

## Semifactives in comparatives\*

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**Abstract** *This is more complicated than I realized.* How are we to understand the status of *realize*’s complement in a sentence like this? What sort of relationship must this complement bear to its matrix environment, in light of *realize*’s status as a cognitive factive or semifactive predicate (Kiparsky & Kiparsky 1970; Karttunen 1971)? Comparative constructions, I suggest, do much to illuminate the nature of semifactives and the semantic–pragmatic status of their clausal complements. Specifically, I propose that semifactives support graded awareness—knowledge of something less, but not more, than the full truth with respect to some question or issue—while requiring that their complement be informationally consistent with the matrix environment, rather than presupposed true. The picture that emerges fits naturally with pragmatic approaches to presupposition generation and projection (Beaver 2010; Simons, Beaver, Roberts & Tonhauser 2017; Degen & Tonhauser 2022) and depends on sensitivity to scalar polarity and orientation (Kennedy 2001).

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### 1 Introduction

The present paper addresses an apparent collision between the semantics of degree and comparison and the pragmatics of presupposition and projection. The empirical terrain is English clausal comparatives in which the *than* clause contains a semifactive predicate like *realize*, as in (1).

(1) She is taller than I realized.

The sentence in (1) could be uttered by someone who has just gained new information about the height of the referent of *she*. As an initial characterization, we might say that the utterer is describing an update to their knowledge of the

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matter at hand (her height), perhaps gained via first-hand visual experience or a similarly reliable evidential avenue. We take the utterer to have had some previous apprehension of the matter, one now understood to have been incomplete.<sup>1</sup> Moreover, *realize* and its ilk place a strict condition on this background misapprehension: it must be (in a sense to made precise) compatible with the updated information. As the infelicity of (2) shows, not just any informational update will do.

(2) # She is not as tall as I realized.

The challenge presented by these cases is how to analyze a degree inequality in which one of the comparanda is calculated through the evaluation of a (semi)factive operator. When a speaker utters (1), they are comparing the subject's height to what they previously realized it to be; but if *realize* presupposes the truth of its complement, then we are in an awkward position. It may seem inconsistent, or at least communicatively odd, for a speaker to presuppose that someone's height is  $x$  and in the same breath assert that that same person's height is greater than  $x$ . This is the semantic–pragmatic collision mentioned at the outset. Our task will be to elucidate in what sense the speaker's newfound apprehension is compatible with the erstwhile misapprehension, letting facts like the contrast between (1) and (2) guide the way.

To preview the analysis: I propose that semifactive predicates like *realize* express what I call GRADED AWARENESS. This is simply a label for the idea that one's knowledge on a particular matter can be incomplete, but not (as it were) overfull: it is possible to know less, but not more, than the full truth. Applied to gradable terms like those at issue here, this fits most naturally with an 'at least' semantics rather than an 'exactly' semantics for expressions like *she is d-tall*.<sup>2</sup> I propose that graded awareness is reflected in the lexical semantics of predicates like *realize*, which require consistency between their complement and matrix environment. This does not mean that the complement's content will necessarily project in the manner traditionally associated with a presupposition.

In the remainder of this introduction, I lay out a few background assumptions about the syntax and semantics of the sentences of interest here. These assumptions are mostly quite standard in the literature and thus uncontroversial, but it may be helpful for the unfamiliar reader to have them spelled out explicitly.

1 Paolo Santorio (p.c.) notes a subtle but important contrast between *She is taller than I realized* and its near-synonymous paraphrase *I didn't realize how tall she is/was*: the latter, but not the former, is felicitous in a scenario where the utterer had no previous information or belief one way or another about the height of the person in question. *She is taller than I realized* is always a kind of correction; *I didn't realize how tall she is/was* need not be.

2 I remain agnostic as to whether it absolutely demands an 'at least' semantics. For present purposes, all we need is for the knowledge that someone is  $d$ -tall to be compatible with an assertion that they are  $c$ -tall, where  $c > d$ .

