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Comparison of Deviation

1 Semantic characteristics of comparison of deviation

"Comparison of deviation" constructions like (1-6) differ from standard comparative and equative constructions in at least three ways.

(1) Secretary Reich is as short as Senator Bradley is tall.
(2) Alex is as slim now as he was obese before.
(3) Francis is as reticent as Hilary is long-winded.
(4) *The Brothers Karamazov* is more long than *The Dream of a Ridiculous Man* is short.
(5) It's more difficult to surf Maverick's than it is easy to surf Steamer Lane.
(6) A St. Bernard is more large than a pug is small.

1.1 Interpretation

Comparison of deviation constructions like compare the relative extents to which two objects deviate from some contextually determined standard:

(1') The extent to which Secretary Reich exceeds a standard of shortness equals the extent to which Senator Bradley exceeds a standard of tallness.

Standard comparative and equative constructions compare the total extents of two objects:

(7) Bob's feet are as long as Bill's feet are wide.
(7') The extent to which Bob's feet are long equals the extent to which Bill's feet are wide.

1.2 Entailments

Comparison of deviation constructions entail that the properties predicated of the compared objects are true in the absolute (w.r.t. a relevant standard); standard comparatives do not.

(8) ??Bill is as slim now as he was obese before, but he's still pretty fat.
(9) Bill is a bit slimmer today than he was a month ago, but he's still pretty fat.
(10) ??*The Brothers Karamazov*$_i$ is more long than *The Dream of a Ridiculous Man* is short, but it$_i$'s still quite short.
(11) *The Brothers Karamazov*$_i$ is longer than *The Dream of a Ridiculous Man*, but it$_i$'s still quite short.
(12) *The Idiot* is shorter than *The Brothers Karamazov*, but they're both quite long.
(13) ??A St. Bernard is more large than a pug is small, and a pug is quite a big dog.
(14) A St. Bernard is larger than a pug, but a pug is a pretty small dog.

1.3 Lack of cross-polar anomaly

Comparison of deviation constructions allow comparison between adjectives of opposite polarity, but standard comparatives do not (Kennedy *in preparation*; cf. Bierwisch 1987):

(15) #*The Brothers Karamazov* is longer than *The Dream of a Ridiculous Man* is short.
(16) #Bill is slimmer now than he was obese before.
(17) #It's easier to surf Steamer Lane than it is difficult to surf Maverick's.
(18) #A pug is smaller than a St. Bernard is large.

3 Questions

1. Why do these constructions have the interpretations they have?
2. What is responsible for the observed entailment patterns?
3. Why doesn't comparison of deviation trigger cross-polar anomaly?

2 The interpretation of gradable predicates

2.1 Gradable predicates and polar opposition

Gradable predicates denote relations between individuals and *extents*, where an extent is an *interval* of a scale (Seuren 1979, 1984, von Stechow 1984b, Löbner 1991, Kennedy 1996, *in prep*; cf. Cresswell 1976).

(19) A *positive extent* on a scale S is a proper extent on S which ranges from the lower end of a scale to some positive point.
(20) A *negative extent* on a scale S is a proper extent on S which ranges from some positive point to the upper end of a scale.

Sort the set of relations between individuals and extents can be according to their range:

- Positive adjectives denote gradable properties whose range is E_{pos}.
- Negative adjectives denote gradable properties whose range is E_{neg}.

(21) LENGTH:

2.2 Positive and negative absolutes

(22) x *is* φ
(23) $\varphi(x,e) = 1$ iff $\Phi(x) \supseteq e$, Φ is a function from individuals to extents on $\langle S, <_{\varphi} \rangle$.

(24) *The Brothers Karamazov* is long.
(25) $long(BK, e_{s(long)})$

(24) is true iff the extent of *The Brothers K.*'s longness includes a contextually determined standard of longness (for books).

(26) LENGTH: o ——— *BK* ———→ ∞
o ——— LONG(*BK*) ———•
o ——— $e_{s(long)}$ ———•

(27) *The Dream of a Ridiculous Man* is short.
(28) *short*(*Dream*,$e_{s(short)}$)

(27) is true iff the extent of *The Dream of a Ridiculous Man*'s shortness includes a contextually determined standard of shortness.

