Truth and Gradability

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Abstract

I argue for two claims: that the ordinary English truth predicate is a gradable adjective and that truth is a property that comes in degrees. The first is a semantic claim, motivated by the linguistic evidence and the similarity of the truth predicate's behavior to other gradable terms. The second is a claim in natural language metaphysics, motivated by interpreting the best semantic analysis of gradable terms as applied to the truth predicate. In addition to providing arguments for these two claims, I draw out consequences for debates about deflationism and truth-based analyses of notions such as assertion and logical consequence.

Keywords: truth, gradable adjectives, deflationism, correspondence, semantics

1 Introduction

A core feature of deflationary theories of truth – the kind of theory put forward by Field [13], Horwich [18], Quine [35], Ramsey [37], and perhaps Frege [14] – is that they are theories of truth at both the linguistic and metaphysical level. According to deflationists, the behavior of the truth predicate reveals something interesting about the truth property: either truth is not a property at all or, if it is a property, is thin, insubstantive, or uninteresting one. The truth predicate is merely expressive, redundant, eliminable, or purely logical (depending on the deflationary theory on offer), and there is no substantive property of truth. A common deflationary strategy is to argue

that because the truth predicate behaves as it does, the property of truth must be insubstantive.[1] Deflationists move from an analysis of the truth predicate to conclusions about the truth property.[2]

In this paper, I follow a similar strategy. I begin by analyzing the truth predicate and then move to the metaphysics of truth. I argue that deflationists and other truth theorists have overlooked important linguistic behavior of the truth predicate which suggest that it is a gradable adjective. I then argue that because the truth predicate is a gradable adjective, the truth property is one that comes in degrees.

Often, degree theories of truth have been motivated by the Sorites paradox and vagueness.[3] My degree theory is not a theory of vagueness. I will be setting aside the issue of the Sorites, in the hopes that by first developing a degree theory of truth we can better evaluate whether or not a degree theory can provide a solution to the many problems of vagueness. My argument that truth comes in degrees is a proposal in what is called *natural language metaphysics*. Natural language metaphysics is a language-first approach to metaphysics, often in the context of formal semantic theories.[4] The natural language metaphysician identifies interesting vocabulary in a natural language – in my case, alethic vocabulary such as *true* and *false* in English – and first attempts to give a formal semantic theory for this vocabulary. She then asks a question like the following question: Given the way people talk about, e.g., truth, what must truth be like? All of this presupposes that ordinary language can be consistently formally analyzed and that natural language presupposes a conception of the way the world is. The goal of the natural language metaphysician is to uncover

[1] As Lionel Shapiro puts it: "Deflationists about truth argue that an appreciation of the expressive role of the predicate 'is true' undercuts the demand for a metaphysically substantive account of the nature of truth" [40, 320].

[2] Some deflationists are only interested in the use of *true* in philosophical discussion, while other deflationists are interested in both philosophical and ordinary uses of *true*. I am primarily interested in the latter sort of deflationist, and I assume throughout that the my dialectical opponents seek to capture ordinary usage of the truth predicate.

[3] See Cleveland [7], Edgington [11], Sainsbury [38, Chapter 3], Smith [43], and Weatherson [44].

[4] For work in natural language metaphysics, see Bach [2], Davidson [10], Landman [25], Moltmann [32], and Pelletier [33].

this conception of the world via a formal analysis of natural language. Davidson, for instance, posits the existence of events because such a posit allows us to explain the entailment behavior or action sentences. I read Davidson as doing a kind of natural language metaphysics: he began by analyzing action sentences in a formal framework, and then he asked how the world needed to be in order for action sentences to be true. His conclusion, of course, is that the world needs to include events. First and foremost, I am interested in how speakers of English use *true* and what this tells us about truth. In more functionalist terms, I first ask how speakers of English use the word *true*, and I then give a theory of truth that is consistent with this usage. My central claim is that speakers of English speak as if truth comes in degrees.

Here's the plan. In §2, I present evidence that *true* is a gradable adjective and sketch a semantics for *true* following the influential account due to Kennedy & McNally [22, 23]. In §§3-4, I argue that deflationary paraphrase strategies to get around degrees of truth are unsuccessful. Speakers really do speak as if the property of truth comes in degrees. In §5, I turn to the metaphysics. I argue that *true* denotes a property that comes in degrees. But while the semantics does constrain the metaphysics, the metaphysics is still underdetermined by the semantics. The semantics is compatible with a variety of metaphysical theories of truth, including pluralist theories. In §6 I show how my degrees of truth theory interacts with the T-schema, assertion, and logical consequence.

My view starts with the semantics, but it has consequences for several debates about truth. If I am right, then deflationary theories of truth are false. As we will see, the deflationist has no apparent way to explain the gradable behavior of the truth predicate that does not rely on degrees of truth, as I argue in §3 and §4. So if deflationists intend their claims about *true* as descriptive claims about English, those claims are wrong. The truth predicate is more semantically complex than the deflationist can allow. Further, if I am right, all theories of truth which claim that truth is an all-or-

nothing property are false. Truth is a property that comes in degrees. I argue in §5 that some metaphysical theories of truth can be modified to accommodate degrees of truth; it remains open whether all metaphysical theories of truth can do so.

2 *True* as a gradable adjective

On the standard analysis, predicates denote functions. On the deflationary picture, we can analyze the truth predicate as a function from sentences to truth-values. Let ϕ be a variable for sentential expressions, and $[\![\phi]\!]$ be the set of worlds where ϕ is true.[5]

(3) $[\![\textbf{true}]\!]^w = \lambda\phi.[[\![\phi]\!]](w) = 1$

Here we treat the truth-predicate as denoting a function from sentences to truth-values, with sentences being treated as functions from worlds to truth-values. [6] While strictly speaking such a lexical entry is neutral between a deflationary and substantive interpretation of truth, there is a natural reading of (3) that makes the truth predicate appear redundant. On the deflationary understanding, the truth predicate takes a sentence as an argument and yields the value 1, true, if the world of evaluation is in the set of worlds corresponding to the sentence's semantic value and yields 0 otherwise. Barring paradoxical sentences, the truth predicate returns 1 when a sentence is true and 0 when a sentence is false. So truth seems redundant, as early deflationists argued [37]; saying *'Snow is white' is true* says no more and no less than *Snow is white*.

This simple analysis is lacking. Deflationists and other theorists of the truth predicate have overlooked an important fact about the truth predicate: that it takes modifiers such as *a little* and *halfway* and can appear in comparative constructions. We

[5] In general $[\![]\!]$ indicates the *semantic value* of an expression. Informally, semantic values are (i) truth-conditions for sentences and (ii) truth-conditional contributions for subsentential expressions. I use lambda expressions to represent the *characteristic function* of a predicate, following the notation and methods of Heim & Kratzer [17].

[6] Because this is not a paper on the semantic paradoxes, I make the idealizing assumption that there are no pathological sentences that would lead to paradox.

will call this phenomenon *gradable truth-talk*. Some motivating examples are given below.

(5) That is a bit true.

(6) What Paul said is a little true.

(7) What Tom said was more true than what Jerry said.[7]

(8) Newtonian mechanics is less true than relativistic mechanics.

The observation here is that *true* by modifiers such as *a bit* and *little* as in (5)-(6), and that it can appear in comparative constructions such as (7)-(8). This behavior is a mystery if the semantic analyses above are taken as the proper lexical entries of the English truth predicate. What does it means for a proposition, sentence, or theory to to be very true if being true just means you have the semantic value of 1? Having that semantic value is an all-or-nothing affair – yet it seems like we use *true* in such a way that being true is not an all-or-nothing affair.