I assume that the complement of semifactive predicates like *realize* is syntactically represented at logical form (LF) but is unpronounced due to ellipsis. For purposes of determining the meaning of sentences like (1), then, we proceed as if the full clausal complement is there. The elided clausal complement contains a degree variable bound by an A'-operator at the edge of the *than* clause (Chomsky 1977), above/across the semifactive. The *than* clause then yields a degree description or a closely related semantic object like a scale segment (for overviews, see von Stechow 1984 and Fleisher 2016). The value expressed by the *than* clause—calculated in part through the evaluation of a semifactive operator like *realize* in the cases of interest—serves as the standard of comparison in the relation expressed by the degree morphology. I sketch the essentials of the *than*-clause LF in (3), with the elided material enclosed in angle brackets.

(3)  $Op_1$  [I realized <she was  $d_1$ -tall>]

## 2 Earlier Work

The earliest work that I am aware of on sentences like (1) is Horn & Morgan 1969. Taking the measure of the core problem as they see it—the conflict between an ‘exactly’ semantics for degree and a presuppositional account of factivity—the authors make the rather drastic suggestion that “comparison between two extents is not involved.” On their view, it “will not do” to paraphrase the meaning of (1) as ‘John is tall to  $x$  & I realized that John was tall to  $y$  &  $x$  exceeds  $y$ ’: the second and third conjuncts cannot be true simultaneously, on pain of flouting the factive presupposition of *realize*.

While Horn & Morgan offer a clear presentation of the problem within this classical frame, I unfortunately cannot say whether they have a positive proposal to account for the cases in question.<sup>3</sup> They do canvass some empirical and theoretical issues in the vicinity, noting the unacceptability of cases like (2) and casting doubt on the idea of a transformational account deriving (1) from a form like *I did not realize how tall John is* (cf. footnote 1).

Hard on the historical heels of Horn & Morgan (1969) is Vlach (1974), who develops an analysis that notably anticipates several now-standard assumptions about the semantics of gradability. Vlach defuses Horn & Morgan’s comparative–factive dialectic by giving up the ‘exactly’ semantics for degree, proposing in its place an ‘at least’ semantics with maximality: in ‘John is tall to  $x$  &  $y$  is the maximal  $d$  to which I realized John was tall at least to  $d$  &  $x$  exceeds  $y$ ’, the erstwhile contradiction is eliminated. Vlach goes on to propose a test for distinguishing those factives

<sup>3</sup> Horn & Morgan 1969 is an exceedingly difficult paper to track down: even through the good graces of the first author, I have been able to obtain only the first three pages.

that are felicitous in comparatives (such as *realize*) from those that are not (such as *regret*), the key factor being whether bearing the attitude toward a proposition licenses inferences up the scale. For example, one can realize that John is tall without realizing that John is very tall; but one cannot regret that John is tall without regretting that John is very tall (assuming that he is very tall). Unfortunately, the test fails to generalize fully: an emotive factive like *be happy* behaves like *realize* with respect to the test (one can be happy that John is tall without being happy that John is very tall, even when he is indeed very tall), but the sentence *#John is taller than I am happy that he is* is bad.

After Vlach 1974, semifactives in comparatives appear to have gone underground. In light of the past half-century of developments in the literature on degree and comparison, and the past decade's active work on the foundations of factivity, the time is ripe to bring them back to the surface.

### 3 Empirical Landscape

In this section I sketch a fuller empirical picture to guide our analysis. The focus will remain chiefly on semifactives like *realize*, with a few comments about other factives in the next section. The term 'semifactive' is Karttunen's (1971), introduced as a label for those factives whose presupposition of truth for their complements can be suspended in certain environments. For example in (4), the proposition that the speaker has not told the truth projects to the matrix level with *regret* but not with *realize* (Karttunen 1971: 64).

- (4) a. If I regret later that I have not told the truth, I will confess it to everyone.
- b. If I realize later that I have not told the truth, I will confess it to everyone.

We have already seen the first crucial data point in the contrast between (1) and (2), repeated in (5).

- (5) a. She is taller than I realized.
- b. # She is not as tall as I realized.

The permissible misapprehension here is the one that undershoots, but not overshoots, what the speaker now asserts the actual value to be. A bit more precisely: the attitude holder can have borne the attitude expressed by *realize* toward the proposition that she was *d*-tall, for some *d* that is lower (but not higher) than what the attitude holder now asserts her actual height to be. Does this characterization of the asymmetry in (5) generalize to other cases?

Not exactly, as it turns out. For when we turn to examples with negatively oriented gradable adjectives like *short* or with the degree operator *less*, the scalar asymmetry is reversed, as in (6) and (7).

