

A note on *for*-phrases and derived scales*

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1 Introduction

- Gradable adjectives can be accompanied by a *for*-phrase.

(1) Mia is tall [**for a 3-year old**].

- Kennedy (2007) takes a gradable adjective to denote a measure function and a *for*-phrase set to restrict its domain; Bale (2008) takes a gradable adjective to determine a preorder of individuals and a *for*-phrase set to restrict its field.

- Under both proposals, the existence of “non-local” *for*-phrases as in (2) is unexpected.

(2) Mia has an expensive hat [**for a 3-year old**].

- I will spell out a variant of Kennedy’s (2007) account under which *for*-phrases track the scope of a scopally mobile POS operator.
- The puzzle is that this account does not properly handle *for*-phrases in comparatives, successfully analyzed in Bale (2008).

(3) Mia is taller [**for a 3-year old**] than Sam is [**for a 9-year old**].

2 Background on *for*-phrases and previous analyses

2.1 Adjectives and *for*-phrases

- Gradable adjectives determine scales, where “scale” is understood here informally as any way of ordering a set of individuals along some dimension, e.g. height or

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price.¹

- For-phrases describe sets of individuals. Call the sets in question *for-phrase sets*. Ordinarily (but see below), the for-phrase set is the denotation of the NP heading the complement of *for*.
- For-phrases help fix standards of comparison. The for phrase set functions as a comparison class; the standard in question is a function of the scale and this comparison class: (1) conveys that Mia exceeds the standard height of *girls*, not that of individuals in general.
- For-phrases trigger presuppositions. In many cases (but see below) they trigger the presupposition that the adjective's subject argument belongs to the for-phrase set: (1) is judged to presuppose that Mia is a 3-year old.²

2.2 Two recent proposals

- Kennedy (2007) and Bale (2008) posit logical forms like (4): the for-phrase combines with the gradable adjective, and the resulting phrase combines with a silent operator POS.

(4) (Mia is) POS [tall [**for a 3-year old**]]

- In Kennedy (2007), gradable adjectives are taken to denote **measure functions**, as in (5a), and for-phrases are taken to restrict their domains, as in (5b).

- (5) a. *tall*: $[\lambda x. H(x)]$
 b. *tall* [**for a 3-year old**]: $[\lambda x: \mathbf{3}(x). H(x)]$
 c. *POS* [*tall* [**for a 3-year old**]]: $[\lambda x: \mathbf{3}(x): x \text{ is } \dots]$

- In Bale (2008), adjectives are associated with **preorders** (reflexive and transitive relations), as in (6a), and for-phrases restrict their field, as in (6b).

- (6) a. *tall*: $\{\langle x, y \rangle: H(x) \geq H(y)\}$
 b. *tall* [**for a 3-year old**]: $\{\langle x, y \rangle: \mathbf{3}(x) \ \& \ \mathbf{3}(y) \ \& \ H(x) \geq H(y)\}$
 c. *POS* [*tall* [**for a 3-year old**]]: $[\lambda x: \mathbf{3}(x): x \text{ is } \dots]$

¹ In the absence of a gradable predicate, for-phrases are unacceptable, as illustrated by **Mia is from Texas* [**for a girl**].

² Bale (2008, to appear) shows that this implication has the typical projection behavior of a presupposition.

- (7) According to both of these particular proposals:
- i. for-phrases “locally” modify scales lexically given by an adjective meaning (as only adjectives express scales)
 - ii. a scale modified by a for-phrase only orders the elements of the for-phrase set
 - iii. $\| \text{POS } [\alpha \text{ [for } \beta]] \|$ is a property of individuals only defined for elements of $\| \text{for } \beta \|$

3 Non-local for-phrases

- Example (2) suggests that the scale a for-phrase composes with need not be given “locally” by the adjective itself.

(2) Mia has an expensive hat **[for a 3-year old]**.

- This sentence does not make reference to the price of 3-year olds, but rather to the price of their hats; it seems that here the scale modified does not rank individuals in terms of their price, but in terms of the price of their hats.

