Comparatives without scales: An NSM analysis of English comparative constructions

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This study outlines an analysis of the English comparative construction, framed in the NSM approach to semantics (Wierzbicka 1996; Goddard and Wierzbicka eds. 2002; Goddard ed. 2008). The analysis differs markedly from conventional accounts in that it does not rely on notions of scales, degrees, or standards of comparison. As required, the analysis successfully models the way in which adjectives with equipollent antonyms behave differently from others with respect to their compatibility with comparative statements (Sapir 1944), e.g. why one can say about two cold items ‘This one is colder than that one’, but not ‘This one is hotter than that one’. Likewise, it can explain asymmetries with respect to evaluative comparisons of "inherently bad" referents (Cruse 1986), e.g. why ‘This year's famine is worse than last year’s’ is acceptable but ‘Last year’s famine was better than this year’s’ is odd. A similar account appears viable for the English superlative construction. The analysis can be termed an “external” one, in the sense that it takes the meaning of the positive term for granted and embeds it into a configuration of semantic primes that explicates the comparative aspect of the meaning.

1. Scales and degrees?

Consider everyday sentences like the following:

(1) John’s car is bigger than Mary’s.
(2) This coffee is hotter than that one.
(3) Chocolate is sweeter than icecream.

1 The main work presented in this study was done while I was a visiting scholar at Stockholm University in October 2011. I am grateful to Susanne Vejdemo and others in the course on “Cross-Linguistic Semantics (NSM style)” for many stimulating interactions on the topic. I am grateful to Anna Wierzbicka for helpful input in fine-tuning the explications. I would like to thank participants at the 2012 ALS conference, especially David Nash, for helpful critical comments.
What do they mean? According to conventional approaches, which adopt an extensionalist or truth-conditional interpretation of meaning, the meaning is all about scales and degrees. This can be illustrated by looking briefly at treatments by Allan (2001) and by Kennedy and McNally (2005); cf. Klein (1980), Scharzschild (2008).

Allan (2001: 262) says that “COMPARISON is made on a category scale having an upper and a lower end bounded by a pair of so-called GRADABLE ANTONYMS or RELATIVE PREDICATES”, such as, for example, big and small, or hot and cold. The category scale is labelled with an abstract noun, e.g. ‘of a certain size’ or ‘of a certain temperature’. Comparative meanings can be described in terms of relative values on these scales. Kennedy and McNally (2005) characterise the meanings of gradable expressions in terms of a STANDARD OF COMPARISON. For example ‘Michael Jordan is tall = Michael Jordan’s height exceeds a standard of tallness’, where the standard of comparison is “determined relative to a COMPARISON CLASS of objects that are similar in some way to whatever is being discussed”. The reference to a standard is to accommodate the fact that the interpretations of positive words like big and hot are context-dependent, i.e. they vary from context to context. To deal with comparatives, Kennedy and McNally (2005) adopt the notion of a scale, which they describe as “a set of measurements or DEGREES ordered along some dimension”, such as size, temperature, height, cost, etc.

Interpretation in terms of scales, degrees, and standards of comparison may make sense from an extensionalist or truth-conditional point of view, but hardly from a communicative or cognitive point of view. Is a speaker who says My car is bigger than yours, for example, saying anything about scales or degrees? Is a listener who understands such a sentence THINKING in terms of scales or degrees? It seems implausible, and in this paper I suggest an alternative to this view. Nor is it cognitively plausible, in my view, to explain the meanings of adjectives, either positive or comparative (big, bigger; hot, hotter; sweet, sweeter; etc.), in terms of abstract noun categories such as ‘size’ and ‘temperature’. Abstract noun concepts like ‘size’ and ‘temperature’ are based on (built from) simpler concepts such as big and hot, not vice versa (Goddard and Wierzbicka in press/2014).

Unlike extensionalist and truth-conditional approaches, the NSM approach sees the meaning of a sentence as a reductive paraphrase, i.e. as a way of saying the same thing in simpler words. An NSM explication is intended to be a model of the speaker’s meaning, phrased in a controlled metalanguage of simple everyday word meanings. The metalanguage rests ultimately on 65 semantic primes: irreducible meanings such as I, YOU, SOMEONE, SOMETHING, DO, SAY, HAPPEN, WANT,
THINK, KNOW, GOOD, BAD, IF, CAN, WHEN~TIME, THIS, THE SAME, and others. More detail is given in Section 2 below.