- (6) a. He is shorter than I realized.  
b. # He is not as short as I realized.
- (7) a. A Disney vacation is less expensive than I realized.  
b. # A Disney vacation is not as inexpensive as I realized.

We can sharpen the challenge yet further. The degree phrases *less ADJ than x* and *not as ADJ as x* are generally equivalent for a particular gradable adjective *ADJ* and standard of comparison *x*; for example, the two sentences in (8) have the same truth conditions (holding the pronominal referents constant). But they come apart when we introduce semifactive *realize* into the clause expressing the standard of comparison, as in (9).

- (8) a. She is less tall than he is.  
b. She is not as tall as he is.
- (9) a. She is less tall than I realized.  
b. # She is not as tall as I realized.

Our account of the range of felicitous misapprehensions thus cannot be one that attends simply to scalar POSITION. As detailed in the next section, the account must incorporate sensitivity to scalar ORIENTATION.

Finally, I should emphasize that *realize* is by no means the only semifactive predicate found in comparatives. Members of the class quite generally are able to occur in *than* clauses and appear to be governed by the same conditions. Here are a handful of examples drawn from web searches, with the semifactives *appreciate*, *be aware of*, and *notice*:

- (10) a. Our Constitution was a far more dramatic departure from history than I had appreciated.<sup>4</sup>  
b. [T]his record may be better than I was aware of.<sup>5</sup>  
c. This sequencing of images in a physical book feels so much closer to films (movies, not physical Kodaky film-film), than I had noticed before.<sup>6</sup>

## 4 Graded Awareness

### 4.1 Incomplete Knowledge

To understand the behavior of semifactives in comparatives we must understand something about the underlying semantics of semifactives. Semifactives (*realize*,

<sup>4</sup> <https://www.romney.senate.gov/our-constitutional-order-freedom-responsibility-and-power>

<sup>5</sup> <https://www.loudersound.com/news/lars-ulrich-metallica-album-may-be-better-than-i-was-aware-of>

<sup>6</sup> <https://craigmod.com/roden/041/>

*appreciate, notice*, and so forth) all involve a knowledge relation. Being knowledge relations, these can be borne only toward propositions that are true; but they can likewise be borne toward propositions that convey less than the full truth of a matter. This reflects the intuition that knowledge can be incomplete. The completeness of one's knowledge is assessed relative to some particular matter/issue/question. In what follows, I will say that knowing (or bearing a semifactive attitude toward) a proposition that conveys less than the full truth of a matter is COMPATIBLE with asserting the full truth of the matter. I use the term GRADED AWARENESS to describe this property of the knowledge relations expressed by semifactives. The proposal that semifactives express graded awareness both accords with intuition and is the key to unlocking the empirical picture presented above.

I begin by illustrating how the idea works with our initial asymmetry between (1) and (2). Let us suppose that to realize a proposition  $p$  is to (come to) know that  $p$ . With an off-the-shelf syntax and semantics for the comparative, the truth conditions of (1) will come out as in (11).

- (11) She is taller than I realized  
 $= 1$  iff  $\text{MAX}(\lambda d . \text{she is } d\text{-tall}) > \text{MAX}(\lambda d . \text{I realized she was } d\text{-tall})$

The standard of comparison expressed by the *than* clause,  $\text{MAX}(\lambda d . \text{I realized she was } d\text{-tall})$ , is the maximal  $d$  such that the speaker knew the proposition that she was  $d$ -tall. If *realize* expresses graded awareness, then this maximal  $d$  may be lower than the height of the 'she' in question (in the world(s) where *realize* is evaluated). This just reflects the fact that one's knowledge on a particular matter may be incomplete. Here, on the matter of how tall she is, the speaker believed something that turned out not to be the whole story, i.e. something true but incomplete. The felicity of *realize* here suggests that the object of that belief counts as knowledge.

In (2), by contrast, the speaker's erstwhile belief runs in the opposite direction. As shown in (12), the sentence requires that the speaker have known a proposition of the form 'she was  $d$ -tall' for some  $d$  that exceeds her actual height. But this is just what knowledge cannot do. Knowing/realizing this proposition is incompatible with asserting that her actual maximal height is lower than this  $d$ .