These examples, however, may feel forced to philosophers' ear. This in part due to the fact that *true* is probably best viewed as a technical term in most of philosophy, and in particular in logic. Given the theoretical role and technical definition of *true* in these contexts, uses of *true* like (5)-(8) will always be infelicitous. However, I am interested not in describing the use of *true* as it comes out of philosophers' mouths. I am giving a description of folk uses of *true*; this is in line with the project of giving a natural language metaphysics of truth, and typically deflationists – my dialectical opponents in this paper – take themselves to be describing the folk notion of truth as well.

It will be helpful, then, to look at some folk uses of *true* that are like (5)-(8). Here are some examples, taken from prominent newspapers and online publications. Here is one from *The Sydney Morning Herald*:

[7] I use the phrase *more true*, but one could also use *truer*.

> And while I'm a little dubious about the reported suggestion that many of the visitors were locals – *if it's even a little true* and Victorians have to head to the 12 Apostles on Christmas Day to attempt to avoid crowds – then even that underlines the problem. [34, emphasis added]

Here is another from *The Washington Post*:

> We writers joke about how we haven't gotten anything done since November. But it's sort of a dark joke because *it's a little true*. [36, emphasis added]

This shows that at least *a little true* is used in non-technical contexts.

Similarly, we find examples of *a bit true*, *more true*, *less true*, and *how true*. Consider this example, taken from *The A.V. Club*:

> If that sounds like damning with faint praise, *that's a little bit true*. [41, emphasis added]

Or this example from David Frum writing at *The Atlantic*:

> The demand for universal health coverage might gain political force if so many of the uninsured were not noncitizens and nonvoters. None of this is immigrants' fault, obviously. *It is more true that* Americafis tendency to plutocracy explains immigration policies than that immigration policies explain the tendency to plutocracy. [15, emphasis]

Consider this example from an interview with Max Boot at *The New Yorker*:

> The Reagan Administration actually did more to promote human rights and made human rights a more central part of its foreign policy than most U.S. Administrations of the last hundred years . . . *It's probably less true in Africa*, where I think the Reagan Administration made a major mistake in

> opposing sanctions on South Africa, because they insisted on doing that through an exclusively Cold War prism. [6, emphasis added]

And finally, this example from *The Guardian*:

> What separates a nation such as Britain from the barbarism of Isis, politicians often claim, is that Britain abides by the rule of law and is defined by humane values. It's in these hard cases that *we will discover how true that is*. [29, emphasis added]

More examples can be found, but I take these to be representative examples. They are all recent, having been published in the last two years. Ordinary speakers of English – including those writing in prominent publications – use expressions such as *a little true*, *a bit true*, and so on.[8] So the truth predicate can be modified in ways that the deflationist does not allow. So what kind of predicate is *true*? I will now argue that it is a gradable adjective. More specifically, after outlining the typology of gradable adjectives I will argue that it is a *totally closed* gradable adjective.

2.1 Markers of gradability

Gradable adjectives such as *tall*, *short*, *red*, *expensive*, and so on, can be modified with expressions such as *very*, *not very*, *a little*, and *especially*; they can also appear in comparative constructions.

(9) That boy is very tall.

(10) James is not very tall.

(11) My hair is a little red.

(12) Jessie is taller than Kevin.

[8] Going forward, I will focus on constructed examples for ease of discussion. I include these examples to provide more support for my claim that uses of *true* like (5)-(8) are felicitous in ordinary English.

(13) Kevin is less tall than Jessie.[9]

It is a marker of being a gradable adjective that an expression can appear in these sorts of contexts. We will now look at some of the other similarities between *true* and gradable adjectives, e.g. *red*, *tall*, *open*, and so on.

So far, we have seen that *true* can be modified with expressions such as *very* and *a little* and can appear in comparative constructions. We repeat the examples here:

(5) That is very true.

(6) What Paul said is a little true.

(7) What Tom said was more true than what Jerry said.

(8) Newtonian mechanics is less true than relativistic mechanics.

A similar pattern holds for *false*.

(14) What John said is very false.

(15) The claims in that paper are absolutely false.

(16) Trump's press release was less false than his tweet.

The parallel behavior of *true* and *false* is to be expected if *true* is a gradable adjective. Gradable terms often form *antonym pairs*. Consider *tall/short*, *expensive/inexpensive*, *empty/full*, *accurate/inaccurate*, *open/closed*. (In the next section, we will see how the standard analysis of gradable adjectives accounts for antonym pairs.) The truth predicate has such an antonym: *false*. The claims I will make will be stated about *true*, but everything I say can be applied to *false* with some minor modifications.

The similarities between *true* and other gradable adjectives are sufficient to justify the assumption that I will make for the rest of this paper: that *true* is a gradable adjec-

[9] Alternatively, *Kevin is not as tall as Jessie*.

tive. The rest of this section is focused on sketching the semantics for *true*, drawing on the influential proposal from Kennedy & McNally [22, 23].[10]

2.2 Degree semantics

There are a number of semantic theories available for gradable adjectives. However, the proposals that have proven the most popular in the literature have been degree-theoretic.[11] Gradable terms are terms which can be analyzed in terms of degrees on scales and standards — intuitively, their corresponding properties are also the sorts of things which can come in degrees. A person can be taller than another, i.e. can be higher on the tall-scale. Similarly, one can be tall in context but not another, i.e. one's degree of tallness can meet or exceed the standard for tallness in one context but not another. If *true* is a gradable adjective, then it is natural to take the property of truth as something which can come in degrees as well.[12]

For the purposes of this paper, I assume a more-or-less standard, degree-theoretic treatment of gradable adjectives as put forward by Kennedy & McNally [21, 22, 23]. While there are several proposals in the semantics of gradable adjectives, these typically differ in detail rather than spirit.

On the Kennedy & McNally semantics for gradable adjectives, adjectives such as *tall* measure objects, or, as we will put it here, *map objects to degrees.*[13] Importantly, there are two relevant components to this mapping:

Scale: A set of ordered degrees, usually taken to be a set of degrees with at least a partial order.[14]

[10] One might suspect that the examples above are contrived or somehow forced, perhaps suspecting the presence linguistic coercion. Given the examples from various news sources above, I set this worry aside.

[11] See Kennedy [21] for arguments in favor of degree-theoretic accounts as compared to comparison class accounts.

[12] See §5.

[13] Kennedy & McNally [22, 23], Lassiter [26], and Marzycki [30]).

[14] The scales *usually* have at least a partial order, but some orders weaker than partial orders are utilized in the literature for some gradable adjectives.

Dimension: The relevant feature of the objects to which the predicate applies which the predicate measures, e.g. height for *tall*.

Antonym pairs differ only with respect to the ordering of degrees – if F and G comprise a gradable antonym pair, then their ordering of degrees is said to be inverted. This inversion of scales, while holding the dimension fixed, explains the following phenomenon:

Antonym Inversion: If x is more F than y, then y is more G than x

Antonym Inversion holds for arbitrary antonym pairs such as *tall/short* and *full/empty*. For instance, if John is taller than Mary, then Mary is shorter than John, and if glass A is more full than glass B, then glass B is emptier than glass A. Similarly, if a truth-bearer $\langle p \rangle$ is more true than a truth-bearer $\langle q \rangle$, then $\langle q \rangle$ is more false than $\langle p \rangle$. *True* and *false* form an antonym pair.