Is it possible to explicate, i.e. reductively paraphrase, comparative sentences like *John's car is bigger than Mary's* solely in terms of semantic primes? In the main body of the paper, I will argue that it is, and, furthermore, that the process delivers a plausible model of the communicative and cognitive meaning of comparative sentences. The analysis can be termed an “external” analysis, in the sense that it takes the meaning of the positive terms (*big, hot, sweet, etc.*) for granted and embeds them into a configuration of semantic primes that explicates the comparative aspect of the meaning.

2. The NSM approach

As just mentioned, NSM semantics is based on reductive paraphrase (i.e. saying the same thing in simpler words) in natural language. Reductive paraphrase implies the existence of semantic primes: the irreducible terminal elements of the reductive process. NSM researchers have been trying to discover the inventory of semantic primes since the 1970s and now believe they are close to having a full inventory in hand: about 65 semantic elements with an associated grammar of combination. This “mini-language” is known as NSM or Natural Semantic Metalanguage.

A considerable body of evidence suggests that semantic primes can be expressed by words or word-like expressions in all languages, and semantic primes have an inherent grammar of combination, which also appears to be shared across languages (Wierzbicka 1996; Goddard and Wierzbicka eds, 2002; Peeters ed. 2006; Goddard ed. 2008; 2011). The inventory of semantic primes is given in Table 1 using English exponents. Comparable tables have been drawn up for over 30 languages, including languages from a wide range of language families, language types, and geographical locations. The notation † in Table 1 identifies the semantic primes (16 in all) that are used in the explications proposed in this paper.

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2 Key resources and readings on NSM can be obtained from the NSM Homepage: [http://www.griffith.edu.au/humanities-languages/school-languages-linguistics/research/natural-semantic-metalanguage-homepage/publications] = [bit.ly/Lz6QbN]. For a recent overview of NSM semantic practice, including discussion of claimed counterevidence to the lexicalisation of some semantic primes, see Goddard (2012). For critiques of NSM, see Reimer (2006), Geeraerts (2010: 127-137).
A successful NSM explication of a word or other expression will (i) be phrased exclusively in semantic primes used in accordance with rules of NSM syntax\(^3\), (ii) be compatible with the distribution of the expression and account for any entailments, implications, etc.; and (iii) satisfy the intuitions of native speakers.

Table 1 Semantic primes (English exponents) in comparable categories (cf. Goddard & Wierzbicka 2002; in press/2014). \(^{†}\) = Primes used in explications proposed in this paper.

<table>
<thead>
<tr>
<th>Category</th>
<th>Example</th>
</tr>
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<tbody>
<tr>
<td>I–ME, YOU, SOMEONE(^{†}), SOMETHING–THING(^{†}), PEOPLE, BODY</td>
<td></td>
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<tr>
<td>KIND(^{†}), PART</td>
<td>Relational substantives</td>
</tr>
<tr>
<td>THIS(^{†}), THE SAME(^{†}), OTHER–ELSE(^{†})</td>
<td>Determiners</td>
</tr>
<tr>
<td>ONE(^{†}), TWO(^{†}), MUCH–MANY(^{†}), LITTLE–FEW, SOME, ALL(^{†})</td>
<td>Quantifiers</td>
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<tr>
<td>GOOD, BAD</td>
<td>Evaluators</td>
</tr>
<tr>
<td>BIG, SMALL</td>
<td>Descriptors</td>
</tr>
<tr>
<td>THINK(^{†}), KNOW, WANT, DON'T WANT, FEEL, SEE, HEAR</td>
<td>Mental predicates</td>
</tr>
<tr>
<td>SAY, WORDS, TRUE</td>
<td>Speech</td>
</tr>
<tr>
<td>DO, HAPPEN, MOVE, TOUCH</td>
<td>Actions, events, movement, contact</td>
</tr>
<tr>
<td>BE (SOMEBHERE), THERE IS, BE (SOMEONE/SOMETHING), BE (SOMEONE’S)</td>
<td>Location, existence, specification, possession</td>
</tr>
<tr>
<td>LIVE, DIE</td>
<td>Life and death</td>
</tr>
<tr>
<td>WHEN–TIME(^{†}), NOW, BEFORE, AFTER, A LONG TIME, A SHORT TIME, FOR SOME TIME, MOMENT</td>
<td>Time</td>
</tr>
<tr>
<td>WHERE–PLACE, HERE, ABOVE, BELOW, FAR, NEAR, SIDE, INSIDE</td>
<td>Space</td>
</tr>
<tr>
<td>NOT(^{†}), MAYBE, CAN(^{†}), BECAUSE, IF(^{†})</td>
<td>Logical concepts</td>
</tr>
<tr>
<td>VERY(^{†}), MORE</td>
<td>Augmentor, intensifier</td>
</tr>
<tr>
<td>LIKE(^{†})</td>
<td>Similarity</td>
</tr>
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</table>