- (12) # She is not as tall as I realized  
 $= 1$  iff  $\text{MAX}(\lambda d . \text{she is } d\text{-tall}) < \text{MAX}(\lambda d . \text{I realized she was } d\text{-tall})$

A central feature of this analysis is relativization to some matter/issue/question.<sup>7</sup> To speak of the full truth of a matter and less than the full truth of a matter is to invoke an ordered set of propositions. In the cases at hand, this set of propositions

<sup>7</sup> I take no position here on how best to conceive of the relevant notion, but I take it that the general idea is clear enough.

is what we get by considering different possible values for the degree variable that occurs free in the scope of the semifactive predicate. In (1), it is the set of alternative propositions  $\{\text{she is } d\text{-tall} : d \in D_d\}$ , which is simply the Hamblin meaning of the question *How tall is she?* This is the set with respect to which graded awareness imposes its restrictions and discriminates between (1) and (2).

More generally, graded awareness governs the behavior of semifactives with respect to alternatives of various sorts, such as focus alternatives (Rooth 1992). Consider the contrast between semifactive *realize* and nonfactive *think* in (13) and (14), in a scenario where Donald and Libby were the only people who came to the party. Note in particular that realizing something less than the full truth of the matter, as in (13a), is perfectly felicitous.

- (13) a. I realized that [DONALD]<sub>F</sub> was coming.  
       b. # I realized that [DONALD, LIBBY, AND WALTER]<sub>F</sub> were coming.
- (14) a. I thought that [DONALD]<sub>F</sub> was coming.  
       b. I thought that [DONALD, LIBBY, AND WALTER]<sub>F</sub> were coming.

We find an analogous contrast between *realize* and *think* in comparatives, as shown in (15). There is nothing that prevents one from having had a misapprehension that surpasses the full truth of a matter; but such a misapprehension cannot count as knowledge.

- (15) a. # She is not as tall as I realized.  
       b. She is not as tall as I thought.

Knowledge can be incomplete, but it cannot overflow. Relativization to a set of propositional alternatives allows us to make sense of the latter notion. Characterizing matters in terms of entailment, we may say that one can bear a semifactive attitude toward an alternative that is entailed by the strongest true alternative, but not toward an alternative that asymmetrically entails the strongest true alternative. This is a way of characterizing what underlies our notion of compatibility for semifactives, and thus our notion of graded awareness.<sup>8</sup> The restriction to alternatives is important: it is of course possible to know/realize propositions that asymmetrically entail the strongest true alternative, e.g. the conjunction of the strongest true alternative with any other contingently true proposition. But such propositions are evidently irrelevant to the semantics of semifactives.

Conceiving of graded awareness in terms of relations among alternatives paves the way toward an account of the cases with *short* and *less*, where the felicitous asymmetries in scalar position are the opposite of what we find in (1) and (2). Here

<sup>8</sup> I make no claim about whether it is the only way of characterizing these notions.



we invoke a core insight of the gradability literature: scalar semantics is sensitive not just to scalar position, but also to scalar orientation (Kennedy 2001; Schwarzschild 2013). Degrees of tallness and degrees of shortness share a scale but have opposite orientations along that scale. A person's maximal degree of shortness is equivalent to their maximal degree of tallness—call this degree  $d^*$ —but the alternatives toward which one can bear a semifactive attitude will be the opposite in the two cases. Asserting that someone is  $d^*$ -short is compatible with having known/realized that they were  $d$ -short for values of  $d$  that EXCEED  $d^*$ , but not for those lower than  $d^*$ . This is because *short* measures not degrees of tallness, but degrees of (as it were) not-tall-ness. A corollary is that for any  $d$  other than  $d^*$ , of the propositions *she is d-tall* and *she is d-short* one can know/realize at most one.

Thus the reversal in felicity with respect to scalar position for *tall* vs. *short* stems from the scalar orientation of the adjective. The logic of comparison is consistent across all cases, with graded awareness governing the alternatives toward which one can bear a semifactive attitude.<sup>9</sup>

We are now in a position to account for the surprising non-equivalence in (9), repeated in (16).

- (16) a. # She is not as tall as I realized.  
b. She is less tall than I realized.