2.3 Scales

Some scales have top or bottom elements; some do not. Kennedy and McNally provide a typology of gradable adjectives. They write:

> Scales that are open on the lower end include all of those degrees that approach the limit of 0 but lack a degree whose value is less than that of all the others in the set; scales that are closed on the lower end include such a minimal value, equal to 0. Analogously, scales that are open on the upper end include all of those degrees that approach the limit of 1 but lack a degree that is greater than all the others in the set; those that are closed on the upper end have a maximal degree whose value is 1. (Kennedy & McNally [22, 354])

Determining where in the typology a particular gradable adjective falls depends on the sorts of minimality and maximality modifiers one can meaningfully apply to the

adjective, e.g. *completely*, *100%*, *totally*, *absolutely*, *not at all*, and so on. A totally open gradable adjective lacks both a top and bottom element. A lower closed gradable adjective lacks a top element but has a bottom element. An upper closed gradable adjective has a top element but lacks a bottom element. A totally closed gradable adjective has both a top and bottom element. Some examples (from Kennedy & McNally [22]):

Totally open: *tall, short*

Lower closed: *bent, loud*

Upper closed: *quiet, pure*

Totally closed: *full, invisible*

My contention is that *true* is a totally closed scale gradable adjective like *full, empty, open, closed, visible,* and *invisible*. So I put forward a theory where the relevant scale associated with $[\![\textbf{true}]\!]$ is one with a maximal element 1 and a minimal element 0, corresponding to complete truth and complete falsity respectively. This is supported by the grammaticality of the following:

(17) That snow is green is 100% false.

(18) What Eric said is totally true.

(19) Everything the Pope says is completely true.

(20) Aristotelian physics is not at all true.

Since these sorts of modifiers are maximality and minimality modifiers, it seems that *true* has an associated scale with a top and bottom element. Thus, *true* is a totally closed gradable adjective.

2.4 Semantics for *tall* and *true*

According to my proposed analysis, *true* denotes a function from objects to degrees, so a function of type $\langle e, d\rangle$. Call whatever these objects are 'truth-bearers' and these degrees 'degrees of truth.' The truth-predicate, then, denotes a function from truth-bearers to degrees of truth. We remain neutral as to what counts as a truth-bearer: utterances, propositions, sentences, and beliefs should all be considered, and the present analysis does not rely on identifying one primary class of truth-bearers.

Similarly, *tall* maps objects to degrees. Call these objects 'height-bearers' and these degrees 'degrees of height.' Compare the lexical entries of *tall* and *true* in this framework:

(21) $[\![\textbf{tall}]\!] = \lambda x_{\langle e,d\rangle}.\textbf{tall}(x)$

(22) $[\![\textbf{true}]\!] = \lambda x_{\langle e,d\rangle}.\textbf{true}(x)$

As it stands, entries (21)-(22) are not especially informative – they do not capture the important differences between *tall* and *true*. Importantly, *tall* and *true* differ in two respects. First, the associated scales have different properties: the *tall*-scale is a totally open scale, while the *true*-scale is a totally closed scale. Second, they vary in their respective dimensions. The *tall*-dimension is plausibly *height*, while the *true*-dimension is plausibly something like *correct representation* (more on this in §5). We represent the functions by bolding the expression, the scale type by subscripting D, and we say that the measure functions associated with *tall* and *true* are:

(23) $\textbf{tall} = f : H \subseteq U \rightarrow \langle D_{(0,1)}, \leq, \text{height}\rangle$

(24) $\textbf{true} = f : R \subseteq U \rightarrow \langle D_{[0,1]}, \leq, \text{truth}\rangle$

Here, H is the subset of members of U that have some height (the height-bearers), and R is the subset of the members of U that are truth-apt (the truth-bearers).[15] **tall**

[15] What that property is will be discussed in §5.

maps those objects that have some height to a set of degrees $D_{(0,1)}$, which are ordered via some ordering relation $\leq$, and it is said to measure them along some dimension – in this case, height. **true** maps those objects which have some property to a set of degrees $D_{[0,1]}$, ordered by $\leq$, and it is said to measure them along a dimension – though what this dimension *is* will be discussed in §5.[16]

Kennedy & McNally assume that there is an implicit morpheme *pos* in the non-graded uses of gradable adjectives, e.g. *John is tall* and *That is true*. It is *pos* that supplies the contextually-determined standard for each gradable adjective in a context. Following Kennedy & McNally [22] (with some minor modifications), we get the following semantic value for *pos*.[17] Here G is a variable for predicates of type $\langle e, d\rangle$, and c is a free variable for contexts.

(25) $[\![\textbf{pos}]\!]^c = \lambda G.\lambda x.\exists d[\text{standard}(d)(G)(c)\&G(x) \geq d]$[18]

It is *pos* that sets the standard, but what is the standard for a bare truth-ascription? Typically, it would seem that for some truth-bearer to be counted as just plain true, it must be *absolutely true*. That is, *true* is an absolute gradable adjective rather than a relative gradable adjective – relative gradable adjectives being adjectives where the standard does not default to the top element — for instance, a party can be quiet without being maximally quiet, as standards of quietness vary across contexts. A truth-bearer is true just when it is absolutely true (typically); similarly, a surface is flat just when it is absolutely flat (typically). And this is to be expected — as Kennedy & McNally [22, §4.1] conjecture, all totally closed gradable adjectives are absolute adjectives. The truth predicate behaves just as expected when analyzed as a totally closed gradable adjective.[19]

[16] For now I label the dimension as 'truth' but this should be seen as just a placeholder for sketching the semantics.

[17] Kennedy [21] remains neutral on whether there is a constituent *pos* at the level of syntax or if there is a *pos*-type-lifting operation for the positive form of gradable adjectives. I write as if *pos* is a constituent for simplicity.

[18] Here I follow the Kennedy & McNally presentation of *pos*, but I note that Kennedy [21] gives a similar semantics without existentially quantifying over *d*.

[19] We will see in §3 that this is essential in arguing against a deflationary interpretation of the data.

Here is a statement of the truth-conditions of an arbitrary bare truth-ascription $\langle p \rangle$ *is true*:

(26) $[\![\langle p \rangle \text{ is true}]\!]^{c,w} = 1$ iff
$\exists d(\text{standard}(d)([\![\textbf{true}]\!])(c) \& [\![\textbf{true}]\!](\langle p \rangle) \geq d)$ at w

Informally: the bare truth-ascription $\langle p \rangle$ *is true* is true in a context c iff there is a contextually-determined standard for truth d and $\langle p \rangle$ meets or exceeds d. (26) is the result of $[\![pos]\!]$ taking $[\![\textbf{tall}]\!]$ as an argument, by means of the rule Function Application.[20]

This provides a succint explanation of bare truth-ascriptions. A bare truth-ascription is true iff the truth-bearer to which truth is ascribed meets or exceeds a conversational standard for whatever the truth-dimension is. A standard is set by the context through the free variable c in $[\![pos]\!]$.[21] Since *true* is a totally closed gradable adjective, the standard defaults to 1, the maximum element on the scale. But we can allow for lax contexts where a truth-bearer need not meet such a high standard – all that is required is that we assume the default is 1.

Given the Kennedy & McNally analysis of modifiers and comparatives, we can see why it is that *true* is able to take the modifiers that it does, e.g. *mostly*, *a little*, and so on. We will call these *gradable truth-ascriptions*. Recall:

(5) That is mostly true.