4 Explaining non-locality away?

4.1 Mediation

- Kennedy’s (2007, fn. 11) observation that a case like (8a) can be read as (8b) raises the possibility that the non-locality described above is only apparent.³

- (8) a. This story is sophisticated **[for a 3-year old]**.
 b. This story is sophisticated **[for a 3-year old’s story]**.

- So the for-phrase set can be “mediated” by the overt complement of *for* in the sense of not being identical to its denotation, but being a mere function of it.

(9) $\{x: x \text{ is a 3-year old}\} \Rightarrow_{\text{mediation}} \{y: y \text{ is a story by a 3-year old}\}$

- Presumably, this mediation (9) can also be credited for the apparent non-locality in (10).

(10) Mia is telling a sophisticated story **[for a 3-year old]**.

- And from there it is just a small step to the proposal that the apparent non-locality in (2) is actually due to the mediation in (16).

³ Kennedy’s example is *This work is quite sophisticated for a first-year graduate student*, which is most naturally read as *This work is quite sophisticated for a first-year graduate student’s work*.

(11) $\{x: x \text{ is a 3-year old}\} \Rightarrow_{\text{mediation}} \{y: y \text{ is a hat of a 3-year old}\}$

- (2) may therefore share an analysis with seemingly equivalent (12), where after all the for-phrase locally modifies the adjective.

(12) Mia has a hat [that is expensive **[for a 3-year old's hat]**].

- If this is right, there is after all nothing unusual about the scale modified in (2), but only about the meaning of the for-phrase modifying it.

4.2 Mediation $\neq$ non-locality

4.2.1 Constraints

- Interestingly, no non-local interpretation is available for (13), where the gradable adjective occurs in a relative clause.

(13) # Mia has a hat that is expensive **[for a 3-year old]**.

- (13) has the unlikely interpretation that (2) is expected to have under the measure function and preorder analyses.⁴
- The acceptability of (14) suggests that the oddness of (13) cannot be credited to a syntactic constraint on mediation.

(14) Mia is telling a story that is sophisticated **[for a 3-year old]**.

- Instead, the contrast between (15) and (8a) points to a semantic constraint on mediation.

(15) # This hat is expensive **[for a 3-year old]**.

(8a) This story is sophisticated **[for a 3-year old]**.

- Apparently, while mediation can relate the set of 3-year olds to the set of their stories, it cannot (easily) relate the set of 3-year olds to the set of their hats.

(9) $\{x: x \text{ is a 3-year old}\} \Rightarrow_{\text{mediation}} \{y: y \text{ is a story by a 3-year old}\}$

(16) $\{x: x \text{ is a 3-year old}\} \not\Rightarrow_{\text{mediation}} \{y: y \text{ is a hat of a 3-year old}\}$

- Mediation may be limited to mapping a set of individuals to a set of entities *created* by these individuals.

⁴ Apart from referring to a standard price of 3-year olds, (13) implies that Mia has a hat that is a 3-year old.

4.2.2 Interpretation⁵

- Under the mediation account, sentence (17a) is interpreted just like (17b), where the for-phrases transparently modifies the scale given by the adjective.

- (17) a. Mia watches violent movies **[for a 3-year old]**.
 b. Mia watches movies [that are violent **[for movies a 3-year old watches]]**.

- However, (17b) does not in fact seem to be equivalent to (17a). (17a) presupposes that Mia is a 3-year old, but (17b) need not be read in that way.⁶

- (18) a. # Mia, a teenager, watches violent movies **[for a 3-year old]**.
 b. Mia, a teenager, watches movies [that are violent **[for movies a 3-year old watches]]**.

5 For-phrases and derived scales

- Non-local for-phrases can be given a straightforward account in a variant of Kennedy's (2007) proposal construing scales as functions of type d(et) (cf. Cresswell (1976); Stechow (1984); Heim (2001)).⁷

- (19) $\| tall \| = [\lambda d_d. \lambda x_e. H(x) \geq d]$

5.1 Letting for-phrases restrict scales

- In a straightforward adaptation of Kennedy's (2007) analysis, for-phrases restrict the domain of the functions in the range of the scale.

