Degree constructions

Chris Potts, Ling 230b: Advanced semantics and pragmatics, Spring 2016

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1 Overview

This handout reviews the basics of degree constructions from Kennedy & McNally (2005:§3) (henceforth KM05), Kennedy (2007:§3) (K07), and Syrett et al. (2009) (SKL). For much more in a similar vein, see Morzycki 2015. The associated homework assignment asks you to explore some alternative approaches and compare them with this one.

2 Core claims

(1) a. $d$ is the type of degrees.
   b. $D_d$ is the domain of degrees. We assume it to be totally ordered, i.e., a scale.

(2) Gradable adjective meanings as measure function (type $\langle e, d \rangle$)
   a. $\text{[tall]}_{M,g,c} = \lambda x_e (\text{the height of } x \text{ in context } c)$
   b. $\text{[expensive]}_{M,g,c} = \lambda x_e (\text{the price of } x \text{ in context } c)$

(3) Scale structures
   relative $\{\begin{array}{c} \text{totally open} & \text{tall, short, long, expensive, \ldots} \\
                       \text{lower closed} & \text{wet, impure, bent, visible, awake, \ldots} \\
                       \text{absolute} & \text{dry, pure, straight, flat, full, empty, \ldots} \\
                       \text{totally closed} & \text{opaque, open, closed, invisible, \ldots} \end{array}$

(4) Pos-morphemes
   a. $\text{[pos_{rel}]}_{M,g,c} = \lambda g_{(e,d)} \lambda x_e (g(x) \geq s(g))$
      “$s$ is a context-sensitive function that chooses a standard of comparison in such a way as to ensure that the objects that the positive form is true of ‘stand out’ in the context of utterance, relative to the kind of measurement that the adjective encodes.” (K07:17)
   b. $\text{[pos_{max}]}_{M,g,c} = \lambda g_{(e,d)} \lambda x_e (g(x) = \max(g))$
   c. $\text{[pos_{min}]}_{M,g,c} = \lambda g_{(e,d)} \lambda x_e (g(x) > \min(g))$

(5) Alternative denotations for adjectives
   a. $\lambda g_{(e,d)} \lambda k_{(e,t)} \lambda x_e (g(x) > \text{norm}(k(g)))$
   b. $\lambda g_{(e,d)} \lambda f_{(e,t)} \lambda x_e (\text{defined iff } f(x) = T) g(x)$
(6) Phrasal comparatives
   a. \[ \text{than}_{\text{phrasal}}^{M,g,c} = \lambda x e x \]
   b. \[ \text{more}_{\text{phrasal}}^{M,g,c} = \lambda g(e,d) \lambda y e \lambda x e (g(x) > g(y)) \]
   c. \[ \text{less}_{\text{phrasal}}^{M,g,c} = \lambda g(e,d) \lambda y e \lambda x e (g(x) < g(y)) \]

(7) Clausal comparatives
   a. \[ \text{than}_{\text{clausal}}^{M,g,c} = \lambda D(e,t) (\max(D)) \]
   b. \[ \text{more}_{\text{clausal}}^{M,g,c} = \lambda g(e,d) \lambda d d \lambda x e (g(x) > d) \]
   c. \[ \text{less}_{\text{clausal}}^{M,g,c} = \lambda g(e,d) \lambda d d \lambda x e (g(x) < d) \]

(8) Alternative denotations for phrasal comparatives
   a. \[ \text{more}_{\text{A-not-A}}^{M,g,c} = \lambda g(e,d) \lambda y e \lambda x e (\exists d g(x) \geq d \land \neg (g(y) \geq d)) \]
      (Seuren 1973)
   b. \[ \text{more}_{\text{max}}^{M,g,c} = \lambda g(e,d) \lambda y e \lambda x e (\max \{d : g(x) \geq d\} > \max \{d : g(y) \geq d\}) \]
      (von Stechow 1984; Heim 2001)

(9) Interpretive economy: “Maximize the contribution of the conventional meanings of the elements of a sentence to the computation of its truth conditions.” (K07:36)

3 Important examples

(10) Jesse is tall.
(11) The glass is full.

\[ \forall x (\text{full}(x) = \max(\text{full})): \text{let} \]

\[ \text{pos max}: \langle e_1, e_1 \rangle \quad \text{full}: \langle e_1, a \rangle \]

(12) The table is wet.

\[ \forall x (\text{wet}(x) > \min(\text{wet})): \text{let} \]

\[ \text{pos min}: \langle e_1, e_0 \rangle \quad \text{wet}: \langle e_0, i \rangle \]

Again, it's important to ask how we ensure that this rule is chosen here.
(13)  

a. two-thirds closed

b. *two-thirds tall

Intuition: since closed has a totally closed scale, identifying it 2/3 point is possible for adjectives associated with any other scale structure, such identification is impossible.

(14)  

a. The Mars Pathfinder mission was expensive.

b. My watch was expensive.

c. Kyle's car is an expensive BMW, though it's not expensive for a BMW.

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Suggests the comparison class is delimited by the for-clause.
(15) Everyone in my family is tall.
(16) Jesse is taller than Sandy.