(29) LENGTH: o ——— *Drm* ———→ ∞
•——— SHORT(*Drm*) ———→ ∞
•———$e_{s(short)}$———→ ∞

2.3 Positive and negative comparatives

Comparatives and equatives restrict the possible value of the extent variable introduced by a gradable predicate (cf. Heim 1985).

(30) *x is more φ than* e_y
(31) [*more than* e_y]$_x$[*φ*(*x*,e_x)] = 1 iff for some extent *e* such that *e* ⊃ e_y, *φ*(*x*,*e*).

(32) *x is as φ as* e_y
(33) [*as much as* e_y]$_x$[*φ*(*x*,e_x)] = 1 iff for some extent *e* such that *e* ⊇ e_y, *φ*(*x*,*e*).

(34) *The Brothers Karamazov* is longer than *The Dream of a Ridiculous Man*.
(35) [*more than* 1*e.long*(*Dream*,*e*)]$_x$[*long*(*BK*,e_x)]

(34) is true iff there is an extent *e* which properly includes the (maximal) extent of *The Dream of a Ridiculous Man*'s longness, and *The Brothers K* is at least *e*-long.

(36) LENGTH: o ——— *Drm* ——— *BK* ———→ ∞
o ——— LONG(*BK*) ———•
o —LONG(*Drm*)—•

(37) *The Dream of a Ridiculous Man* is shorter than *The Brothers Karamazov*.
(38) [*more than* 1*e.short*(*BK*,*e*)]$_x$[*short*(*Dream*,e_x)]

(37) is true iff there is an extent *e* which properly includes the extent of *The Brothers K*'s shortness, and *The Dream of a Ridiculous Man* is *e*-short.

(39) LENGTH: o ——— *Drm* ——— *BK* ———→ ∞
•——— SHORT(*BK*)———→ ∞
•——— SHORT(*Drm*)———→ ∞

2.4 Cross-polar anomaly is sortal anomaly

(40) #*The Brothers Karamazov* is longer than *The Dream of a Ridiculous Man* is short.
(41) [*more than* 1*e.short*(*Dream*,*e*)]$_x$[*long*(*BK*,e_x)]

Only a negative extent properly includes a negative extent, therefore the only extents which satisfy the restriction on the comparative are negative, and the extent argument of *long* is constrained to be a negative extent, generating a sortal anomaly.

(42) *cannot* be interpreted as in (43):

(42) Secretary Reich is as short as Senator Bradley is tall.
(43) [*as much as* 1*e.tall*(*bradley*,*e*)]$_x$[*short*(*reich*,e_x)] (=> *height*(*r*) ⊇ *height*(*b*))

Only a positive extent properly includes a positive extent, therefore the only extents which satisfy the restriction on the equative are positive, triggering a sortal anomaly.

How does the comparison of deviation interpretation arise?

3 Differential extents and comparison of deviation

3.1 Differential comparatives

The measure phrases in (44-47) denote *differential extents* which indicate the difference between the compared extents.

(44) *The Brothers K* is *741 pages* longer than *The Dream of a Ridiculous Man*.
(45) Alex is *6 inches* slimmer today than he was just two months ago.
(46) Kim was driving *20 mph* slower than the speed limit.
(47) Bob is about *2 feet* shorter than Bill.

Revised semantics for differential comparatives (cf. Hellan 1981, von Stechow 1984a)

(48) *x is* e_d *more j than* e_y
(49) [e_d *more than* e_y]$_x$[*φ*(*x*,e_x)] = 1 for some extent *e* s.t. *e* ⊇ e_y•e_d, *φ*(*x*,*e*).

(44) *The Brothers K* is *741 pages* longer than *The Dream of a Ridiculous Man*.
(50) [*741 pages more than* 1*e.long*(*Drm*,*e*)]$_x$[*long*(*BK*,e_x)]

(44) is true iff there is an extent *e* which includes the concatenation of the extent of *The Dream*'s longness with the extent denoted by *741 pages*, and *The Brothers K* is at least *e*-long.