\(^{†}\) Primes exist as the meanings of lexical units (not at the level of lexemes) • Exponents of primes may be words, bound morphemes, or phrasemes • They can be formally, i.e., morphologically, complex • They can have combinatorial variants or allolexes (indicated with ~) • Each prime has well-specified syntactic (combinatorial) properties.

The remainder of the paper is structured as follows. In section 3, we advance an explication schema for simple sentences which compare one individual with another or things of one kind with things of another kind. In section 4, we consider whether the proposed schema can adequately account for various asymmetries in the distribution of comparative expressions. Section 5 briefly treats quantified comparative constructions, e.g. expressions like much bigger and a bit bigger. Section 6 looks briefly at the superlative construction. Section 7 is discussion, including an indication of remaining problems and where extensions to the present analysis will be required to deal with related phenomena not considered in the present study.

\(^3\) Some NSM explications also make use of “semantic molecules”, i.e. complex word-meanings, resolvable into semantic primes, that function as intermediate units alongside semantic primes in explications. No semantic molecules are employed in the present study.
3. Simple comparatives

3.1 The basic schema

The basic idea will be clear from explications [A] and [B] below. For convenience, we will designate the primary term as X and term against which it is being compared as Y.4

[A] John’s car (X) is bigger than Mary’s (Y).

a. if someone thinks about these two things at the same time, this someone can think about them like this:

b. “one of them (X) is big, the other one (Y) is not like this”

[B] This one (X) is hotter than that one (Y).

a. if someone thinks about these two things at the same time, this someone can think about them like this:

b. “one of them (X) is hot, the other one (Y) is not like this”

These explications embody the claim that a comparative statement is making an assessment of how two things stand with respect to the potential attribution of a particular quality, an assessment that is conditional upon the two things being under consideration simultaneously. The condition embodied in the if-clause is important because it narrows the field, so to speak, and enables a sharp contrast to be drawn which could otherwise be invalid. For instance, it is easy to imagine a situation in which the two cars referred to in explication [A] could both be described ‘big’ if considered independently (for example, if both cars are four-wheel drive SUVs), yet it still makes sense to say that when the two are being considered together, one of them can be deemed to be ‘big’ and the other not.

The condition is important for another reason as well. Although in strict logic, a statement that ‘if P, then Q’ does not entail ‘if not-P, then not-Q’, in ordinary thinking people often do make this assumption (the familiar logical fallacy known as “denying the antecedent” or the “inverse error”). This may help explain the fact that one would normally not make a comparative statement with respect to a certain property unless both things can be deemed to have this quality when considered independently. For example, if thing X is huge and thing Y is tiny, one can hardly imagine anyone saying, in normal circumstances: ‘X is bigger than Y’.

4 It may be helpful to note that the prime THINK is posited to universally allow a “topic of cognition” valency extension, i.e. ‘think about something’. Likewise, the prime ONE is posited to allow the “partitive” or "subset" option found in expressions like ‘one of these things’. For more on metalanguage syntax, see Goddard & Wierzbicka (eds., 2002). The semantic prime CAN is regarded as neutral between the so-called “can of possibility” and “can of ability”. For more on NSM treatments of modality, see Goddard (2013).
Such a statement, while no doubt true in a strict sense, would normally be considered irrelevant or redundant.