In both sentences the speaker (attempts to) assert that they had a previous misapprehension that the subject was taller than they now know her to be. In the *not as tall* case, we compare degrees of tallness, and claim that the maximal degree to which the speaker realized she was tall exceeds the full actual extent of her tallness. This runs afoul of graded awareness and thus cannot count as knowledge. In the *less tall* case, by contrast, we compare degrees of not-tall-ness: the maximal degree to which the speaker realized she was not-tall is not the full actual extent of her not-tall-ness. But this is compatible with graded awareness, an example of incomplete knowledge.

Armed with a notion of scalar orientation, we can thus make sense of the data within a unified semantic account of the logic of semifactives. It is striking to observe how this aspect of knowledge (or: its linguistic expression in semifactive predicates) is sensitive to scalar orientation and to the lexical and grammatical means of expressing particular gradable inequalities.

<sup>9</sup> The degree morpheme *less* has an effect analogous to that of *short*, reversing the scalar orientation (Heim 2006; Takahashi 2006) and thereby affecting the range of alternatives toward which one can bear a semifactive attitude.



## 4.2 The Nature of the Violation

We can now be a bit more precise about the nature of graded awareness and the violations of it incurred in examples like (2).<sup>10</sup> To begin, in (17) I repeat the semantic representation of (2) (also shown above in (12)).

- (17) # She is not as tall as I realized  
       = 1 iff  $\text{MAX}(\lambda d . \text{she is } d\text{-tall}) < \text{MAX}(\lambda d . \text{I realized she was } d\text{-tall})$

On the analysis as presented so far, the infelicity arises from the fact that the degree inequality in (17) cannot be true, on pain of violating graded awareness. But if we manipulate the assertive force attached to that degree inequality, e.g. by questioning it, the infelicity remains, as in (18).<sup>11</sup>

- (18) # Is she not as tall as you realized?

This matches the classic profile of a presupposition. At the same time, these cases lack many other characteristic features of classical presuppositions: perhaps most prominently, a sentence like *She is taller than I realized* seems to assume nothing of the addressee beyond the ability to resolve the reference of the pronoun.<sup>12</sup> I discuss this within the broader context of the recent literature on projective content in section 5.

How, then, to characterize the nature of the violations that we are attributing to graded awareness? Where does graded awareness operate? I propose that graded awareness is part of the lexical semantics of semifactive predicates, reflecting a requirement that the semifactive's complement be compatible (in the sense outlined above) with its matrix environment. Since the negated equative in (2) requires the speaker to realize a proposition that is incompatible with its matrix—in any environment where that matrix may be embedded—it runs afoul of graded awareness.

## 4.3 Other Cases

Here I address a few cases beyond the semifactive examples considered so far. To begin, the analysis predicts that non-negated equatives should be felicitous, since the proposition realized is simply the full truth of the matter. This prediction, I believe, is

<sup>10</sup> I am indebted to Fabrizio Cariani (p.c.) for raising the issue addressed in this subsection.

<sup>11</sup> The same should be true in the scope of negation, though for independent reasons it is difficult to construct examples that aren't awkward.

<sup>12</sup> As mentioned in footnote 1, such sentences do also seem to require that the attitude holder have had some prior apprehension of the matter in question, differing in this regard from near paraphrases like *I didn't realize how tall she is/was*. This is plausibly a felicity condition on using *realize* with a declarative rather than an interrogative complement, with the anteriority of the apprehension simply a result of the past tense on the attitude predicate (compare *She is taller than he realizes*).

correct; (19) is perfectly felicitous as a confirmation of what one previously believed (indeed, knew).

(19) She is exactly as tall as I realized.

Next, I turn to ordinary factives. These vary in their acceptability in comparatives. Emotive factives like *regret* and *be happy* tend to be unacceptable, while cognitive factives like *know* can be downright formulaic.<sup>13</sup>

- (20) a. # She is taller than I {regret / am happy} that she is.  
 b. I love you more than you know.

There are a number of possible avenues for explaining the infelicity of the examples with emotive factives. Vlach (1974) identified one of these—a collision with maximality—though it does not generalize across the entire class, as noted earlier. A more promising approach, I think, will be to capitalize on the relationship between emotion and awareness. Emotive factives tend to be used in situations where we presume that the attitude holder has full awareness (i.e. full knowledge) of the relevant issue. But comparatives like those in (20a) assert that the attitude holder bears the attitude only toward a proposition that they know not to convey the full truth of the matter; the contribution of the comparative is to say by indirection that they do not bear the attitude toward the proposition conveying the full truth. Insofar as this is a pragmatically awkward thing to do, these examples will strike us as odd: if someone is six feet tall, and you are not happy about it, why add that you are happy that they are five feet tall?<sup>14</sup>

I cannot develop a real account here, but I believe that pursuing this connection between emotivity and awareness could be a productive avenue for understanding the behavior of emotive factives in comparatives and related constructions.