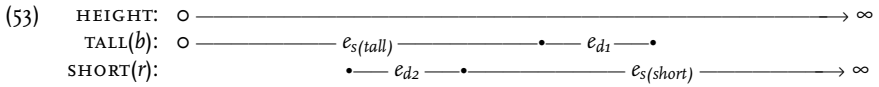
(51) LENGTH: o ——— *Drm* ——— *BK* ———→ ∞
o ——— LONG(*BK*) ———•
o —LONG(*Drm*)—• ——— 741 PAGES ———•

3.2 The interpretation of comparison of deviation

Comparison of deviation involves comparison of differential extents concatenated with a standard-denoting extent.

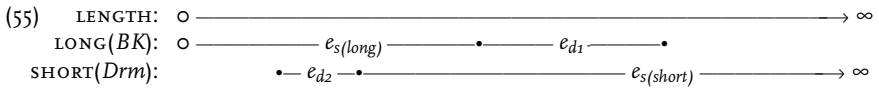
(1) Secretary Reich is as short as Senator Bradley is tall.
(52) [*as much as* 1*e.tall*(*bradley*, *e*•$e_{s(tall)}$)]$_x$[*short*(*reich*,e_x•$e_{s(short)}$)]

(1) is true just in case there is an extent *e* which is at least as great as the extent to which Bradley exceeds a standard of tallness, and Reich exceeds a standard of shortness by *e*.

(53)


(4) *The Brothers Karamazov* is more long than *The Dream of a Ridiculous Man* is short.
(54) [*more than* 1*e.short*(*Dream*, $e \bullet e_{s(short)}$)]$_x$[*long*(*BK*,$e_x \bullet e_{s(long)}$)]

(4) is true just in case there is an extent *e* which properly includes the extent to which *The Dream of a Ridiculous Man* exceeds a standard of shortness, and *The Brothers Karamazov* exceeds a standard of longness by *e*.

(55)


3.3 The mechanics of differential comparison

In order to evaluate the truth of sentences like (1-6), e_{d1} and e_{d2} must be mapped onto a scale on which they share an endpoint. This type of mapping is independently required to evaluate typical examples of comparative subdeletion like (56-57).

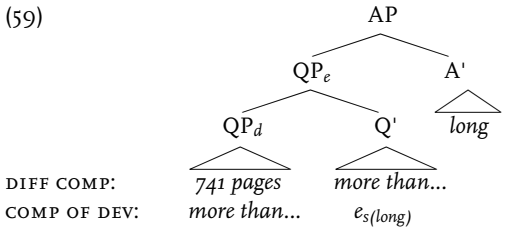
(56) Bob's feet are longer than Bill's feet are wide.
(57) Bill is more than twice as tall as his desk is high.

Condition: the original scales must be similar enough to permit this mapping.

(58) ??Jesse is more conservative than the Senate is old.

3.4 Syntax-semantics interface

Structure of AP (see e.g., Bresnan 1973, Hellan 1981, McCawley 1988):

(59)


3.5 Other instances of comparison of deviation

Comparison of deviation is not limited to polar opposites: (60) has both a "standard" interpretation (61a) and a comparison of deviation interpretation (61b).

(60) The Bay Bridge is as long as the Empire State Building is tall.

(61)a. The length of the Bay Bridge is at least as great as the height of the ESB.
(61)b. The extent to which the Bay Bridge exceeds a standard of length is at least as great as the extent to which the ESB exceeds a standard of tallness.

(62) Kim and Carol were both early, but Kim was more early than Carol was.
(63) Shawn Bradley is more tall than Patrick Ewing is.

The "standard" may be provided by another comparative construction. For example, (64) asserts that the extent to which Dole is more conservative than Clinton is not as great as the extent to which Buchanan is more conservative than Clinton.

(64) Dole isn't as much more conservative than Clinton as Buchanan is.
(65) Buchanan has twice as many more NH supporters than Clinton as Dole.
(66) Maverick's is more too dangerous to surf today than it was yesterday.