- (20) $\| \alpha [for \beta] \| = [\lambda d_d. \lambda x_e: \| for \beta \| (x). \| \alpha \| (d)(x)]$

- (21) $\| tall [for a 3-year old] \| = [\lambda d_d. \lambda x_e: x \text{ is a 3-year old. } H(x) \geq d]$

5.2 The POS operator

- Under this construal of scales and for-phrases, POS can be taken to map a scale to a property of individuals. This property refers to a standard degree on the scale in question.

⁵ See Howard (2008) for a very similar point regarding superlatives of-phrases, as in *Of the students, he is the tallest*.

⁶ To be sure, (17b) is not expected to carry such a presupposition, as the for-phrase sits too far below the matrix subject to trigger it.

⁷ Thanks to Chris Kennedy (p.c.) for helping me think about this variant. Kennedy (2007, fn. 2) already points to a d(et) construal of scales as consistent with his view on for-phrases, although not in connection with non-local for-phrases.

$$(22) \quad \llbracket POS \rrbracket = [\lambda f_{d(et)}. \lambda x_e. \exists d[d > S(f) \ \& \ f(d)(x)]]$$

- (23) a. Mia [**POS** tall]
 b. $\exists d[d > S(\llbracket tall \rrbracket) \ \& \ H(Mia) \geq d]$ iff
 $H(Mia) > S(\llbracket tall \rrbracket)$

- A standard degree $S(f)$ will be an element of $\{d: \exists x[f(x)(d)]\}$ ranked "high" by the relation $\geq$.⁸

- (24) a. Mia [**POS** [tall [**for a 3-year old**]]]
 b. $\exists d[d > S(\llbracket tall \llbracket for a 3-year old \rrbracket \rrbracket) \ \& \ H(Mia) \geq d]$ iff
 $H(Mia) > S(\llbracket tall \llbracket for a 3-year old \rrbracket \rrbracket)$

5.3 Scoping POS

- (2) Mia has an expensive hat [**for a 3-year old**].

- Scoping POS to a position right below the subject, derives a scale that orders individuals according to the price of their hats.⁹

$$(25) \quad \text{Mia } \mathbf{POS} [\lambda d[\text{has a } [d \text{ expensive}] \text{ hat}] [\mathbf{for a 3-year old}]] .$$

- This scale can be modified by the for-phrase as before, restricting the functions in its range.

$$(26) \quad \llbracket \lambda d[\text{has a } [d \text{ expensive}] \text{ hat}] [\mathbf{for a 3-year old}] \rrbracket =$$

$$[\lambda d_d. \lambda x_e: \mathbf{x \text{ is a 3-year old.}} \exists y[y \text{ is a hat } x \text{ has} \ \& \ P(y) \geq d]]$$

- As intended, POS will introduce reference to a standard degree in a scale ordering 3-year olds according to how expensive a hat they have.

$$(27) \quad \exists d[d > S(\llbracket \lambda d[\text{has a } [d \text{ exp.}] \text{ hat}] [\mathbf{for a 3-year old}] \rrbracket) \ \& \ H(Mia) \geq d] \text{ iff}$$

$$H(Mia) > S(\llbracket \lambda d[\text{has a } [d \text{ expensive}] \text{ hat}] [\mathbf{for a 3-year old}] \rrbracket)$$

⁸ See Kennedy (2007) for detailed discussion of the nature of standard degrees.

⁹ The account proposed is based in the by now standard assumption (Heim & Kratzer (1998)) that at the level of logical form, movement introduces lambda abstraction in the scope of the moved expression. However, while ordinarily the lambda is taken to prefix to the sister of the moved expression's landing site, the abstraction over degrees in (25) appears more deeply embedded, below the for-phrase. See e.g. Nissenbaum (2000), Barker (2007) and Nissenbaum & Schwarz (2010) for relevant discussion.

5.4 Presuppositionality (cf. Section 4.2.2)

- Recall that, descriptively speaking, for-phrases trigger presuppositions. The presuppositions in question can be derived by imposing a natural condition in the individual argument of POS.

$$(28) \quad \|POS\| = [\lambda f_{d(et)}. \lambda x_e: \exists d[f(d)(x)]. \exists d[d > S(f) \ \& \ f(d)(x)]]$$

- This makes POS require that its individual arguments be “on” the scale denoted by its scope, i.e. to be related to some or other degree by that scale.
- This correctly predicts both (1) and (2) to presuppose that Mia is a 3-year old and accounts for the unacceptability of (18a).

