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## Besides Exceptives

Introduction: Exceptive constructions have received a large amount of attention in the semantic literature (Hoeksema 1987, von Fintel 1994, Gajewski 2008, Hirsch 2016, etc). Exceptives, like the one in (1a), come with the following inferences (Horn 1989, von Fintel 1994): domain subtraction (every girl who is not Jane and Eva was there), containment (Jane and Eva are girls) and negative entailment (Jane and Eva did not come).
(1) a. Every girl except Jane and Eva was there.
b. Some girls besides Jane and Eva were there.

The superficially similar 'additive construction' in (1b), however, has received very little discussion or attention. This is despite the fact that it shares many features in common with exceptives. Such additives come with the following inferences: domain subtraction (some girls who are not Jane and Eva were there), containment (Jane and Eva are girls (as shown in (2a))), and positive entailment (Jane and Eva were there (as shown in (2b))).
(2) a. \# Some girls besides Mark were there.
b. Jane and Eva were not there. \# Some girls besides Jane and Eva were there.

In this talk, I provide a formal semantic analysis of this additive construction in (1b), which captures both its similarities and its differences from exceptives like (1a). This analysis will capture both the entailments noted above as well as the following distributional facts: (i) they can occur in questions (3a), (ii) with a focused associate (3b), (iii) with existentials (1b), and (iv) negative quantifiers (3c). In the latter environment, they are equivalent to exceptives (3d). However, they are not acceptable with universal quantifiers (3e).
(3) a. Which girls besides Jane and Eva were there?
b. Besides Jane and Eva, John talked about this with Mark
c. No girl besides Jane and Eva was there $=$ d. No girl except Jane and Eva was there.
e. *Every girl besides Jane and Eva was there $\neq \mathrm{f}$. Every girl except Jane and Eva was there.

Questions: I will propose an analysis of besides for questions and will extend this proposal to other cases. The question in 3 a is about the girls who are not Jane or Eva and it comes with an inference that those two are girls who were there. I propose the following structure for a question with an additive. Besides $D P$ undergoes QR from its surface position and leaves a trace $\left(\mathrm{P}_{1}\right)$ of type $<\mathrm{et}>$.
(4) $\quad\left[3\left[\right.\right.$ AddP $\left[\right.$ besides $\left.\mathrm{w}_{3}\right][$ Jane \&Eva $\left.]\right]\left[\right.$ IP $1\left[\left[\right.\right.$ which girls $\left.\mathrm{w}_{3} \mathrm{P}_{1}\right]\left[72 \mathrm{t}_{7}\right.$ were there $\left.\left.\left.\left.\left.\mathrm{w}_{2}\right]\right]\right]\right]\right]$

I will assume that a question denotes a set of propositions (following Hamblin 1973, Karttunen 1977). Following Beck\&Rullmann (1999), I will not adopt Karttunen's assumption that this set only includes true propositions. The denotation for the sister of the additive phrase is given in (5).

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\begin{equation*}
[[I P]]^{\mathrm{wg}}=\lambda \mathrm{Y}_{<\mathrm{et}\rangle} . \lambda \mathrm{q}_{<\mathrm{st}\rangle} . \exists \mathrm{x}\left[\mathrm{x} \text { is a } \operatorname{girl} \text { in } \mathrm{w}_{3} \& \mathrm{x} \in \mathrm{Y} \& \mathrm{q}=(\lambda \mathrm{w} . \mathrm{x} \text { was there in } \mathrm{w})\right] \tag{5}
\end{equation*}
$$