(7) What Tom said is more true than what Jerry said.

(14) What John said is very false.

We now need to show how *true* interacts with these modifiers in a compositional fashion. Given standard entries for *mostly* and *more than* (see Kennedy & McNally

[20] Function Application is familiar to all working in generative linguistics, as it is a standard compositional rule from Heim & Kratzer [17]. For clarity I provide a statement of the rule here: If α is a branching node with β and γ as daughters, and $[\![\beta]\!] \in [\![\gamma]\!]$, then $[\![\alpha]\!] = [\![\gamma]\!]([\![\beta]\!])$.

[21] On my view, *true* is a context-sensitive expression. However, the semantics I propose is very different from *contextualists about truth*, e.g. Burge [4, 5] and Simmons [42].

[22]), we can give the following truth-conditions for two paradigmatic gradable truth-ascriptions, $\langle p \rangle$ *is mostly true* and $\langle p \rangle$ *is more true than* $\langle q \rangle$. Here, read S_t as the scale of truth, i.e. $[0, 1]$.

(27) $[\![\langle p \rangle \text{is mostly true}]\!]^{c,w} = 1$ iff

$\exists d(\textbf{diff}(\textbf{max}(S_t), d) < \textbf{diff}(d)(\textbf{min}(S_t)) \wedge [\![\textbf{true}]\!](\langle p \rangle) = d))$ at w

(28) $[\![\langle p \rangle \text{is more true than} \langle q \rangle]\!]^{c,w} = 1$ iff

$\exists d_1 \exists d_2 (d_1 > d_2 \wedge [\![\textbf{true}]\!](\langle p \rangle) = d_1 \wedge [\![\textbf{true}]\!](\langle q \rangle) = d_2)$ at w

Intuitively, $\langle p \rangle$ *is mostly true* is true just when the difference between the highest degree d which $\langle p \rangle$ meets in the context and the maximum element of the scale of truth S_t is less than the difference between d and the minimum element of S_t. More simply, $\langle p \rangle$ *is mostly true* is true just when $\langle p \rangle$ is more true than false. And intuitively, $\langle p \rangle$ *is more true than* $\langle q \rangle$ is true just when the highest degree of truth that $\langle p \rangle$ meets is higher than the highest degree of truth that $\langle q \rangle$ meets.

The best argument for the truth predicate being a gradable adjective comes in two stages. During the first stage, one would argue that *true* behaves similarly to gradable adjectives such as *tall* and *flat*. I have argued that this is so, by pointing to the fact that *true* takes modifiers such as *very* and *not at all*, and that *true* can appear in comparative constructions. During the second stage, one would show how the semantics of the truth predicate could be given using the machinery already employed in the analysis of gradable adjectives. I have argued that this is so, using the semantics given by Kennedy & McNally. We can explain both bare and gradable truth-ascriptions in a straightforward way. So while my conclusion about the truth predicate may seem unorthodox, it is in an important sense *conservative* – we take on no new commitments about how we should analyze gradable terms, for instance, and we can help ourselves to the machinery of standard model-theoretic semantics. Thus, I conclude that the truth predicate is indeed a gradable adjective.

We have the outlines of a plausible semantic theory for *true*, where *true* is analyzed as a totally closed gradable adjective. But there are two issues remaining. First, can the proponent of a deflationary theory of truth offer an interpretation of the data that does not involve the thesis that truth comes in degrees? In §§3-4, I argue that this is not the case; deflationism cannot accommodate gradable truth-talk. Second, what is the relevant dimension of a truth-bearer that the truth predicate measures to determine a truth-bearer's degree of truth? In §5, I present some options.

3 Expressivism about *true*

Deflationists about truth will want to resist the proposed analysis. It is easy to see why this is so: if *true* is best analyzed in degree-theoretic terms, then it would seem that truth is a property that comes in degrees. On deflationary accounts of truth instances of **(T)** – or other similar schemata – exhaust our theory of truth:

(T): $\langle p \rangle$ is true iff p

If this is so, it is hard to see how truth could come in degrees.

To my knowledge, few deflationists have argued against degree-theoretic approaches to truth and the truth predicate. Horwich [18, §28] is a notable exception.[22] Horwich's strategy is a variant of what I will call *expressivism about true*. According to expressivism about truth, the gradable uses of *true* should not be taken to reveal anything about the more complex mechanisms of the truth predicate – that is, they should not be taken to reveal that *true* is a gradable adjective – and thus the natural language

[22] Paul Egré has pointed out to me that Haack [16] also argues against degrees of truth from a deflationary perspective. Haack is particularly interested in what Ramsey's deflationary theory might say about degrees of truth. Her conclusion is negative: if deflationism is true, then truth does not come in degrees. (Further, talk of degrees of truth is, for Haack, meaningless.) I focus on Horwich's argument over Haack's for two reasons. First, Horwich attempts to accommodate talk of degrees of truth; I will argue that his attempt is unsuccessful. Haack instead challenges the meaningfulness of gradable truth-talk. Given my arguments in §2, I feel comfortable assuming for the rest of this paper that sentences such as *That is half true* and *What Terry said is more true than what Kelly said* are meaningful. Second, I agree with Haack's conditional. Haack, channeling Ramsey, argues that if deflationism of true, then truth does not come in degrees. I argue for the contrapositive: since truth comes in degrees, deflationism must be false.

metaphysics about truth is *not* degree-theoretic. Instead, expressions such as *very true* are used to express credences or degrees of belief. For a shorthand, we will say that *gradable truth-talk expresses confidence.*

Expressivism about *true* is an attractive position, as it seems to accord with speaker phenomenology. When pressed to specify what they mean, speakers suggest that they use expressions such as *very true* to express confidence, or to suggest that they will 'stand by' what was said. The exact mechanism of this expression – that is, a specification of how gradable truth-talk plays this emotive function – is beside the point for our purposes.

According to Horwich's version of expressivism, there is an epistemic notion related to truth: determinate truth and determinate falsity [18, §28]. A sentence of the form 'x is F' is determinately true iff 'x is F' is true and there is no semantic obstacle to determining whether or not x is F. 'x is F' is determinately false iff 'x is F' is false and there is no semantic obstacle to determining that x is not F. For Horwich, determining is an epistemic notion, and a semantic obstacle is a feature of the meaning of the predicate *is F* that makes it cognitively impossible for speakers to determine the precise extension of the predicate.[23]

There is still the matter of what to say about expressions such as *The Pope only speaks the absolute truth*, *What Bill said is a little true*, and *Relativistic mechanics is more true than Newtonian mechanics*. This is not a matter of semantic ignorance, or a matter of determining the extension of vague predicates, so the distinction between truth and determinate truth is not yet helpful in providing an adequate paraphrase. But Horwich invokes another epistemic notion: degrees of belief (or, equivalently, credences). Take any formalism which assigns more than the standard truth values 0 (falsity) and 1 (truth), for instance a degree theory which takes the range of truth values to be the real numbers [0,1], and so appears to be assigning degrees of truth to

[23]These features are tied up in Horwich's use theory of meaning [19], in particular gappy patterns of predicate application that make it impossible to determine precise extensions despite all predicates having precise extensions.

sentences, propositions, or other truth-bearers. Horwich interprets this formalism as follows: 0 is determinate falsehood, 1 is determinate truth, and any value n between 0 and 1 is the degree of confidence that the relevant proposition is true [18, 83-84]. Building off of Horwich's proposal, we can say that expressions like *very true* or *a little true* serve as inexact expressions to indicate some salient range of credences, and that comparative constructions such as *Relativistic mechanics is more true than Newtonian mechanics* can be paraphrased as assigning a higher credence to relativistic mechanics than Newtonian mechanics.