It is worth considering an alternative version of the explication schema, as shown below. It is presented in terms of the speaker’s own current thought processes and assessments, rather than in terms of the potential thought processes and assessments of an unspecified ‘someone’.

I’m thinking about these two things now
I can think about them like this: “one of them (X) is big, the other one (Y) is not like this”

In my opinion, this formulation lacks intuitive plausibility in one respect: it makes the speaker’s statement sound too subjective (too much a matter of the speaker’s opinion) and too “time bound”. The version given in [A] and [B], framed in terms of an unspecified, hypothetical SOMEONE seems to convey the appropriate sense of “objectivity” attaching to the comparative judgement. Essentially, to say John’s car is bigger than Mary’s is to say that anyone who considers these two cars at the same time can think of John’s as ‘big’ and of Mary’s as ‘not like this’.

Now let us consider sentences that involve generic noun-phrases, such as Chocolate is sweeter than icecream. In such sentences the generic noun-phrases designate kinds of thing, but aside from this, the explication schema applies straightforwardly, as shown in [C].

[C] Chocolate (X) is sweeter than ice cream (Y).
   a. if someone thinks about things of these two kinds at the same time, this someone can think about them like this:
   b. “things of one of these kinds (X) are sweet, things of the other kind (Y) are not like this”

3.2. “Naturalness effects” and expectations

The relative naturalness of comparative expressions can be affected by presuppositions about the natural or expected qualities of the referents of the noun-phrases, but not, as far as I can see, to the extent of producing any semantic anomaly. For example, we know that elephants are normally thought of as big and microbes as small, and this presumably accounts for the slightly more “natural” sound of the (a) versions of the sentences in the following pairs, as compared with the (b) versions, when presented in isolation.

(4a) This elephant is bigger than that one.
(4b) This elephant is smaller than that one.
(5a) This microbe is smaller than that one.
(5b) This microbe is bigger than that one.

However, it is easy to construct scenarios in which the (b) versions are not only perfectly acceptable, but would be preferred. For example, (4b) would sound very natural if we are thinking about which elephant it would be easier to transport in a truck, and (5b) would sound very natural if we are thinking about which microbe is easier to see under the microscope. Whether comparing two elephants or two microbes, it can make perfect sense to see one of them as big or as small and to deny this potential attribution to the other.

The situation is similar with generic statements, such as in the following pairs. For example, despite our knowledge that viruses and microbes are both kinds of thing that are very small, it easy to imagine a situation in which one of these kinds would be assessed as 'big' relative to the other.

(6a) A virus is smaller than a microbe.
(6b) A microbe is bigger than a virus.

(7a) A whale is bigger than an elephant.
(7b) An elephant is smaller than a whale.

To make these points clearer, the reader is invited to consider explications [D] and [E] below, and confirm that there is nothing intuitively anomalous about them.

[D] This elephant (X) is smaller than that one (Y). [= 4b]
a. if someone thinks about these two things at the same time, this someone can think about them like this:
b. “one of them (X) is small, the other one (Y) is not like this”

[E] A microbe (X) is bigger than a virus (Y). [= 6b]
a. if someone thinks about things of these two kinds at the same time, this someone can think about them like this:
b. “things of one of these kinds (X) are big, things of the other kind (Y) are not like this”

The situation is quite different, however, with certain other kinds of adjectives and nouns, as we will see in section 4. In the cases to be considered below, there are clear distributional asymmetries, which, it will be argued, are semantic in nature and follow naturally from the analysis being proposed here.
4. Distributional asymmetries in comparative statements

4.1. Equipollent antonyms

As has been frequently observed in the literature on antonyms and gradability, some adjectives behave differently from others in respect of their compatibility with comparative statements (Sapir 1944). For example, if I have just taken two items out of the refrigerator it may make sense to say the sentence in (8a) but not that in (8b):

(8a) This one (X) is colder than that one (Y).
(8b) *This one (Y) is hotter than that one (X).