(17) Jesse is taller than Sandy is.
(18) a. Jesse is taller than every student (is).

\[ \text{tell}(\text{Jesse}) > \text{max}\left(\{ a : \text{every student} (x) \land \text{tall}(x) \} \right) \]

b. Jesse is taller than some student (is).

\[ \text{tell}(\text{Jesse}) > \text{max}\left(\{ a : \text{some student} (x) \land \text{tall}(x) \} \right) \]

For extensive discussion of the problems posed by these examples, see Alex Djellalis’s 2014 Stanford thesis *On Adjective Comparatives*.
4 The case for absolute adjectives

4.1 Adverbs for distinguishing scales (KM05:§3; K07:§4.2)

(19) a. Maximality: *completely*, *fully*, *totally*, *absolutely*, 100%, perfectly, ...
b. Proportion: *half*, *mostly*, *most of the way*, two-thirds, *three-sevenths*, ...
c. Minimality: *slightly*, *somewhat*, *partially*, ...

(20)

<table>
<thead>
<tr>
<th>Adverb</th>
<th>Totally open</th>
<th>Totally closed</th>
<th>Upper closed</th>
<th>Lower closed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximality</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Proportion</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Minimality</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

The missing patterns in (20) are ruled out semantically. For example, proportion advs require upper and lower ends, so no adj could allow them but disallow maximality or minimality advs. Similarity, no adj could allow maximality and minimality advs without also allowing proportion advs.

**Acquisition angle on the adverbs** 30-month-olds “appear to be aware of such distributional differences and recruit them in word learning” (Syrett & Lidz 2010:258)

4.2 Context-dependence

Skeptics of this analysis of absolute adjectives often point to our contextually-determined intuitions about what counts as full, wet, etc., as evidence that all gradable modification is relative. Informally, I’d say this is the first and most resolute objection people have to the account. KM05 and K07 attempt to counter these objections using intuitions and theoretical considerations:

On the whole, it is fairly easy to come up with other ‘imprecise’ uses of absolute adjectives, calling into question our claim that these adjectives represent a semantic class distinct from relative gradable adjectives. While it is arguably true that in some cases imprecise uses reflect a semantic shift away from a ‘default’ absolute meaning toward a purely relative one (a point to which we return in §4.3), we nevertheless contend that there are both theoretical and empirical arguments for maintaining the claim that absolute adjectives are semantically distinct from relative adjectives. (KM05:357)

one interpretation of these facts is that these expressions also have context-dependent denotations, like relative GAs. On this view (advocated by, e.g. Lewis 1970, 1979; Kamp 1975; and Pinkal 1995), interpretive variability is always fundamentally semantic, and expressions like full and straight [. . .] have meanings that, like big and long, require fixing the value of some contextual parameter as part of determining their extensions. Another interpretation is that all of these expressions, including relative GAs, have fixed denotations, and the observed variability is a purely pragmatic phenomenon (Austin 1979; Travis 1994, 1996). (SKL:28)
Theoretical proposal  Invoke Lasersohn’s (1999) pragmatic halos, arguing that this is impreci-
sion, not vagueness of the sort that we find with relative adjectives (KM05:357; K07:fn. 22, p. 25,
and §3.2.1; SKL:28).

4.3 Entailments  (KM05:§4.2; K07:§3.2.2)

(21) Lower-closed: \(\neg\text{adj}(x)\) entails that \(x\) has 0 degree of \(\text{adj}\), so \(\text{adj}(x) \land \neg\text{adj}(x)\) should be
contradictory:

\[\#\text{ The spot is not visible, but I can see a little bit of it.} \quad \text{(KM05:359)}\]

(22) Upper-closed: \(\text{adj}(x)\) entails that \(x\) has the maximal degree of \(\text{adj}\), so \(\text{adj}(x) \land \Box(\text{more adj}(x))\)
should be contradictory:

\[\#\text{ My glass is FULL, but it could be fuller.} \quad \text{(K07:26)}\]

(23) Relative: Neither entailment holds:

a. Sam is not tall, but his height is normal for his age.

b. That film is interesting, but it could be more interesting. \quad \text{(KM05:359)}

Potential objection  Skeptics of the absolute/relative distinction are likely to take issue with these
judgments. KM05 point out that the upper-closed test is “difficult to test, since maximum-standard
adjectives readily allow imprecise uses” (p. 359), which is part of what’s at issue.

4.4 Imprecision and precisification  (K07:§3.2.1)

(24) a. We might judge this true (true enough) if the rod is, say, 995 cm:

The rod is 10 meters long.

b. However, we can precisify with such measure phrases:

We need a 10 meter long rod for the antenna, but this one is 1 millimeter short of 10
meters, so unfortunately it won’t work.

c. Relative adjectives do not easily admit of such precisification:

?? We need a long rod for the antenna, but since long means ‘greater than 10 meters’ and
this one is 1 millimeter short of 10 meters, unfortunately it won’t work.

d. Absolute adjectives behave like precise measure phrases wrt exhaustification:

The rod for the antenna needs to be straight, but this one has a 1 mm bend in the
middle, so unfortunately it won’t work.

Potential objection  Even relative adjectives admit of precise uses, so it’s not clear that we have
a categorical distinction here.
4.5 Sorites paradox

Only relative adjectives give rise to it; we accept (25.P2), thereby triggering the paradoxical conclusion (25.P2), but we reject (26.P2), thereby blocking the paradoxical (26.P2).

(25) P1. A theater with 1000 seats is big.
    P2. Any theater with 1 fewer seat than a big theater is big.
    C. Therefore, any theater with 10 seats is big.

(26) P1. A theater in which every seat is occupied is full.
    P2. Any theater with one fewer occupied seat than a full theater is full.
    C. Therefore, any theater in which half of (none of, etc.) the seats are occupied is full.

Potential objection In imprecise contexts, we can probably get people to accept P2 even for maximal standard adjectives, which will generate the paradox.

References