5.5 Locality (cf. Section 4.2.1)

- Recall that (13) does not share the non-local interpretation of (2).

(13) # Mia has a hat that is expensive [**for a 3-year old**].

- This is expected under the current account since the relative clause is expected to be an island for the scope of POS.

(29) * Mia **POS** [λd [has a hat [that is [d expensive]]] [**for a 3-year old**]].

5.6 Intensional contexts¹⁰

(30) Mia: “Buy me a hat that costs more than \$5!”

(31) Mia wants an expensive hat [**for a 3-year old**].

- Sentence (31) presupposes that Mia is a 3-year old and refers to a standard degree on a scale ordering 3-year old according to how expensive a hat they want. This interpretation can be credited to a logical form where POS lands right below the matrix subject.

(32) Mia **POS** λd [want [PRO HAVE a [d expensive] hat]] [**for a 3-year old**]].

(33) John wants me to talk loud [**for a vocal coach**].

- Sentence (35) is ambiguous. It can be read as presupposing that John the speaker is a vocal coach or that John is a vocal coach. This is expected, as POS is expected to have two possible scope positions.

(34) John want [me **POS** [λd [talk [d loud]]] [**for a vocal coach**]].

(35) John **POS** [λd [want [me talk [d loud]]]] [**for a vocal coach**]].

¹⁰ See Heim (1999, 2001) for parallel data and analysis involving superlatives. See also and Sharvit & Stateva (2002).

6 The puzzle of for-phrases and indirect comparison

- For-phrases can co-occur with comparative morphology (Bale (2008, to appear)).

(3) Mia is taller [**for a 3-year old**] than Sam is [**for a 9-year old**].

- This is expected in the present account, where for-phrases act as modifiers.

(36) $-er$ [than λd [Sam d [tall [**for a 9-year old**]]]]
 λd [Mia d [tall [**for a 3-year old**]]]

(37) $\| -er \| = [\lambda f_{dt}. [\lambda g_{dt}. \exists d[g(d) \ \& \ \neg f(d)]]]$

- (3) presupposes that Mia and Sam are a 3-year old and a 9-year old, respectively. This can be derived by adding suitable definedness conditions in the denotation of comparative *-er*.

(38) $\| -er \| = [\lambda f_{dt}: \exists d[f(d)]. [\lambda g_{dt}: \exists d[g(d)]. \exists d[g(d) \ \& \ \neg f(d)]]]$

- Bale (to appear) observes, however, that this kind of account incorrectly predicts that adding for-phrases to comparatives results in a strengthening.¹¹ However, (3), an “indirect” comparative in Bale’s terminology, is clearly judged not to entail (39).

(39) Mia is taller than Sam is.

- Bale (2008, to appear) shows how the preorder account sketched in Section 2.2 can derive the correct semantic relation between cases like (39) and (3).
- However, as reported in Section 2.2, Bale does not consider the need for non-lexical, derived, scales. It doubtful, in fact, that there is a principled way of semantically composing derived scales if scales are construed as preorders.¹²
- Barring derived preorders, non-local for-phrases are beyond the scope of Bale’s account. This includes indirect comparatives with non-local for-phrases, which are attested as well.

(40) Mia has a more expensive hat [**for a 3-year old**] than Sam does [**for a 9-year old**].

(41) Mia wants a more expensive hat [**for a 3-year old**] than Sam does [**for a 9-year old**].

¹¹ Bale is actually concerned with Kennedy’s (2007) measure function analysis, but the point is the same.

¹² Of course, I have not shown that this is impossible to do, but I certainly cannot think of any principled way to compose derived preorders.

7 Conclusions

- The existence of non-local for-phrases points to a variant of Kennedy's (2007) analysis where for-phrases track the scope of a scopally mobile POS operator and can restrict the derived scales movement of POS creates.
- Mediation and non-local for-phrases are independent phenomena.
- The analysis offered fails to explain the semantic impact of for-phrases in comparatives, where they yield so-called indirect interpretations; the analysis in Bale (2008, to appear) explains the semantic impact of for-phrases in comparatives, but may not be extendable to accommodate derived scales.

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