In the antonym literature this property is sometimes referred to as “commitment” (Cruse 1986). For some adjectives (i.e. those with so-called equipollent antonyms), a comparative statement like This thing is “Z-er” than that one commits the speaker to a statement of the form This thing is Z. In the refrigerator example, the problem with (8b) is that the speaker would not want to say This is hot about either of the items, and thus it makes no sense to say that one is hotter than the other.

The comparative analysis proposed here is completely compatible with these observations, as one can see from the explications in [F1] and [F2]. The viability of the comparative judgement depends on an assumed positive statement with the adjective. In short, the explication schema correctly “mimics” or predicts the behaviour of different kinds of adjectives.

[F1] This one (X) is colder than that one (Y) (about two items just taken from the fridge).
   a. if someone thinks about these two things at the same time, this someone can think
      about them like this:
      b. “one of them (X) is cold, the other one (Y) is not like this”

[F2] *This one (Y) is hotter than that one (X) (about two items just taken from the fridge).
   a. if someone thinks about these two things at the same time, this someone can think
      about them like this:
      b. “one of them (Y) is hot, the other one (X) is not like this”

To be clear, the present analysis does not explain why different adjectives have their different properties in the positive, i.e. outside the comparative construction; for example, it does not explain why it makes no sense to say It is hot about something which is known to be cold. To articulate the basis for this property (i.e. the equipollent antonymy of hot and cold) requires an “internal”
analysis of the words *hot* and *cold*, and this is a separate project (cf. Goddard and Wierzbicka 2007).

4.3 *Inherently evaluative nouns*

Asymmetries have been also noted when “evaluative” comparative words, such as *better* and *worse*, are combined with nouns whose meanings include an inherent evaluation. For example, Cruse (1986) notes that things which are regarded as “inherently bad” can only be compared as relatively *worse* than one another, not as relatively *better*.

(9a)  *This year’s famine (flood, etc.) is worse than last year’s.*
(9b)  *Last year’s famine (flood, etc.) is *better than this year’s.*

(10a)  *Mary’s headache (tumour, acne, etc.) is worse than John’s.*
(10b)  *John’s headache (tumour, acne, etc.) is *better than Mary’s.*

The explications in [G1] and [G2] show that this effect is fully compatible with the analysis of the comparative being proposed here.

[G1]  *This year’s famine (X) is worse than last year’s (Y).*
   a.  if someone thinks about these two things at the same time, this someone can think about them like this:
       “one of them (this year’s famine) was bad, the other one (last year’s) was not like this”

[G2]  *Last year’s famine was better than this year’s.*
   a.  if someone thinks about these two things at the same time, this someone can think about them like this:
       “one of them (last year’s famine) was good, the other one (this year’s) was not like this”

As explication [G2] shows, the reason for the anomaly of *Last year’s famine was better than this year’s* is the clash between the implied judgement that ‘last year it was good’ and the strongly opposite evaluation implicit in the word *famine*.

In short, the proposed analysis is simple and intuitively appealing, and it correctly mimics the behaviours of different kinds of adjectives (adjectives with polar, equipollent, evaluative antonyms) when they enter the comparative construction.
5. "Degree of difference" comparatives

What about sentences in which the degree of difference is indicated, such as the following?

(11) John's car is much bigger than Mary's.
(12) John's car is a bit bigger than Mary's.

Briefly, sentences like (11), where the comparative word is modified by much, can perhaps be explicated simply by introducing the semantic prime very into the contrastive judgement, as shown in [J].

[J] John's car (X) is much bigger than Mary's (Y).
   a. if someone thinks about these two things at the same time, this someone can think about them like this:
   b. "one of them (X) is very big, the other one (Y) is not like this"

As for the modifier a bit, perhaps it can perhaps be explicated (in this context) as shown in [K]. According to this, a sentence like John’s car is a bit bigger than Mary’s, as in (12), is effectively the same in meaning as John’s car is bigger than Mary’s, (but) not much bigger. This is because the final component in (c) effectively denies the content that would have been conveyed by much bigger, as just explicated.