With this rough and ready conception of expressivism about truth, I turn to raising two objections to the proposal in §3.1. In §3.2, I show how my account explains the apparently expressive uses of gradable truth-talk. So instead of treating the main expressivist insight as an *objection*, I argue that it is in fact a *feature* of my view.

3.1 Objections to expressivism about *true*

There are two main objections to expressivism about *true*. First, it is *ad hoc* and unsystematic. That is, it fails to generalize to other similar expressions. Since we are engaged in the project of giving a semantics for *true*, we need to give a similar semantics to similarly behaving expressions. Second, it fails to capture the intuitive meaning of comparative constructions, e.g. *Relativistic mechanics is more true than Newtonian mechanics.*

We can see that this strategy is *ad hoc* and unsystematic by considering more standard gradable adjectives such as *tall* and *closed.* When we assign a degree of tallness in our semantics for *tall*, it is clearly not an assignment of credence level to the proposition that, say, Arthur is tall. Similarly, when we say that the door is fully closed, it does not mean that the door is determinately closed.[24] That gradable talk isn't interpreted as credences in the case of other adjectives suggests that gradable talk shouldn't be interpreted as credences in the case of *true.* Parity demands that we

[24] This is the epistemic sense of *determinately.*

treat like cases alike. The expressivist will need to claim that all gradable talk is to be interpreted as assignments of probabilities or as expression of confidences. But this is problematic for two reasons. First, assigning a high credence to the proposition that John is tall is a different matter from saying that John is very tall – we can see this because it is felicitous to say that John is very tall only if one knows that John is tall *simpliciter*, but one can assign a high credence to the proposition that John is tall without knowing that John is tall. And second, we have an elegant semantic theory that makes sense of gradable adjectives without paraphrasing into assignments of credences – so there is no need to paraphrase the relevant locutions into talk of credences.

A response that might arise in this context goes like this. As deflationists have long contended, *true* is a very special predicate – it is sometimes said to be merely expressive, purely logical, in principle dispensable, and so on. And so a committed deflationist will not be convinced by any of the arguments I have given above, because these arguments rely on treating *true* as a predicate much like *green* and *heavy* – predicates that are not merely logical, merely expressive, or dispensable. The expressivist about *true* could likewise contend that this is the case: *true* is special, and so gradable truth-talk is special. But the claim that *true* is special insofar as it merely expressive or a logical device is itself an empirical claim, relying on the actual behavior of the truth predicate in English. If deflationists or expressivists want to claim that *true* is merely expressive as an argument against my proposal, they will then need to show how the arguments for treating *true* as a gradable adjective are unsuccessful. And they will need to show this without presuming that *true* is a special predicate that cannot or should not be given an ordinary semantic analysis.

Implicit in this response is the assumption that deflationists are interested in giving a descriptive theory. I think in the case of many deflationists, this is certainly the case. Some deflationists [39] explicitly do not seek to give a descriptive theory of the

English *true*. My response is only directed at the descriptive deflationist; the revisionary deflationist is not concerned with our ordinary talk, and so would not need to give a paraphrase of gradable truth-talk in the first place.

Second, the expressivist paraphrase fails to capture the intuitive meaning of comparatives. Recall the example *Relativistic mechanics is more true than Newtonian mechanics.* Uttered by, say, a physics professor to an introductory physics class, this just doesn't seem like an expression of comparative credences. It is more natural to interpret what the physics professor says in terms of degrees of truth: Relativistic mechanics describes the world more accurately than Newtonian mechanics. And while recognizing that one theory describes the world more accurately than another will often be accompanied by an assignment of higher credences to the first theory, that does not establish that what is meant by the comparison is an expression of those credences.

This point can be strengthened by considering two theories which are known to be false. Since the relevant agents know them to be false, the theories are both assigned a credence of 0. If the expressivist treatment of gradable truth-talk is correct, then these theories are thereby equally true insofar as both are absolutely false. Yet, this does not seem right. One theory may be more true than other in virtue of better describing the world — despite both theories being *false* and *known to be false*, one may be more true than the other. Our uses of graded instances of *true* do not seem to reduce to expression of credences.

3.2 Absolute standards

I have given two objections to expressivism about truth. There still remains the issue of how to explain the intuition that *very true* and other instances of gradable truth-talk are often used to express confidence. It is my contention that the degree-theoretic account is not challenged by this intuition. In fact, given some plausible pragmatic

assumptions, my acccount predicts this phenomenon.

On my account, *true* is a totally closed gradable adjective. On the Kennedy & McNally analysis – which I follow – being an absolute gradable adjective is correlated with having an absolute standard as the default. In ordinary contexts, the standard of truth is the maximum element on the scale: 1. So strictly speaking, on my account many of the uses of modifiers, especially in constructions such as *That is very true*, are redundant. The feeling that *very* and *really* are used to express confidence is explainable with some plausible pragmatic assumptions: given that *very* is redundant in *That is very true*, cooperative speakers will only use it when they want to express something more than the literal semantic content of the utterance. It is plausible that speakers intend to express degrees of confidence in many cases. So the motivating insight of expressivism about *true* is not a criticism of my account, as my account explains it.

3.3 Probabilities and degrees of truth

Another attractive paraphrase of gradable truth-talk – related to expressivism, but distinct – is in terms of probabilities. That is, perhaps a truth-bearer is very true when (i) it is true and (ii) the probability that it is true is very high. This is distinct from the view that gradable truth-talk can be paraphrased in terms of credences unless we assume that probabilities are subjective and are thus analyzable in terms of credences.[25] On this view, a sentence such as *What Mary said is a little true* isn't taken to be expressing a state of low confidence in what Mary said, but rather is paraphrased as something like *What Mary said is a little likely*.

Paraphrasing gradable truth-talk into probabilities is significantly less plausible than paraphasing it into credences. It lacks the intuitiveness of the expressivist paraphrases I have discussed above, and it cannot make sense of sentences such as *What Mary said is absolutely true, though it is unlikely*. Consider the case of a lottery with

[25] See Hajek [20, §3.3] for discussion.

1,000 tickets. Suppose now that the winning ticket, #42, has been drawn and placed into an envelope. Nobody has seen the winning ticket. It is absolutely true that #42 is the winning ticket, but given anyone's evidence, it is exceedingly unlikely. Assuming it is a fair lottery, the probability is $.001\%$. So it seems that probablities and degrees of truth come apart.

Notice that assertions of sentences such as *What Mary said is absolutely true, though it is unlikely* seem Moore-paradoxical. One explanation would be to assume that they are Moore-paradoxical because they are straightforwardly contradictory, amounting to saying that what Mary said is both likely and unlikely. But this is too strong: the sentences would just be contradictory, not Moore-paradoxical. Another explanation – the one I endorse – is that the sentence is true but unassertable, given plausible constraints on assertion, e.g. that one only asserts a sentence if it is at least pretty likely. Since the first conjunct of *What Mary said is absolutely true, though it is unlikely* is said to be unlikely by the second conjunct, the conjunction should be unassertable. So according to my view, the sentence is odd *not* because degrees of truth are probabilities, but rather because of the link between probabilities and assertion. This properly captures the Moore-paradoxicality of the assertion without claiming that the sentences are self-contradictory.

