

A surprising comparison: a unified account of degree *surprisingly* with bare adjectives and comparatives

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Introduction. This paper addresses the adverb *surprisingly*—and similar expressions, e.g., *amazingly*, *incredibly*, *strangely*, etc. (Nouwen 2011)—in degree constructions. We propose a unified account of degree *surprisingly* and its ability to combine with bare adjectives (1) and comparatives (2)—the latter being a novel empirical observation. Our proposal provides additional evidence for the presence of differential degrees in the comparative construction. We further suggest that our findings could be extended cross-linguistically.

- (1) a. Alex is tall. (2) a. Gabriel is taller than Tania.
b. Alex is *surprisingly* tall. b. Gabriel is *surprisingly* taller than Tania.

(1a) means that *Alex* is tall when compared to the contextual standard—here we assume that there is a degree morpheme, *pos*, which indicates what the standard of comparison is. (1b) means that *Alex* is tall to a degree that is surprising to the speaker’s expectation, which need not be greater than the standard (Nouwen 2011). We make the novel empirical observation that the comparative (2b) behaves in a similar way in that there is one degree that is taken into account, namely, the degree resulting from the difference between *Gabriel*’s and *Tania*’s height ((1a)-(2a) differ in that (1a) is sensitive to a contextual standard but (2a) is not). Crucially, what is surprising in (2b) is this differential degree—not the degree corresponding to *Gabriel*’s or *Tania*’s height. Such evidence adds up to proposals in the literature for which one (perhaps the) crucial aspect of comparatives is a differential degree. On this regard, consider the following contexts: (2b) is felicitous in context (3a), but not in context (3b), suggesting that, regardless of the actual heights of the individuals involved, what is relevant is the difference between the two heights.

- (3) a. You see Gabriel and Tania in the distance and you see that Gabriel is taller than Tania. You think Gabriel is taller than Tania by 2 inches. Upon closer inspection, you realize that Gabriel is actually 10 inches taller than Tania.
b. You see Gabriel and Tania in the distance and you see that Gabriel is way taller than Tania. You think Gabriel is 6 feet. Upon closer inspection, you realize Gabriel is over 7 feet tall. (But your perception of Gabriel’s and Tania’s height difference has not changed.)

Only one degree adverb allowed. (4) shows that *surprisingly* cannot modify a measure phrase: the only possible interpretation is that the propositions are surprising (i.e., that *Gabriel* is 6 feet tall is surprising (4a) and that *G(abriel)* is 2 inches taller than *A(lex)* is surprising (4b)). This suggests that only one adverb slot (for degree/measure expressions) modifying a bare adjective/the comparative construction is available.

- (4) a. Gabriel is *surprisingly* 6 feet tall. b. G is *surprisingly* 2 inches taller than A.

Proposal. We assume the syntax in (5a) for a bare adjective and the one in (5b) for the comparative (we ignore the internal structure of the latter), in which one adverb slot is available (4) (Morzycki 2015). A degree morpheme *Deg* can combine with an adjective *A* or the comparative. *Deg* would be the attachment site of *pos*, *surprisingly* and measure phrases (e.g., *6 feet*) (we ignore the possibility of having an additional degree morpheme *meas* for simplicity). Following Kennedy & Levin’s (2008) core proposal, we assume that the denotations of adjectives and of the comparative (i.e., of (5) prior to adding *Deg*) are of type $\langle e, \langle s, d \rangle \rangle$: an adjective *A* denotes a measure function *m* that takes individuals and worlds and gives as output a degree in the scale associated with it (6a). The comparative construction α denotes a differential measure function m_d^\uparrow that is like *m* except that the degree it returns for an individual in its domain represents the difference between the individual’s projection on the scale and a degree *d* (that of the comparative standard $m(y)$): (Kennedy & Levin 2008; Nouwen 2011)—*y* would be saturated when *Deg* is combined.

- (5) a. [DegP Deg A] (6) a. [[A] = $\lambda x_e \lambda w_s [m(x)(w)]$
b. [DegP Deg [α more A than *y*]] b. [[α] = $\lambda y_e \lambda x_e \lambda w_s [(m_{m(y)}^\uparrow)(x)(w)]$

In the spirit of Nouwen (2011)—but substantially changing the details of his account—, we propose that *surprisingly* is a degree morpheme of type $\langle \langle e, \langle s, d \rangle \rangle, \langle e, \langle s, t \rangle \rangle \rangle$ that is true of measure function *m*, individual *x* and (actual) world *w* iff *m* (applied to *x*) in *w* exceeds *m* (applied to *x*) in worlds *w'* compatible

with the expectations Exp of a relevant individual (for simplicity, we assume that it is the expectations of the speaker S) (7). What is crucial in this denotation is the comparison of degrees in different worlds.