4 Conclusions

4.1 Interpretation

The interpretive difference between comparison of deviation constructions and standard comparatives is a consequence of the fact that in the former, the comparative quantifies over a differential extent, rather than the actual extent argument of a gradable predicate.

4.2 Entailments

Because the differential extents are concatenated with a standard (in examples like (1-6)), the truth conditions for the absolute are satisfied whenever the truth conditions for the comparative are satisfied.

4.3 Lack of cross-polar anomaly

Differential extents are sortally the same, regardless of whether they are concatenated with a positive or negative extent, and so do not trigger cross-polar (sortal) anomaly.

CASE 1: $e = e_{pos} \bullet e_d$
CASE 2: $e = e_{neg} \bullet e_d$

In CASE 1, e_d must be a bounded extent (i.e., a proper subset of S - e_{pos}), since the complex extent must (by definition) be a proper subset of S. In CASE 2, e_d must again must be bounded in order to ensure that e is a proper extent.

(67) *The Brothers K* is 741 pages longer than *The Dream of a Ridiculous Man*.
(68) *The Dream of a Ridiculous Man* is 741 pages shorter than *The Brothers K*.

Cf.: *The Dream of a Ridiculous Man* is 21 pages long/#short.

Appendix

A1 Comparison of deviation is not metalinguistic comparison

Metalinguistic comparison compares the relative appropriateness of use of two expressions (see McCawley 1988:673, Klein 1991:686; cf. Horn 1989).

(69) Bob is more vertically challenged than short.
(70) His attitude was more "let's get wasted" than "let's have some drinks".
(71) Kim is more reevaluating some priorities than having a mid-life crisis.

Sentential negation

Comparison of deviation allows propositional negation; metalinguistic comparison forces a metalinguistic interpretation of negation:

(72) Secretary Reich isn't as short as Senator Bradley is tall.
(73) A St. Bernard is not more large than a pug is small.

(74) ??Bob isn't more vertically challenged than short.
(75) ??Kim isn't more reevaluating some priorities than having a mid-life crisis.

Negation in the than-clause

Comparison of deviation does not allow negation in the *than*-clause; metalinguistic comparison does:

(76) *Francis is as reticent as Hilary has never been long-winded.
(77) Francis is more inclined to avoid complicated situations than never willing to face his problems.

Negative polarity items

Like standard comparatives, comparison of deviation constructions license negative polarity items in the *than*-clause, but metalinguistic comparison does not:

(78) It's more difficult to surf at Maverick's than it is easy to surf at *any* of these places.
(79) Alex is as slim now as he *ever* was obese before.

(80) *His attitude was more "let's get wasted" than "let's have *any* drinks".
(81) *Sam is more someone I could tolerate than someone I *could stand*.

A2 Definitions

Scales and extents

(82) A *scale* $\langle S,<_\delta\rangle$ is a dense, linearly ordered set of points along a dimension δ.
(83) An *extent* on $\langle S,<_\delta\rangle$ is a nonempty, convex subset of S (i.e., a subset of S with the following property: $\forall p_1,p_2\in E\forall p_3\in S[p_1<p_3<p_2 \rightarrow p_3\in E]$; cf. Landman 1991:110).
(84) A *proper extent* on $\langle S,<_\delta\rangle$ is a nonempty, convex proper subset of S.

Positive and negative extents

Assume a function *deg* from individuals to points on a scale. For any a which can be ordered with respect to a dimension δ:

(85) $\text{POS}_\delta(a) = \{p \in \langle S,<_\delta\rangle \mid p \leq deg(a)\}$
(86) $\text{NEG}_\delta(a) = \{p \in \langle S,<_\delta\rangle \mid deg(a) \leq p\}$

Extent concatenation

Let E be the total set of extents on a scale $\langle S,<_\delta\rangle$.

(87) $\forall e_1,e_2,e_3 \in E$: $e_1 = e_2 \bullet e_3$ iff $[e_1 = e_2 \cup e_3]$ & $[e_2 \cap e_3 = \emptyset]$

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