4 Degrees of non-alethic properties?

My account explains the motivating insight for expressivism about *true*, and it does so without positing that the truth predicate is special or peculiar – that is, a standard semantics for predicates that behave like *true* in English, taken together with some pragmatic principles, explains why speakers feel as if some gradable truth-talk is merely expressive. This makes the semantic proposal more plausible, and it shows that a deflationary account of gradable truth-talk is at best unmotivated. But I moved from the semantic level to the metaphysical level, claiming that the property of truth

comes in degrees. Another worry – and another way for the deflationist to resist the substantive metaphysics of truth I will propose – is to claim the modifiers like *a little* and comparatives such as *more . . . than* do not modify *true* in instances of what I called gradable truth-talk, but rather modify other non-alethic predicates. On this view, gradable truth-talk is used to generalize over degrees of *other* properties. This seems reasonable enough, given the intuitive pull of the following:

(Very-T:) $\langle x \text{ is } F \rangle$ is very true iff x is very F

Filling in 'snow' and 'white' for 'x' and 'F' makes the pull a bit stronger. For instance, ⟨Snow is white ⟩ is very true, it would seem, iff snow is very white.[26] On this proposal, gradable truth-talk is in a sense illusory. Similar stories would need to be told for all the modifiers the truth predicate takes, but it easy to see how the story would go. Brandom [3, 164], for instance, endorses this sort of paraphrase for locutions such as *That snow is white is probably true*, where we paraphrase this as *Probably, snow is white.*[27]

This line of thought might provide deflationists with a way of avoiding my anti-deflationary conclusions. If modifiers such as *very* were only superficially modifying the truth predicate, then no degrees of truth would be needed in our semantics. So speakers of English would not be speaking as if truth comes in degrees.

There are three major problems for this view.

First, the move of pushing the degrees from truth to other properties lacks plausibility when it comes to comparative constructions, as there are no other predicates in these constructions. *Relativistic mechanics is more true than Newtonian mechanics* is a paradigm case of gradable truth-talk, and yet it is unclear what property that relativistic mechanics has to a greater degree than Newtonian mechanics, other than perhaps some representational property that could come in degrees, such as correspondence

[26] Similar points could be made about *a little true* and *more or less true*.

[27] We note that in (Very-T) the modifier *very* is modifying a predicate rather than the whole sentence, unlike *probably* in Brandom's example.

(see in §5). But to admit this is to admit that it is truth that comes in degrees, and so this fails as a paraphrase into something non-alethic.

We could posit that implicit in these comparative constructions are non-truth predicates – perhaps in the case of *Relativistic mechanics is more true than Newtonian mechanics*, predicates concerning support by the available evidence, or predictive power. The particular predicates do not matter — what would matter is if these predicates are really there in those constructions. I do not rule them out on the basis that they are implicit or unvocalized; my account of truth-ascriptions relies on positing an implicit morpheme *pos*. However, we posit *pos* because of the theoretical work it does for us in giving a semantics for gradable terms, not because we wish to avoid unwanted metaphysical conclusions. The status of these posits is importantly different.

Second, parity considerations support treating truth as the property that is said to come in degrees in these gradable constructions. When someone utters *The door is almost closed*, paraphrasing the expression so that it isn't the property of being closed that is had to a high degree seems unnatural. Similarly for *Bill is a little tall*. An assertion of that sentence is analyzed as saying that Bill has the property of being tall to a fairly low degree. Then why is it that *What Bill said is a little true* is to be interpreted so that the property of being true doesn't come in degrees? If we want to give a uniform interpretation of the semantics, then we should treat *true* as a gradable adjective denoting a property that comes in degrees.

It is certainly not the case that the presence of occasional, scattershot expressions with modifiers such as *very F* and *a little F* are sufficient to establish that *F* is a gradable adjective. With this observation in mind, a reader may object along the following lines. Some predicates, they will rightly note, are not gradable but can be *coerced*. Consider an expression such as *very pregnant*; we can imagine contexts in which a speaker could utter *very pregnant* and it would be perfectly intelligible. For instance,

if Sally and Jane are both pregnant, but Sally is only a month or so along and Jane is near the end of the third trimester, a speaker may say *Sally is pregnant, but Jane is very pregnant.* Here the meaning of *pregnant* is coerced into something like *far along in a pregnancy*, which is related but distinct to the meaning of *pregnant.* The objector may believe that something like that is going on in the case of true. If that is so, then the deflationist wouldn't need to supply a 'hidden' predicate that is being modified — they may simply claim that in a particular context, the meaning of *true* is coerced into something distinct yet related to the ordinary meaning of the term.[28]

Paul Egré [12] has recently begun exploring the applicability of degree-theoretic notions of truth to vagueness and the paradoxes, and he too is concerned with the linguistic evidence for the gradability of *true.* Egré notes, and I agree, that coerced predicates tend to be 'marked', and that this marking is one of our best ways of determining whether or not a predicate is being coerced in a particular context. One way that these predicates are marked is by stress or emphasis — so, for instance, a speaker might say that *Jane is **very** pregnant* rather than simply saying that *Jane is very pregnant.* Vocal stress or emphasis is a contextual clue that the relevant predicate needs to be interpreted in a non-standard way. In writing, this is often represented with italics. Here I must report that gradable uses of the truth predicate do not seem to require this kind of marking; when one hears these expressions in ordinary discourse, they are not accompanied with stress or emphasis in any systematic way that would indicate widespread coercion. In my examples found in publications such as *The Washington Post* and *The Guardian*, neither the modifiers nor the predicate were stressed. This suggests that speakers of English are comfortable using gradable truth-talk without indicating that the meaning of the truth predicate needs to be coerced into something non-alethic.

It is helpful to take a step back from the dialectic and consider what, exactly, it would take to establish that the truth predicate is a gradable adjective. We cannot

[28] Something like this may underlie the claims of expressivists about *true.* See the discussion in §3.

insist on conclusive evidence or only deductive arguments for the conclusion, because conclusive evidence and deductive arguments are rarely available for the kinds of empirical claims that one finds in linguistic semantics. Instead, we must be content with hypotheses which offer the best account of the linguistic data. I contend that my hypothesis – that the truth predicate is a totally closed gradable adjective – offers such an account. It explains the felicity of expressions such as:

(6) What Paul said is a little true.

(8) Newtonian mechanics is less true than relativistic mechanics.

(15) The claims in that paper are absolutely false.

Further, because I do not make any claims about linguistic coercion, my account also explains the lack of marking by way of vocal stress, emphasis, or italics in ordinary speech. And it does all of this explanatory work within the framework of a standard semantics for gradable adjectives, with no theoretical innovations required.

Third, in a case such as instances of **(Very-T)**, the transformation from an alethic claim to a non-alethic claim (and vice versa) seems natural. Yet it does not seem natural in all cases. Consider the following context. John and Bill are both tall. We can stipulate that both exceed the minimum standard of tallness by a good amount. We also stipulate that John is taller than Bill. Is it now the case that ⟨ John is tall ⟩ is more true than than ⟨ Bill is tall ⟩? To my ear, this seems wrong. Since John and Bill are both tall – they both exceed the standard of tallness in the context – it is true *simpliciter* than John is tall and true *simpliciter* that Bill is tall. Both are perfectly true. So we have a case where degrees of tallness and degrees of truth come apart. This suggests that a linguistic theory of *tall* and *true* needs to be sensitive to the fact that the degrees of tallness in a context will not fully determine the degrees of truth of the relevant proposition in that context, which suggests that degrees of truth are in some sense independent of degrees of non-alethic properties. Determining the

exact relationship between degrees of truth and degrees of non-alethic properties is important work, and in the next section I turn to the metaphysics of truth. It seems natural that we would need a metaphysical story about the relationship between truth and the world in order to fully capture the relationship between degrees of truth and degrees of non-alethic properties; I suggest that the former cannot simply be reduced to the latter.