$$(7) \quad \llbracket \text{surprisingly} \rrbracket = \lambda m_{\langle e, \langle s, d \rangle \rangle} \lambda x_e \lambda w_s [\forall w'_s \in Exp_S [m(x)(w) > m(x)(w')]]$$

The denotations of (1b)-(2b) appear below. They capture that *Alex* is tall to a degree that is surprising to the speaker's expectations (8b) and that the differential degree between two heights (*Gabriel's* and *Tania's*) is surprising to the speaker's expectations (8b).

$$(8) \quad \begin{array}{l} \text{a.} \quad \llbracket (1b) \rrbracket = \lambda w_s [\forall w'_s \in Exp_S [tall(a)(w) > tall(a)(w')]] \\ \text{b.} \quad \llbracket (2b) \rrbracket = \lambda w_s [\forall w'_s \in Exp_S [tall_{tall(t)}^\uparrow(g)(w) > tall_{tall(t)}^\uparrow(g)(w')]] \end{array}$$

Nouwen (2011) mentions that *surprisingly* and *pos* are degree morphemes of the same type, i.e., $\langle \langle e, \langle s, d \rangle \rangle, \langle e, \langle s, t \rangle \rangle$ in our analysis. Assuming that *pos* takes the comparative construction as argument (in addition to a bare adjective) to make it a property of individuals (9a) (Kennedy & Levin 2008), the parallels between *surprisingly* and *pos* can be maintained. The standard *stnd* for a bare adjective is the minimum degree required to stand out in context relative to the measurement of such adjective; the minimum value of the scale in the comparative—the comparative *stnd*—is determined by the denotation of the *than*-constituent. Thus, (1a) is true iff *Alex* is at least as tall as the standard of tallness (9b) and (2a) is true iff the degree that results from applying the difference function to *Gabriel* is non-zero relative to the comparative *stnd*, i.e., greater than the derived zero in the scale represented by *Tania's* height (9c).

$$(9) \quad \begin{array}{l} \text{a.} \quad \llbracket \text{pos} \rrbracket = \lambda m_{\langle e, \langle s, d \rangle \rangle} \lambda x_e \lambda w_s [m(x)(w) \geq stnd(m)(w)] \\ \text{b.} \quad \llbracket (1a) \rrbracket = \lambda w_s [tall(a)(w) \geq stnd(tall)(w)] \\ \text{c.} \quad \llbracket (2a) \rrbracket = \lambda w_s [tall_{tall(t)}^\uparrow(g)(w) \geq stnd(tall_{tall(t)}^\uparrow)(w)] \end{array}$$

Cross-linguistic extension. The distribution of adverbs like *surprisingly* is rather similar cross-linguistically. The table below shows that this is the case in Indo-European, e.g., Dutch (Germanic), Spanish (Romance), Polish (Slavic), and non-Indo-European languages, e.g., Korean, Japanese. It can be used with bare adjectives and in the comparative construction. Crucially, the meanings are those of the English examples (1b)-(2b). Note that the table includes languages such as Japanese (and Korean), which have been claimed to be degreeless (Beck et al. 2004). Although our account focuses on English (and degree languages), the data suggest that a unified account (along the lines of what we propose) could be possible—at least when differential degrees are considered, which is the case with measure phrases like *2 meters* in Japanese (Beck et al. 2004: footnote 17). (Note: Polish *dziwnie* means ‘strangely’; Korean *emcheongnake* means ‘incredibly’.)

Language	With a bare adjective	With the comparative
Dutch	John is <i>verbazingwekkend</i> lang.	John is <i>verbazingwekkend</i> langer dan Bill.
Spanish	Gabriel es <i>sorprendentemente</i> alto.	Gabriel es <i>sorprendentemente</i> más alto que Tania.
Polish	Jan jest <i>dziwnie</i> wysoki.	?Jan jest <i>dziwnie</i> wyższy od Bila.
Korean	John-wa <i>emcheongnake</i> ki-ka ku-ta.	John-un Bill-puta <i>emcheongnake</i> ki-ta ku-ta.
Japanese	Taro-wa <i>odoroku-hodo</i> se-ga taka-i	Taro-wa <i>odoroku-hodo</i> Bill-yori se-ga taka-i.

Conclusion. We propose a unified account of degree *surprisingly* with bare adjectives and comparative constructions. Our proposal modifies and extends the gist of Nouwen's (2011) account to the comparative but also keeps the parallels in the distribution of *surprisingly* and *pos*. Our proposal is, in principle, extensible to other languages where degree *surprisingly* shows the same distribution and emphasizes the role of differential measurement in comparatives.

References. Beck, S., T. Oda, and K. Sugisaki (2004). Parametric variation in the semantics of comparison: Japanese vs. English. • Kennedy, C. and B. Levin (2008). Measure of change: The Adjectival Core of Degree Achievements. • Morzycki, M. (2015). *Modification*. • Nouwen, R. (2011). Degree modifiers and monotonicity.