

Some *slightly* interesting facts about degree scales and degree modifiers

Hannah Forsythe

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0.1 Introduction: Scales are not just for adjectives

One of the first things that semanticists have noticed about adjectives is their scalar properties, that is, the way they link up individuals to degrees of adjective-ness, how these degrees are ordered on a scale, and whether or not this scale has landmarks like a maximum, a minimum, or a standard value. Not all adjectives have the same scalar properties, of course, and evidence of a given adjective's particular scalar properties is provided by its compatibility with different degree modifiers. Degree modifiers, such as *half*, *almost*, *fully*, *very*, *partially*, and *slightly*, restrict the possible location and range of degrees that can be truthfully said to hold of an individual, and in this way they help to identify and locate the particular landmarks on the scale associated with a given adjective.

However, it is no secret that adjectives are not the only category endowed with scalar properties. Verbs and perhaps even prepositional phrases have scalar properties, as evidenced by their compatibility with degree modifiers and their ability to appear in comparative constructions.

(1) Compatible with degree modification

- a. I am slightly/very/completely surprised.
- b. The news slightly/very/completely surprised me.
- c. I sat in the seat slightly to the right.

(2) Compatible with comparative constructions

- a. I am more/less surprised than you.
- b. This piece news surprised me more/less than that piece of news.
- c. This seat is located more to the right than that one.

Adjectives of course represent the simplest case—in fact the standard analyses hold that gradable adjectives are in essence some sort of relation between an individual, of type *e*, and a degree, of type *d*, which is located on an ordered scale. Verbs are more complex than adjectives, relating not just individuals, to truth values, but also to degrees, times/subevents, and other individuals. Nevertheless, the simplest hypothesis is that no matter how complex, verbs and adjectives that have scalar properties should be referencing the same type of entity, namely, degrees arranged on scales. Degree modifiers are expected to remain constant across categories, displaying the same restrictions in both adjectival and verbal contexts. What's more, derivationally related verbs and adjectives should in theory refer to the very same scales. Thus, any distributional differences displayed by degree modifiers across different categories should be due, not to the scale or the degree modifier itself, but to the fact that verbs and adjectives

reference scales and their degrees in different ways. Thus, degree modifiers are potentially very interesting because they can shed light, not only on the scalar properties of particular adjectives, but on the as yet very ill-understood ways in which verbs map to scales.

Taking this hypothesis as a starting point, in this squib I will examine the cross-categorical behavior of the degree modifier *slightly* in order to shed light on the mapping behavior of a few verb types. In doing so, I claim that *slightly* displays two key restrictions that remain constant across adjectival and verbal contexts: first, *slightly* demands that the scale over which it applies contain some nonempty interval above that scale's standard and below its maximum; and second, in contrast with the very similar degree modifier *partially*, it is unable to restrict degrees that hold of the parts of an argument, but can instead only refer to the degree of A-ness that holds of the argument as a whole. In this way, I hope to add simultaneously to our understanding of the word *slightly*, which has proved notoriously tricky as degree modifiers go, and to our understanding of how the scalar properties of verbs can arise.

1.0 Restriction 1: More than standard but less than completely

1.1 Restriction 1 in the adjectival domain

The first restriction that I wish to claim holds for *slightly* is taken from the denotation proposed by Rotstein and Winter (2004). Observing that '*slightly A*' entails '*A but not completely A*,'¹ they propose that this word restricts an individual's degree of A-ness to within an interval that falls above the standard but below the boundary defined by *completely*. Because they assume a slightly complicated framework, I do not present their denotation, but instead illustrate it graphically in (5).

(4) The door is slightly open.

first entailment: The door is open.

second entailment: The door is not completely open.



Rotstein and Winter's analysis predicts that *slightly* will be incompatible with precisely those adjectives that have no such interval. This is the case for adjectives for which the standard and the maximum value are equal, what they call 'total' adjectives (6). It is also the case for adjectives that have no standard value, unless one is provided by context (7).