5 Truth as a gradable property

The deflationary interpretation of gradability seems implausible. Yet we need an account of truth that does justice to the predicate's behavior. I believe there are a number of plausible candidate properties — for instance, many of the properties traditionally considered in the truth literature or in more recent pluralist debates.[29] In general, the degree theory I have offered puts only a few constraints on what counts as a truth property. I list these constraints:

Maximality: The property is such that there is such a thing as being maximally true, corresponding to having the degree 1.

Minimality: The property is such that there is such a thing as being maximally false, corresponding to having the degree 0.

Degrees: The property is such that there a truth-bearer can have more or less of it.

Now I turn to some candidate truth properties. We will see that the constraints imposed by the semantics underdetermine what the right truth property is. This is a welcome result; it would be theoretically inappropriate if the semantics I favored completely settled the matter of what truth is, even when we restrict ourselves to natural language metaphysics.

[29] For a sampling see Wright [45] and Lynch [28].

The properties I will consider here are truth properties that allow for one truth-bearer to have more of the property than another truth-bearer. These are not properties of the degrees employed in the semantic formalism. A metaphysics of mathematical degrees is a separate matter from a metaphysics of the dimension that is measured in the gradable expression *true*. *true* denotes a function that maps objects to degrees along a dimension, and I am asking *what that dimension could be*. There is a separate issue of the ontological status of degrees employed in semantic formalisms, and I am not concerned with that issue here.

5.1 Correspondence

Representational properties are the sorts of properties that come in degrees. For instance, let's say that for a truth-bearer to correspond to the world is for that truth-bearer to resemble the world, in the same way that for a mental representation to represent an object is for it to resemble that object. It is clear that objects can be multiply represented, and that of two particular representations $R1$ and $R2$ of an object O, it can be truly said in some instances that $R1$ resembles O to a greater degree than $R2$, or that $R1$ slightly resembles O while $R2$ greatly resembles O. The resemblance relation comes in degrees.

Traditional correspondence theories claim that truth is a relation between truth-bearers and objects in the world (typically states of affairs or facts, though sometimes objects).[30] This relation is one much like resemblance (though nothing I say hangs on the relation between a proposition and a state of affairs being exactly like the relationship between a mental representation and objects in the world). While those correspondence theorists often take this relation to be an all-or-nothing matter, this isn't forced on us by the nature of the relation. Just note the list of candidate correspondence relations given by David [9]: correspondence, conformity, congruence, agreement, accordance, copying, picturing, signification, representation, reference,

[30] See Künne [24] for discussion.

and satisfaction. All of these candidate relations seem like the sorts of relations that can come in degrees: it seems possible to partly correspond, conform, be congruent, agree, accord, copy, picture, represent, and satisfy. And if any of these are the correspondence relation in the correct correspondence theory of truth, then correspondence seems like the sort of relation that comes in degrees.

This metaphysics in fact seems most naturally suited to a gradable view of truth. The hard part for a metaphysics of truth that invokes representational properties such as resemblance or picturing (e.g.) is figuring out how a proposition could ever fully resemble or picture a state of affairs such that it is absolutely true. On this picture, absolute truth is the special case. This suggests a stronger claim than the one I have made so far. I have argued that if truth comes in degrees, then the correspondence theory of truth is very attractive. But I also endorse the other direction: If one is a correspondence theorist, then one should accept that truth comes in degrees. These two view pair well to form a plausible view of truth that does justice to the linguistic evidence.

5.2 Anti-realism and pluralism

Suppose one is loathe to be a correspondence theorist, or does not think that one can just be a correspondence theorist, e.g. Lynch [28]. One wants to opt for, say, a verificationist, coherentist, or pragmatist view of truth either globally (such that it is the right view of truth for all propositions) or locally, perhaps by partitioning propositions into domains. Can one accept that 'is true' is a gradable adjective and that truth is a property that comes in degrees? I will argue here in the affirmative.

The pragmatist conception of truth, where truth is taken to be the expected utility of adopting a belief, is easily reconfigured to accommodate degrees of truth. For instance, for a belief to be very true just is for the expected utility of that belief to be very high. For a belief to be a little true is for there to be some, but not much,

expected utility if one adopted the belief. And comparative judgments are easily seen as comparisons of expected utility. The pragmatist needs to make sense of the limiting cases of full truth and full falsity. For the former, we can say that full truth is maximum utility or, more clearly, the belief that is fully true in some context is the belief whose adoption has the highest expected utility among the range of the salient options. Thus the pragmatist can make sense of full truth without positing something like absolute utility. It would seem plausible that full falsity would just be having the expected utility of 0. This does not work, given that in an unfortunate case the best option might be the belief whose adoption has the utility of 0; in such a case, that belief would be fully true and fully false, which is absurd. Being fully false should rather be regarded as having the lowest expected utility of the available options.

Now consider coherence and verificationist theories of truth. A coherence theory of truth will need to show how there is such a thing as partial coherence, or find a way to make sense of one set of sentences or propositions having more coherence than some other set. And to give a proper reduction, the notion of a degree of coherence will need to be explicated in terms of something non-alethic. If these desiderata are met, then the coherence theorist could adopt my semantics. Similarly for verificationist theories of truth. If there is some sense to be made of partial verification, or of verification in degrees, and verification can be made sense of in terms of something non-alethic, then the verificationist can adopt my semantics.[31]

Let's assume that the notions of partial coherence and partial verification can be explicated sufficiently.[32] Then the semantics I have proposed does not force on us a particular metaphysics of truth, and in fact might not force on us a monist view of truth. A pluralist, provided they had an account of context's effect on the truth predicate, could hold that in different contexts or in different domains the truth predicate

[31] One option, following Ayer's strong/weak verification distinction [1], is to claim that partial verification amounts to rendering a proposition probable. Since probability comes in degrees, we can say a proposition is more verified if it is rendered more probable by the evidence.

[32] See Moltmann [31] and Yablo [46] for steps in that direction.

picks out different properties (as long as those properties come in degrees).

We have seen that there are a variety of metaphysical options available to a gradable view of truth. In this paper, I do not take a stand on what the best option is, and I leave fleshing out the metaphysics for future work. What has been established by my arguments is that whatever property *true* picks out must be one that comes in degrees, that this property must be substantive rather than deflationary, and that several properties may fit the bill. This leaves open the questions of the particulars of the metaphysics of truth, but this is a desired result. While the semantics of *true* might *constrain* the metaphysics, it would be surprising if the semantics of *true* fully determined a particular metaphysical theory. Choosing between the available options is, again, left for future work.

6 The T-Schema, Assertion, and Logical Consequence

By putting forward the view that truth comes in degrees, I am challenging a central assumption not just in theories of truth, but in many other domains, e.g. logic and philosophy of language. But it is my contention that my theory is *conservative* in the following sense: it is compatible with many of our ordinary philosophical analyses of truth-related notions. I will briefly try to show this. I will also note, in §6.3, where my theory may lead to interesting avenues of future research.

