragraph: *"Snails are neither male nor female. They are hermaphrodites, which means they are both male and female at the same time"*. `http://www.educationquizzes.com/nature-matters/2017/04/facts-about-the-slow-paced-and-shelled-snail/`.

One-dimensional adjectives   A one-dimensional adjectives like "tall" may not appear to involve any quantification over respects in a sentence like "John is tall and not tall", in particular because expressions like "tall in some/all respects" are only marginally acceptable to native speakers (according to Sassoon and Fadlon 2016).

In van Rooij (2011b) and Cobreros et al. (2012), however, my coauthors and I proposed a treatment of borderline contradictions that comes very close to quantifying over respects. The leading idea there, originally due to van Rooij, is that vague predicates can be taken in two distinct meanings, a *strict* meaning and a *tolerant* meaning, and similarly for whole sentences. Both meanings stand in a relation of inclusion: the strict meaning is more restrictive than the tolerant meaning. In effect, the relation between the strict and the tolerant meaning is a relation of privative opposition.

The semantics as originally stated there did not involve respects, however, but it did involve quantification over reference points. That is, "John is tall" is true tolerantly in the relevant model provided there is an object a that is sufficiently similar to John and that counts as tall classically in the model. "John is not tall" is true tolerantly (or not true strictly), on the other hand, provided not every object a that is sufficiently similar to John is tall classically. The conjunction "John is tall and not tall" can therefore be true tolerantly if John is sufficiently near the boundary for tallness to be similar to distinct reference points on either side of that boundary.

Instead of stating the semantics in terms of similarity, it is possible to state it directly in terms of the availability of distinct reference points (or extents) along the dimension of height, conceiving those distinct reference points or extents to vary as a function of the various respects that may be relevant to judge of tallness in the background. Shifts of respects may correspond to implicit shifts in the relevant comparison class, as explained above in section 1.[9]

In standard approaches to the meaning of gradable adjectives, "tall" denotes the function $\lambda x.height(x) \geq \theta$ for some contextually given threshold θ (see Kennedy 2007; Fara 2000). Because "tall" is vague, however, we may associate it instead with a set of admissible thresholds varying within an interval I that is lower- and upper-bounded. Intuitively, the lower bound may be viewed as the smallest plausible threshold for "tall", and the upper bound as the highest plausible threshold for "tall" in the conversational context. "John is tall [to some extent]" would then be true if there is a threshold $\theta \in I$ such that $height(j) \geq \theta$; and "John is not [to all extent] tall" will be true it it is not the case that every threshold $\theta \in I$ is such that $height(j) \geq \theta$. As a result, "John is tall and not tall" will mean that John is taller than the lower bound, but smaller than the upper bound of the interval based on relevant respects.[10]

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[9]See Klein (1980), van Rooij (2011a), and Grinsell (2012) on the idea that judgments along a linear dimension of comparison might be a function of the comparison to distinct comparison classes.

[10]We need not suppose that the interval I is the same for every speaker. Similarly, the strict-tolerant account of vague predicates is not committed to the idea that strict and tolerant meaning are the same for all speakers.

Various options can be considered to derive this logical form. One option is to piggy-back on the strict-tolerant semantics but to define the tolerant and strict meaning of "tall" directly in terms of this existential vs. universal quantification over admissible thresholds, and then rely on extant pragmatic accounts of the selection of tolerant vs. strict meaning (see Cobreros et al. 2015a; Egré and Zehr 2017). Another option is to assume that the ad-verbials "to some extent", "to all extent" can freely enrich the semantic content of "tall".[11] This is not the place to discuss the choice between these options. The aspect of interest to us in relation to Priest's remarks is the observation that "tall" need not be *semantically* ambiguous to make sense of borderline contradictions then: implicit quantification over plausible thresholds can basically account for them.

Multi-dimensional predicates   Sassoon (2013) offers an account of multidimensional predicates in language, including nouns and adjectives, which is helpful for us to analyze contradictions on the model of the previous paragraph. First of all, every multidimensional predicate P comes with a finite set of respects or dimensions $R(P) = \{R_1, ..., R_n\}$. Sassoon distinguishes different ways in which respects can be manipulated for the ascription of a multidimensional predicate. She distinguishes the ascription of a MD predicate based on operations such as dimension counting, but also weighted averaging over the extents to which the dimensions are, and further possible operations.