¹ For those adjectives for which '*completely A*' is meaningful. Otherwise, only the first entailment holds.

- (6) #The wire is slightly straight.
 (7) a. ?This sleeve is slightly long.
 b. I am getting a shirt tailored, and I want it to fit right. This sleeve is slightly long.

1.2 Restriction 1 in the verbal domain

In the verbal domain, we expect *slightly* to exhibit Restriction 1 as well. However, if we look at verbs derived from the following gradable adjectives, it appears that no restrictions hold. Total adjectives like *closed*, *straight*, and *pure* combine freely with *slightly* in their verbal forms.

- | | |
|---------------------------------------|---|
| (8) a. #His mouth is slightly closed. | d. He slightly closed his mouth. |
| b. #The wire is slightly straight. | e. I slightly straightened the wire. |
| c. #The water is slightly pure. | f. This process will slightly purify the water. |

Notice also that the first entailment no longer holds. To slightly close, straighten, or purify something does not guarantee that it will be made closed, straight, or pure, but merely that it will be drawn closer to such a state than before the action was performed. Intuitively, this is like a *more...than...* comparative, with the same argument being compared to itself before and after the event denoted by the verb. Indeed, the positive comparative displays the same patterns as these verbs: *slightly* is compatible throughout, and the entailment '*A but not completely A*' is lost.

- | | |
|---|-----------------------------------|
| (9) a. His mouth is slightly more closed than hers. | (...but neither mouth is closed.) |
| b. The wire is slightly straighter than the rod. | (...but neither is straight.) |
| c. The well water is slightly purer than the river water. | (...but neither is pure.) |

So it seems that whatever it is that relaxes Restriction 1, it is not verbal in nature, but comparative. Based on independent reasons, Kennedy and McNally (2005) account for the comparative by claiming that the lower of the two degrees effectively forms a new standard over which degree modifiers and entailments can be calculated. Though they do not deal with *slightly* in particular, their analysis accounts for the data in (9) in the following way. Normally, total adjectives have a default standard equal to '*completely A*' and are thus incompatible with *slightly*, but the comparative lowers that standard to the degree of A-ness achieved by the individual in the *than*-phrase. Extending this analogy to verbs, the data in (8)d-f suggest that verbs also reset the standard value: in this case, the standard is set to the degree of A-ness held by the argument before the action was performed. In this way, the verbs in (8) d-f are compatible with *slightly*, but at the same time these sentences do not entail that the argument has reached the contextually independent standard degree of A-ness.

Equating this type of verb with comparative adjective constructions generates a second

prediction: the initial and final states of the argument must be comparable on a single scale. Thus, verbs that transform their arguments from one kind of state into another (*to kill, to obliterate, to materialize*) should be incompatible with *slightly* because they move their argument from one scale onto another, rather than merely changing its position along the same scale.

Thus, it seems that one way in which the scalar properties of verbs arise is through their ability to increase the degree of A-ness that holds of their argument. For ease of reference I will refer to these as degree-raising verbs. A second way that verbs gain scalar properties is through their ability to move their argument along a continuous path. In the examples below, the argument begins in one location and ends in another, and *slightly* refers to the distance traversed.

- (10) a. I slightly rotated the knobs.
b. I slightly bumped the dishes.
c. I slightly lowered/raised my eyelids.

For these verbs, the degree of rotation, displacement, and lowering/raising experienced by the argument can be compared before and after the event denoted by the verb. I will call these location-shifting verbs because they seem to move their arguments along an abstract scale of distance, with the original location of the argument serving as the lower boundary.

1.3 Unexplained exceptions

Unfortunately², not all verbs act like degree-raising or location-shifting verbs. There are other verbs that, while clearly gradable and completely compatible with degree modifiers very similar to *slightly*, are nevertheless still incompatible with *slightly* itself.

- (11) a. I understand the problem somewhat/a little bit/#slightly.
b. She prepared somewhat/a little bit/#slightly for the presentation.