<sup>13</sup> The acceptability of examples with *know* will of course be sensitive to general pragmatic considerations. A sentence like *She is taller than I know* is odd, but this is plausibly because the speaker is asserting an inequality between two of their own bits of knowledge on the same subject matter at the same time. Compare the relative felicity of *She is taller than he knows*.

<sup>14</sup> In this connection, I will mention and immediately set aside examples like *She is taller than I like*. This example is syntactically more akin to those with semifactives like (1)—with ellipsis of the full clausal complement of the attitude predicate rather than a subpart of the clause as in (20a)—and is also far more acceptable. I set it aside because its meaning seems to involve something like a generic propositional complement of the attitude. *She is taller than I like* means not ‘she is taller than the maximal *d* such that I like that she is *d*-tall’ but rather something like ‘she is taller than I like people to be’; imagine it in the mouth of the hiring manager for a submarine crew. Meanwhile, the syntactic matter of full clausal ellipsis is, as far as I can tell, a red herring: A'-movement out of emotive factive complements is completely fine in relative clauses and analogous structures, such as *the book that I regret that she bought* (on which, once again, see Vlach 1974).

## 5 Projection

We now take a closer look at the semifactive complement's status as projective content. As [Horn & Morgan \(1969\)](#) observed, determining how semifactives in comparatives fit within our broader understanding of factivity and presupposition is perhaps the primary theoretical interest of the construction. Placing matters within a more recent theoretical perspective on factivity and projective content, we can achieve a better understanding of the respective roles of pragmatics and lexical semantics in producing the striking cluster of properties that semifactives in comparatives exhibit.

On the classical view originating in [Kiparsky & Kiparsky 1970](#), factives (and semifactives) presuppose the truth of their complements. This means that the truth of the complement projects through various kinds of logical operators; in pragmatic terms, it means that any context admitting the semifactive-containing clause should entail the truth of the complement ([Heim 1990](#)) or should be one where all interlocutors are disposed to behave as if the complement is true ([Stalnaker 2014](#)). This presupposed content is, in the basic case, part of everyone's background knowledge.

As observed in section 4.2, semifactives in comparatives do not appear to place these sorts of conditions on the background context. Nor do they appear to require accommodation of the content expressed by the complement (though, for independent reasons to be discussed directly, it would be nearly impossible to tell if they did). While there are systematic constraints on the CONTENT of the semifactive complement—ones we have devoted considerable attention to above—they do not appear to be accompanied by constraints on the CONTEXT, in any of the senses in which that notion is typically understood.

It is not hard to see why this should be so; for the basic semantic meaning of a sentence like (1) is one that will immediately supersede, and thus mask, the contribution of the complement. The object of the speaker's *realize* attitude—the proposition that she was *d*-tall—sits within a sentence where the speaker asserts that she is *c*-tall, where  $c > d$ . The speaker's assertion asymmetrically entails the content of the attitude. But this renders presupposition of that content superfluous, and accommodation (if it takes place) undetectable.

In other words, we see a kind of anti-association between being presupposed and being semantically related to the main-clause assertion. This, as it happens, is precisely what a number of recent pragmatic approaches to factivity and presupposition would lead us to expect. Work in this vein claims that projection of what we typically call a factive presupposition depends on the relevant content's being pragmatically backgrounded ([Beaver 2010](#); [Simons et al. 2017](#)) or semantically distinct from the

sentence's main point (Abrusán 2011, 2016).<sup>15</sup>

With semifactives in comparatives, the semifactive complement fails the relevant test on either formulation. The issue that the complement clause addresses—the issue of her height, in (1)—is precisely the issue addressed by the main clause. Far from being backgrounded, her height is plainly the main point of the sentence. Little wonder that background contextual constraints regarding this matter seem not to be in evidence, if these pragmatic approaches to factivity are on the right track.