For a multidimensional predicate P and a set of respects $R(P) = \{R_1, ..., R_n\}$, we may represent the meaning of P by the expression: $\lambda x.f(R_1(x), ..., R_n(x)) \geq \theta$, where $\lambda x.R_i(x)$ returns a degree corresponding to the extent to which R_i is satisfied, and f is a function from $\mathbb{R}^n$ to $\mathbb{R}$ that projects the separate extents to a single numerical dimension.[12] Consider an intersex person X with male and female characteristics, and the statement:

(26)   X is male and not male.

Assume that $R(male) = \{A, H, G\}$, that is the respects relevant for maleness consist in anatomical, hormonal, and genetic features. As a first approximation, let us assume the respects to be non-vague each, and so to map out objects to binary values (1 or 0). Let f be the addition function, counting the number of features that are instantiated. To say that "X is male and non male" may be represented by picking again an interval I of admissible

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[11]Multiple occurrences of the same predicate are not needed, in particular ellipsis is accommodated here: "x is and isn't tall" can directly mean "x is (to some extent) and is not (to all extent) tall", or "x is (to some extent) tall and is (to some extent) not tall", depending on how negation is handled. This coheres with the discussion given by Ripley (2011b) of inconstant content vs. inconstant character in relation to vagueness: as I see it, "tall" in the present account maintains a constant character.

[12]Note that the meaning of the one-dimensional adjective "tall" can be subsumed under that definition. Note also that the above is my rendering of Sassoon's approach, not literally her approach. I am assuming, in particular, that for all multidimensional predicates, an integration and projection along a single dimension of magnitude is operative. This does not mean that respects won't need to be accessed separately in the semantics, but I leave a discussion of that aspect for another occasion. See Sassoon (2017) for more on respect-accessing.

values over the number of dimensions that need to be satisfied. Here it would suffice to set $I = [1, 3]$. "being male [to some extent/in some respects]" will be true of a if there is $\theta \in I$ such that $f(A(a), H(a), G(a)) \geq \theta$, and "not being male [to all extent/in all respects]" will be true if not for every $\theta \in I$ do we have $f(A(a), H(a), G(a)) \geq \theta$.

As pointed out by Sassoon, in general the various features for a multidimensional predicate need not be binary, but can be graded. The previous analysis can accommodate this possibility, letting the extents to which respects can be satisfied be more fine-grained. Similarly, the function f can vary depending on how the features are integrated. In many cases dimension-counting will not suffice, but f will need to be a more complex function of the specific respects satisfied, and of the extent to which they are satisfied. Irrespective of the details, we can handle true contradictions based on multidimensional adjectives along the same lines as one-dimensional adjectives: "x is P and not P" is pragmatically enriched to mean that "x is P to some extent, but not to all extent", and the key ingredient is to have an interval of admissible threshold values over which to quantify along the combined dimension.

One remark worth adding is that for a multidimensional expression P with a set of features $R(P)$, it will generally not suffice for an object to satisfy a single P-relevant feature R_i in order to say that the object is "P and not P". The Moon, for example, is like a planet with respect to shape (it is round), but it is not a planet with respect to being a satellite. This is arguably not sufficient to say:

(27)   The Moon is and isn't a planet.

On the other hand, at the time Eris was discovered by astronomer Mike Brown and his team, it was a borderline case of planethood, and it would have been appropriate to say:

(28)   Eris is and isn't a planet.

The difference is that Eris met all of the *minimally relevant* respects for planethood, even though it failed to meet further criteria already deemed relevant.[13]

5   Contradictions resolved?

Let us take stock. We have a clearer idea of the relation between true contradictions and the phenomenon of ambiguity. In support of Priest's remark, true contradictions are indeed not on a par with cases of pure homophony ("bat" vs "bat"). They bear a closer relation to homophony based on privative opposition ("dog" vs. "dog"), but ultimately I have argued that quantification over respects, or better, over extents (of the combination of relevant respects), is in fact the right articulation of that idea. The one-dimensional and multi-dimensional predicates that support true contradictions are vague. In the present

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[13]See Brown (2010), chapter 6: "Planet or not", and Egré (2013) for discussion.

approach, this has the consequence that such predicates come with a set of variable extents, allowing us to say that the corresponding property applies to some but not to all extent.