But let's not get too alarmed. Adjectives derived from these verbs are also incompatible with *slightly*, and what's more, we know the reason: they are total adjectives in the sense of Rotstein and Winter; that is, their default standard is equal to the maximum value on that scale. A problem is not understood until all of it is understood, nor a presenter prepared until fully prepared.

Thus, the problem is not that the scalar restrictions imposed by *slightly* vary across category, but that not all verbs map to scales in the way observed above. Degree-raising and location-shifting verbs move their argument along either a degree scale or a location scale, while verbs like those in (11) do something else. A first guess at what that 'something else' might be is the following: instead of moving

² Or fortunately, if you assume that continually having problems to work on is what keeps semanticists happy.

the argument incrementally along a scale, they simply deposit it once and for all somewhere on that scale. If that scale is one which happens to correspond to a total adjective, the verb will be incompatible with *slightly*.

2.0 Restriction 2: Unable to access the argument's parts

2.1 The contrast between *partially* and *slightly*

The second restriction that I claim holds for *slightly* is most clearly illustrated by means of contrasting it with a similar degree modifier: *partially*. In the example below, there is a difference in the available interpretations for a) versus b).

- (11) a. a slightly darkened room (the whole room is a little dark)
 b. a partially darkened room (interpretation above OR part of the room is dark)

While *partially* can refer either to the degree of darkness achieved by the whole room or to the proportion of the room that lies in darkness, *slightly* can only refer to the former. My claim is that, while *partially* can access either the part structure of the argument or the structure of the scale on which the argument's degree of A-ness is located, *slightly* can access only the latter. In the rest of this section I will look first at *partially* and its interpretation in adjectival and verbal contexts and second at *slightly* and its behavior in both contexts.

2.1.1 *Partially* across categories

Above, we saw that '*slightly A*' entails '*not completely A*'. This same entailment is shared by '*partially A*'³, but it can do so in one of two ways: first, by falling short of *completely* on the A-scale, or second, by failing to apply completely to the whole argument. We thus predict that *partially* will be incompatible only in those cases where neither '*completely A*' nor the part structure of the argument can be accessed. Example 12 confirms this prediction. For properties like *clean*, which apply equally over every part of their argument, the argument can fall short of *completely clean* by virtue of lacking cleanliness in some of its parts. Alternately, it can fall short of *completely clean* by achieving an overall state of cleanliness which is less than maximal. In contrast, for properties like *long*, which can only apply over the argument as a whole, the part-of-argument reading is unavailable. Incidentally, for this adjective, '*completely long*' is also unavailable as an independent landmark on the scale of length because *long* is an unbounded adjective. Thus, neither reading is available, and *partially* is unacceptable.

³ '*Partially A*' does not, however, share the other entailment of '*slightly A*': 'at least *standard A*', as can be seen with 'total' adjectives like *straight*, and *clean*:

- (1) i. The rod is partially straight. ≠ The rod is straight.

- (12) a. a partially clean room
 = part of the room is clean
 = the room is partway towards being clean
 b. #a partially long room
 ≠ part of the room is long
 ≠ the room is partway towards being long

This contrast holds in the context of degree-raising verbs as well.

- (13) a. I partially cleaned the room.
 = part of the room is now clean
 = the room is now partway towards being clean
 b. #I partially lengthened the room.
 ≠ part of the room is now long
 ≠ the room is now partway towards being long

In section 1.2 we saw that translation to a verbal context allows *slightly* to become acceptable, at least for degree-raising and location-shifting verbs. Why is this not the case for *partially*? The reason is that, while verbs (and comparatives) can reset the standard of a scale, they do nothing to change the existence of the boundary marked by *completely*, and this is what the denotation for *partially* crucially needs in order to denote. While *slightly* depends only on the existence of a standard with some nonempty interval above it, *partially* requires the existence of *completely*, either on the A-scale, or on the 'scale' formed by the physical extension of the argument itself. Thus, the distribution of *partially* remains unchanged in the context of degree-raising verbs. This is an important point because it shows that, while degree-raising verbs are able to shift preexisting landmarks like the standard, they are unable to place a landmark like *completely* onto a scale that does not already have it.