[K] John’s car (X) is a bit bigger than Mary’s (Y).
   a. if someone thinks about these two cars at the same time this someone can think about them like this:
   b. "one of them (X) is big, the other one (Y) is not like this"
   c. at the same time this someone can’t think about them like this: “one of them (X) is very big, the other one (Y) is not like this”

6. The superlative construction

The analysis proposed above for the comparative is essentially based on two, one, and other. It appears that a parallel analysis is viable for the superlative construction, based on all, one and other, as shown below:

[H] John’s car is the biggest (of them all).
   a. if someone thinks about all these things [cars] at the same time, this someone can think about them like this:
   b. “one of them (John’s car) is big, all the others are not like this"
This year’s famine was the worst (of all).

a. if someone thinks about all these things [famines] at the same time, this someone can think about them like this:

b. “one of them (this year’s famine) was bad, all the others were not like this”

Note that since three items are enough on which to base a superlative judgement, it is assumed that it is semantically acceptable to apply a phrase like ‘all the others’ to two items only. In English, of course, the expression ‘all two of them’ sounds peculiar: one would normally say ‘both of them’. As noted in previous NSM work (e.g. Wierzbicka 1996: 193), however, the word both can be regarded as an English-specific variant (allolex) of ALL when it occurs in combination with TWO, i.e. ALL TWO = both (cf. French tous les deux).

A detailed treatment of the superlative construction is not possible here. One question I would like to leave open is whether or not there is an additional element in the semantics of the superlative. Intuitively, it seems to me that superlative sentences imply a relatively great difference between the thing being singled out and all the other things being considered. Perhaps, then, to say that something is the best is to imply that it is not just better, but much better, than all the others. If so, the superlative judgement could be phrased in terms of very big (‘very good’, etc.).

6. Discussion: remaining issues and topics for further research

In the short compass of the present study, a number of important questions have not been touched. Perhaps the most pressing concerns the status of “more comparatives”, such as those shown in examples (13) and (14) below, viz. a viz. the -er comparative dealt with here. More-comparatives must bear a very close semantic relationship to -er comparatives and exactly how it works is unclear at this time. Given the close parallelisms with -er comparatives, as shown in examples (15) and (16) below, the simplest hypothesis is that more-comparatives are essentially the same in meaning.5

(13) Avocados are more expensive than carrots.
(14) John is more intelligent than Fred.

(15) Avocados are dearer than carrots.
(16) John is smarter than Fred.

5 This would coincide with a widespread view in the literature which holds that more-comparatives are simply syntactic equivalents of -er comparatives, conditioned by a suite of phonological and morphological characteristics.
This would mean that, contrary to the apparent implications of the surface form, more-comparatives do not involve semantic prime more. This result would not be as paradoxical as it might seem at first, because in NSM theory it has long been held that semantic prime more is not comparative in nature, but is rather an “augmentor”-like element, found in canonical contexts such as ‘I want to say more’ and ‘I want to know more about it’ (cf. e.g. Wierzbicka 1996: 76-77; Goddard and Wierzbicka 2002: 72-73). The semantics of more-comparatives remains to be fully investigated.

The present study has been focussed on one particular construction type, or set of construction types, involving the comparative. Further work would be required to ascertain whether and how the analysis could be extended to other, presumably more complex, comparative constructions involving different kinds of standards, as in (17) and (18), different kinds of adverbial uses, as in (19) and (20), and sentences with involve two property attributions rather than one, as in (21), to mention only a few (cf. Dixon 2005, 2008). Also remaining to be investigated is the issue of how comparative constructions are related to so-called “equative” degree constructions, both as questions and statements, as in (22) and (23).

(17) I’m older than you think.
(18) This version is closer in the spirit to the original.
(19) John runs faster than Mary.
(20) We have to do better (than before).
(21) He’s more loyal than intelligent.
(22) How big is it?
(23) It’s as big as a house.

Despite these remaining issues and research directions, I hope the present study has been sufficient to establish “proof of concept” of the general line of analysis proposed here: a paraphrase analysis constructed of simple words in ordinary language, without any technical or quantification-based apparatus of “degrees” or “scales”.

References

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