To conclude this note, I propose to briefly discuss two issues. The first is whether the same analysis is applicable to the Liar. The second is whether "there is effectively very little difference" between the present view and dialetheism, to use the words of Priest.

5.1   The Liar

The Liar says of itself that it is not true. The dialetheist verdict is that the sentence is true and not true. Can this be restated within the terms of the present account? I think the answer is positive. We may handle "true" as a vague one-dimensional gradable adjective, satisfying the disquotation principle ($\overline{\phi}$ is true iff ϕ), and denoting the metalinguistic property $\lambda x.[\![x]\!] \geq \theta$ with x ranging over sentences, and the function $[\![\cdot]\!]$ taking values in the truth value set $\{0, 1/2, 1\}$. We can represent that "true" is vague in so far as it comes with the interval of admissible values $I = [1/2, 1]$. To say that "the Liar λ is true and not true", in agreement with the dialetheist view, can again be taken to mean that there is some θ in I such that $[\![\lambda]\!] \geq \theta$, but that not every $\theta \in I$ is such that $[\![\lambda]\!] \geq \theta$. This, obviously, is a way of stating that the Liar is partly true, but not fully or determinately true. In our joint work with Cobreros, Ripley and van Rooij, we refrain from making that move: "true" is a predicate only constrained by the disquotation principle, but we let assertability come in two degrees, strict and tolerant (see Cobreros et al. 2013, 2015b). The present, alternative view, on which "true" is vague and comes with variable admissible extents, is worth putting on the table, however, because it ties in with the analysis sketched above of gradable adjectives more generally and with the fact that "true" is indeed gradable in natural language.[14]

5.2   "True" and "False" as vague

What about the second issue? Can we conclude that the idea of a true contradiction is done away with once we admit this implicit relativization to respects and extents? I am tempted to respond: Yes and No.

At one level of semantic analysis Yes, because each tokening of a sentence of the form "x is P and not P", for P a vague predicate, in fact relativizes P to distinct extents depending on its occurrence. Fundamentally therefore, the present account treats the acceptability of

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[14]See already (McGee, 1990, 7-8) on the idea of treating "true" as a vague predicate. McGee, however, does not put emphasis on the gradability of "true" in support of that connection. Note that if "true" is gradable, it has all the features of an *absolute* gradable adjective, by some of the usual tests. In particular, one can say *completely true/perfectly true*, but not **completely tall/*perfectly tall* (see Kennedy 2007; Burnett 2016). Furthermore, McGee explicitly denies that ""true" is a vague predicate like ordinary vague predicates", because he sees 'true' as overdetermined by conflicting rules, rather than underdetermined. But in my own understanding of ordinary vagueness, vagueness has as at least as much to do with overdetermination as it has to do with undertermination.

such contradictions as a specific form of context shift. As such, it may be subsumed under the general equivalence proven and stated by Ripley (2011b) between so-called inconsistent (glutty) vs. inconstant (context-sensitive) accounts of contradictions. Ripley, however, left as an open issue the nature of the empirical evidence susceptible to favor one kind of account over the other. What I have argued here is that adverbial modification (over respects and extents) is a general and productive mechanism, worthy of further empirical investigation, in terms of which all contradictions of the form "x is P and not P" can be paraphrased and classically interpreted.

At a more constitutive level, however, the answer is No, in agreement with Priest's citation at the beginning of this chapter, because the admission of an interval of variable extents for every vague property is viewed here as inherent to the phenomenon of vagueness. I have not said much about the sources of that variability here, but they may in turn be argued to originate in a conflicting multiplicity of anchoring or paradigmatic values for our vague concepts.[15] For an absolute gradable predicate like "true", for example, paradigmatic cases would include sentences that are determinately true, whose semantic value is therefore maximal in the range of admissible values. Likewise for "false", paradigmatic cases should include sentences whose semantic value is determinately false and minimal in the range of admissible values. But to say that "true" and "false" are vague here is to make room for the possibility of borderline cases between those more typical cases. To represent the notion of a borderline case, we do need, just as Priest argues, and as evidenced by the Liar indeed, a range of values on which the properties "false" and "true", interpreted in the broadest sense, overlap (as encoded here by the value $1/2$). The present account, like Priest's, therefore accepts that some sentences are both true and false, to mean that some sentences are partially true, and partially false at the same time, even though no sentence can at the same time be fully true and fully false.

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[15]See Douven et al. (2013) for an outline of that view.

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