At the same time we must acknowledge that, for the independent reasons mentioned above, it is difficult to draw firm conclusions about the nature of factivity solely on the basis of these considerations. A proponent of the traditional presuppositional approach to factivity might point out that every felicitous use of a semifactive in a comparative that we have considered is one where the semifactive complement is true.<sup>16</sup> If we want to argue in favor of the pragmatic family of approaches to factivity, we will have to bring additional considerations to bear.

Here is one: the pattern we see with semifactives in comparatives carries over into shifted environments in a way that makes it look far more like a lexical semantic requirement than a presuppositional one. Consider (21).

- (21) a. Suppose she was taller than you realized.  
       b. # Suppose she wasn't as tall as you realized.

In a suppositional environment, we find exactly the same pattern we see in unembedded environments. This is just what we expect if the pattern is due to graded awareness enforcing compatibility (in the sense outlined earlier) between the semifactive complement and its (possibly embedded) matrix environment. In (21b), we are asked to imagine a scenario *s* such that our erstwhile knowledge in *s* is incompatible with the facts in *s*; but this is evidently not a coherent suppositional task. Graded awareness, understood as a lexical semantic requirement on semifactive predicates, offers a straightforward explanation why.

By contrast, if the infelicity of (2) were due to presupposition failure, we would not (all else being equal) expect that infelicity to carry over into (21b). Presupposed content tends to project out of suppositional environments; consider (22) (in a context where there is no prior suppositional context that this material could be extending).

15 This is not a consensus position in the literature; the traditional presuppositional approach has its defenders. Most recently, experimental work has been brought to bear both for and against the proposition that factivity constitutes a coherent semantic-pragmatic phenomenon (Djärv 2019; Djärv & Bacovcin 2020; Degen & Tonhauser 2022).

16 Of course, this is hardly dispositive: factives are but a subset of the veridical predicates, and there is no shortage of cases where factive complements fail to be presupposed (see Beaver 2010 for a compendium).

- (22) A: Suppose you lost your keys again.  
B: [protesting] But I've never lost my keys!

If the semifactive complement were presupposed and projected in the manner of the presupposition of *again* in (22), then there would be nothing infelicitous about supposing the degree inequality in (21b). It would simply amount to supposing that she is shorter than you actually know her to be. Indeed, just this meaning can be more or less felicitously expressed with the sentence *Suppose she wasn't as tall as you realize*, where present tense on *realize* correlates with its being read de re with respect to *suppose*. But this tells once again in favor of a lexical semantic source for the infelicity: on a presuppositional account, the semifactive complement should project to the global level regardless of where the semifactive predicate itself is evaluated.

All told, then, I believe that the facts weigh in favor of the pragmatic family of approaches to factivity. This, in turn, sheds valuable light on the linguistic division of labor underlying the behavior of semifactives in comparatives. We can maintain the view that semifactives like *realize* require consistency between their complement and matrix environment as a matter of their lexical semantics, even as the complement fails on independent pragmatic grounds to qualify as projective content.<sup>17</sup>

## 6 Summary

The behavior of semifactives in comparatives presents an intriguing challenge, one that to my knowledge has not been examined closely in quite some time. With the benefit of the intervening decades' work, we have been able to chart a theoretically informative course from the lexical–grammatical asymmetries in the permissible semantic content of semifactive complements. In so doing, we have uncovered novel evidence in support of the pragmatic family of approaches to factivity. This everyday sentence type is perhaps more interesting than we have appreciated.

<sup>17</sup> In a recent manuscript, Roberts & Simons (2023) offer a new characterization of factive projection as stemming from the ontological dependence of (semi)factive attitude events on the events described by their complements. While I cannot offer a fully considered appraisal of a late-breaking proposal as it relates to the data examined here, I think perhaps the most significant challenge for integrating the comparatives data into Roberts & Simons's theory is the gap between the extralinguistic nature of their notion of ontological dependence and the very linguistic sensitivity of semifactives to the way in which their complements are expressed. In other words, one would want to know how to draw an ontological distinction between attitude complements expressing what is in some sense the same misapprehension in order to explain the contrasts in (9)/(16). (I should emphasize that my comments on Roberts & Simons 2023 are necessarily very tentative, and even more subject to future revision/revocation/recantation than the average content of a linguistics paper.)

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