2.1.2 *Slightly* across categories

In contrast, to *partially*, the degree modifier *slightly* has access only to the degree achieved by the argument as a whole, not to the degree of A-ness achieved by each of its parts (even if such degrees do exist). Sometimes this contrast is difficult to see because affecting the individual parts of an object often amounts to an effect on the object as a whole. For example, it is entirely conceivable to raise the degree of dirtiness in a room by dirtying just a part of it.

The contrast is easier to see when the argument is a set with clearly articulated parts that can be affected either individually or en masse. Imagine, for example, a set of chess pieces sitting on a board and the possible actions implicated in 'slightly straightening' versus 'partially straightening' this set.

ii. The room is partially clean ≠ The room is clean.

- (14) a. I slightly straightened the set of chess pieces...
 ...by moving the board on which it was sitting.
 b. I partially straightened the set of chess pieces...
 ...by moving some of the pieces.

As illustrated in the example, *slightly* favors an interpretation in which the set is affected as a whole, while *partially* favors a piece-by-piece interpretation. This is not to say that the reverse interpretations are impossible to calculate, but that the ease of interpretation is a reflection of the way in which *slightly* and *partially* restrict degrees. Both degree modifiers favor the interpretation that requires only one step to calculate: the whole-argument interpretation for *slightly* and the part-of-argument interpretation for *partially*.

The contrast between *slightly* and *partially*, which remains constant across categories, shows that adjectives and verbs are both capable of relating degrees to subparts of individuals, as well as to entire individuals. However, *slightly* is able to constrain only the latter relation.

2.2 Unexplained exceptions

While for many adjective-argument and verb-argument combinations, affecting a part of the argument pretty much amounts to affecting the entire thing, for others, this does not seem to be the case. Or at least, *slightly* is not compatible with these sentences even though *partially* is.

- (15) a. I slightly cut my hand.
 b. #I slightly cut the cake.
 c. I partially cut the cake.

- (16) a. a slightly/partially sprinkled surface c. to slightly/partially sprinkle a surface
 b. a #slightly/partially painted surface d. to #slightly/partially paint a surface

The problem is that it is not entirely clear why these differences should arise. In (15), what is it about a hand in contrast to a cake that makes it holistically affected by the cutting of one of its parts? In (16), what is it about painting versus sprinkling that makes the former action unable to effect a degree change in its argument until the event is done, especially if both sprinkling and painting can be done with the same substance?

3.0 Conclusion

Mysterious exceptions aside, what I hope to have shown here is that *slightly* exhibits restrictions that remain constant across the verbal and adjectival domain, and that distributional differences across categories are due to the rather more complex way in which verbs map to degree scales. Specifically,

degree-raising verbs can map their arguments to not just one but two degrees on the same scale. In similar fashion, location-shifting verbs can map their arguments to two degrees on the scale of distance. Additionally, I hope to have shown that both adjectives and verbs can relate not just individuals to degrees, but subparts of individuals to degrees, and that *partially*, but not *slightly*, can access and hence constrain this second type of relation. If I have accomplished none of that, then I at least hope to have convinced the reader that degree modifiers like *slightly*, *partially*, and so on, are more than just slightly interesting because their behavior can serve as a diagnostic for the scalar properties of the adjectives and verbs with which they are combined.

The next step from here is to propose denotations for degree-increasing and location-shifting verbs that take into account the way that they reference different degree scales, and then to examine verbs like those in (11) which do not share this behavior but which nevertheless also have scalar properties. An alternative direction to take is to propose denotations for *partially* and *slightly*, accounting for their differing ability to access the part structure of the argument whose degrees they restrict.

References

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