Before going forward, I will introduce a terminological shorthand: *being true enough*. A proposition or other truth-bearer $\langle p \rangle$ is true enough in a context iff its truth value meets or exceeds the conversational standard in that context. Since *true* is an absolute gradable adjective, the standard is usually absolute truth – for a proposition to be true enough in c, where c is a normal context, the proposition's truth-value must be at least 1 in the context. However, there may be strange, looser contexts where we gradual lower the standards of truth. (This would be an *imprecise* context, perhaps. Similar imprecise contexts can be constructed for *flat* or *invisible*.) But $\langle p \rangle$

will be true enough in that context iff the proposition's truth-value meets or exceeds the conversational standard for truth in that context. The notion of being true enough will prove useful for the rest of this section.[33]

6.1 T-schema

Deflationists and substantivists alike emphasize the importance of the following schema:

(T): $\langle p \rangle$ is true iff p

On a deflationary account **(T)** need not be explained. It is fundamental to the concept of truth. On substantive accounts, **(T)** is taken at least as a test of theoretical adequacy – this is why, e.g., Lynch [28] attempts to derive **(T)** from more basic principles about truth (what he calls *platitudes*). But my account seems not to guarantee the truth **(T)**. If **(T)** is fundamental to our concept of truth, then this is a serious problem. I will quickly show that my theory guarantees the truth of various instances of **(T)**, once it is sufficiently enriched.

Currently **(T)** makes no mention of contexts, but I hold that the truth predicate is context-sensitive and degree-theoretic. So our explanation of **(T)** will require mention of contexts and degrees. Suppose in some context c, the standard of truth is d (usually $d = 1$, but we do not need to assume this for now). The righthand side of **(T)** holds iff the degree of truth of 'p' meets or exceeds d — that is, if 'p' is true enough. Assume that in this context, this is the case. Then 'p' is true in the context. The lefthand side of **(T)** is a *truth-ascription*. But on my view, a truth-ascription is true iff the truth-bearer meets or exceeds the conversational standard of truth d. So the lefthand side of **(T)** is true in a context just when the righthand side of **(T)** is true in that context. When 'p' is true enough in a context, so is '$\langle p \rangle$ is true' (and vice versa).

[33] Lewis [27] introduces a similar notion of being true enough. There is one salient difference, which we can ignore for now: Lewis' discussion of being true arises in his discussion of vagueness, and Lewis analyzes vagueness in terms of ranges of precisifications. By using the terminology, I do not wish to commit myself to this analysis of vagueness.

The explanation of **(T)** on this view is straightforward – it only requires a reasonable claim about when a truth-bearer is true in a context and when a truth-ascription to that truth-bearer is true in that context. And it is my claim that they are true under precisely the same conditions: when the truth-bearer meets or exceeds the conversational standard of truth d.

6.2 Assertion

One intuitive idea about assertion is that assertion is a speech act that presents a proposition to other speakers *as true*. Crispin Wright [45, 34] takes the following to be one of the core platitudes about truth and assertion:

Assertion: To assert $\langle p \rangle$ is to present $\langle p \rangle$ as true.[34]

This is a more-or-less Fregean account of assertion, where one of the defining characteristics of assertion is its relation to the truth. The case of **(T)**, **(Assertion)** makes no mention of degrees, and so our analysis of assertion will need to be modified slightly.

With our notion of being true enough in hand, we can reformulate **Assertion** as follows:

Gradable Assertion: To assert that $\langle p \rangle$ in c is to present $\langle p \rangle$ as true enough in c.

Thus, the degree theory is compatible with an intuitive view of assertion, with some minor modifications. If there is an important connection between truth and assertion and truth comes in degrees, then **Gradable Assertion** should seem highly intuitive. If the standards for truth can shift in various conversational contexts, then so should the standards for assertion. After all, if truth is a norm of assertion, or if something like **Assertion** seems to be *constitutive* of assertion, then if truth comes in degrees our analysis of assertion should change accordingly.

[34] Wright does not use the bracket notation to indicate the presentation of propositions or other truth-bearers, instead speaking elliptically as "To assert is to present as true." I modify the presentation slightly for the purposes of this paper.

6.3 Logical consequence

Finally, I turn to logical consequence. Since truth is a matter of degree, it would seem that the natural view is that logical consequence will be fuzzy. Indeed, this has been the strategy of many degree theorists, who have pursued various many-valued logics, as in Zadeh [47]. But, as many object, endorsing a many-valued logic has severe costs, such as the loss of some treasured classical operational and structural rules. Not all fuzzy logics validate *modus ponens*; some do not validate contraction. This raises an important question: is my degree theory incompatible with classical logic?

There is certainly an inconsistency with my degree theory and the following platitude about logical consequence:

Consequence: A is a consequence of a set of premises P iff in all cases where every member of P is true, A is true.

Since **Consequence** makes no mention of degrees of truth, it is hard to see how it could be consistent. We could attempt to reformulate **Consequence** as we did **Assertion**, resulting in:

Gradable Consequence: A is a consequence of a set of premises P iff in all cases where every member of P is true enough given the contextually-supplied standard of truth in the context, A is true enough given that standard.

However, there are reasons to believe that such a formulation would only succeed in recapturing classical logic in limited circumstances.

When we take the standard of truth to be 1 for both the premises and the conclusion, we can then introduce the notion of a *threshold value*. A threshold value is some degree d (what we have called a conversational standard throughout), and we define a corresponding function F_d s.t. $F_d(x) = 1$ if $d \leq x$ and $F_d(x) = 0$ if $x < d$. On the assumption that 0 and 1 are ordered in the usual way, this maps our infinite degrees of truth to a two-element Boolean structure. We can then treat our Boolean operations

as is standard. By assuming that the threshold value is 1, we may recapture classical logic.

This is a very weak claim. In essence, it amounts to saying that a degree theory of truth is compatible with classical logic just when that degree theory acts as if there are no degrees of truth. This simple recapture strategy does not necessarily extend to cases where the standard for truth is less than 1. In order to capture the classical consequence relation in a more satisfying way, one may need to consider using different standards of truth for the premises and the conclusions of arguments.[35]

Due to considerations of space and scope, I cannot solve this particular problem in this particular paper. Instead, I leave this as an open question. Given the degree theory of truth that I propose here, what is the correct treatment of logical consequence? It may be that we can fully recapture classical logic in all contexts. For many this would be a welcome result. But it may be that utilizing degrees of truth in the way that I have described opens up a new sort of logical pluralism, where the consequence relation in a context is determined by the standard of truth in that context.[36] This is left as an avenue for future research.

7 Conclusion

I have argued for three claims. One, the truth predicate is a gradable adjective, not a context-insensitive predicate as is typically assumed. Two, the best semantic analysis of gradable adjectives is degree theoretic, and so the best natural language metaphysics of truth is one where truth comes in degrees. Three, deflationary or expressivist paraphrases of gradable truth-talk are insufficient. I have also tried to draw out the consequences of my degree theory for the T-Schema, assertion, and logical consequence. There remain a number of outstanding philosophical issues, e.g. the semantic

[35] This is the strategy taken by Cobreros et al [8] and Smith [43].

[36] I thank Paul Egré for suggestions and comments on this section of the paper in particular.

paradoxes, vagueness, and logical pluralism. I leave applying the degree theory of truth to these issues for future work.[37]

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