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"Degree constructions" with non-gradable nouns

Introduction. Morzycki (2009) demonstrates that there needs to be a semantic distinction drawn between gradable nouns (GNs) and non-gradable nouns (non-GNs). This is shown by the fact that (1) can have both a literal size reading and a degree reading (a fool to a high degree/extent; *fool* a GN), whereas (2) can only have a literal size reading (*father* a non-GN):

(1) a. John is a bigger fool than Bill is b. $[[\textbf{fool}]]^{w,t} = \lambda w \lambda t \lambda x.\iota d[x \text{ is d-foolish in w at t}]$

(2) a. John is a bigger father than Bill is b. $[[\textbf{father}]]^{w,t} = \lambda w \lambda t \lambda x.x \text{ is a father in w at t}$

The puzzle. There are a variety of constructions which have traditionally been given a semantic analysis in terms of degrees but in which non-GNs can freely occur. This is unexpected on the assumption that denotations of non-GNs do not refer to degrees while those of GNs do (1b, 2b):

(3)	John is {more, less} of a father than Bill is	comparative deletion
	John is {more, less} of a father than Mary is a mother	comparative subdeletion
	John is as much of a father as Bill is	equatives
(4)	The iPhone is too much of a computer for me	*too*-constructions
	My old Mac is enough of a computer to type papers on	*enough*-constructions

Proposal. Building on Alrenga's work on similarity comparatives (*like, same, different*; 2005, 2007), I propose a semantics which does not operate on or compare degrees but rather cardinalities of sets of properties. *John is more of a father than Mary is a mother* will be true iff John is more like a father than Mary is like a mother i.e. iff John has more properties in common with most ideal fathers than Mary does with most ideal mothers, where these are computed from the maximally ideal world w.r.t the modal base and an ordering source (Kratzer 1981):

(5) [John more [Mary wh LIKE mother] LIKE father]
LF = [more [1 Mary t_1 LIKE mother] [2 John t_2 LIKE father]]

(6) $[[\textbf{father}]]^{w,t} = \lambda w \lambda t \lambda x.x \text{ is a father in w at t} = \textit{father}$
$[[\textbf{mother}]]^{w,t} = \lambda w \lambda t \lambda y.y \text{ is a mother in w at t} = \textit{mother}$
$[[\textbf{more}_{\textbf{prop}}]]^{w,t} = \lambda P_{<s<i<et>>t>} \lambda Q_{<s<i<et>>t>}.|Q| > |P|$
$[[\textbf{LIKE}]]^{w,t} = \lambda R_{<s<i<et>>>} \lambda S_{<s<i<et>>>} \lambda x.S(x) \& S \in \{T_{<s<i<et>>>}: \forall w' \in \text{Max}\mathcal{P}_R(W): \forall z[R(z)(w')][T(z)(w')]\}$

$\text{max}\mathcal{P}_R(W)$ = The maximal world from the modal base w.r.t the ordering source $\mathcal{P}$ (= the set of propositions of the form: *x is U and to @ at t, x is a good R*, for any arbitrary property U and where R is the non-GN of the clause.)

(7) $[[\textbf{more}_{\textbf{prop}}\ \textbf{1 Mary t}_1\ \textbf{LIKE mother 2 John t}_2\ \textbf{LIKE father}]]^{w,t;g}$
$= [[\textbf{more}_{\textbf{prop}}]]^{w,t;g}([[\textbf{1 Mary t}_1\ \textbf{LIKE mother}]]^{w,t;g})([[\textbf{2 John t}_2\ \textbf{LIKE father}]]^{w,t;g})$
= 1 iff
$|\{Q_{<s<i<et>>>} : Q(\text{John}) \ \& \ Q \in \{T_{<s<i<e,t>>>}: \forall w' \in \text{Max}\mathcal{P}_{father}(W): \forall z[\textit{father}(z)(w')][T(z)(w')]\}|$
$>$
$|\{P_{<s<i<et>>>} : P(\text{Mary}) \ \& \ P \in \{T_{<s<i<et>>>}: \forall w' \in \text{Max}\mathcal{P}_{mother}(W): \forall z[\textit{mother}(z)(w'')][T(z)(w'')]\}|$
= 1 iff in @ at t, John has more properties in common with the majority of ideal fathers from $\text{max}\mathcal{P}_{father}(W)$ than Mary has properties in common with the majority of ideal mothers from $\text{max}\mathcal{P}_{mother}(W)$.

Conclusion. The work here shows that, rather than forcing a degree-semantics on these seeming degree constructions with non-GNs, we can profitably analyze them with a property-semantics which yields further insights into the intricacies of comparison.

Selected references. Alrenga, P. (2005). Comparisons of similarity and difference. In *Proceedings of the Workshop on the Formal Analysis of Adjectives* • -------- (2007) Dimensions in the semantics of comparatives. PhD diss. UCSC • Kratzer, Angelika (1981). The notional category of modality. • Morzycki, M. (2009). Degree modification of gradable nouns: size adjectives and adnominal degree morphemes. *NLS* 17: 175-203.