Following von Fintel's work on exceptives (1994), I express the meaning of besides in terms of domain subtraction and quantification over sets. Besides subtracts a set introduced by its sister DP from the domain of a quantificational expression and contributes what I will call the additivity condition. The denotation of besides is shown in (6). It combines with a world variable, its sister DP (denoting a set), the sister of the AddP (5) and outputs a set of propositions. Note that the domain of [[besides]] is restricted to arguments satisfying the 'additivity condition,' $\forall \mathrm{Y}[\mathrm{Y} \cap \mathrm{X} \neq \varnothing \rightarrow \exists \mathrm{q}[\mathrm{q} \in \mathrm{Q}(\mathrm{Y}) \& \mathrm{q}(\mathrm{w})=1]$. Thus, this condition is modeled as a presupposition; the remaining at issue content subtracts the set denoted by its sister from the domain of the question.
(6) $\quad[[\text { besides }]]^{\mathrm{g}}=\lambda \mathrm{w} . \lambda \mathrm{X}_{<\mathrm{et}\rangle} . \lambda \mathrm{Q}_{\ll \mathrm{et}>\ll \mathrm{st} \gg} . \lambda \mathrm{p}_{<\mathrm{st}\rangle}: \forall \mathrm{Y}[\mathrm{Y} \cap \mathrm{X} \neq \varnothing \rightarrow \exists \mathrm{q}[\mathrm{q} \in \mathrm{Q}(\mathrm{Y}) \& \mathrm{q}(\mathrm{w})=1] \cdot \mathrm{p} \in \mathrm{Q}(\overline{\mathrm{X}})$ The resulting interpretation for the entire sentence is shown in (7).
(7) Presupposition (Additivty Condition): $\forall Y[Y \cap\{J a n e, ~ E v a\} \neq \varnothing \rightarrow \exists q[q \in\{p: \exists x[x$ is a girl in $\mathrm{w}_{0} \& \mathrm{x} \in \mathrm{Y} \& \mathrm{p}=(\lambda \mathrm{w} \cdot \mathrm{x}$ was there in w$\left.\left.)\right\} \& \mathrm{q}\left(\mathrm{w}_{0}\right)=1\right]$
At issue content: $\lambda p_{<\mathrm{st}\rangle} . \exists \mathrm{x}\left[\mathrm{x}\right.$ is a girl in $\mathrm{w}_{0} \& \mathrm{x} \notin\{$ Jane, Eva $\} \& \mathrm{p}=(\lambda \mathrm{w} . \mathrm{x}$ was there in w$\left.)\right]$
The presupposition in (7) guarantees that Jane and Eva are girls who were there. This is because the singleton sets $\{$ Jane $\}$ and $\{E v a\}$ satisfy the antecedent of the conditional in (7). Thus, (8) and (9) have
to be true. (8) says that there is a true proposition of the form ' x came' where x is a girl and x is Jane. (9) does the same for Eva.
(8) $\exists \mathrm{q}\left[\mathrm{q} \in\left\{\mathrm{p}: \exists \mathrm{x}\left[\mathrm{x}\right.\right.\right.$ is a girl in $\mathrm{w}_{0} \& \mathrm{x} \in\{$ Jane $\} \& \mathrm{p}=(\lambda \mathrm{w} . \mathrm{x}$ was there in w$\left.\left.)\right\} \& \mathrm{q}\left(\mathrm{w}_{0}\right)=1\right]$
(9) $\exists q\left[q \in\left\{p: \exists x\left[x\right.\right.\right.$ is a girl in $w_{0} \& x \in\{E v a\} \& p=(\lambda w . x$ was there in $\left.\left.w)\right\} \& q\left(w_{0}\right)=1\right]$

The at-issue content is the set of propositions of the form ' $x$ was there' where $x$ varies over girls who are not Jane or Eva. This is the desired denotation for this question.
Existential QPs: The semantics proposed above for questions like (3a) can be extended to existentials (1b) by use of the IDENT and IOTA-shifters of Partee (1986). The assumed LF is shown in (10).

This LF, however, creates a type clash between the additive phrase and its sister. The additive phrase needs an argument of type $\ll \mathrm{et}><$ st, $\mathrm{t} \gg$, while its sister has type $\ll \mathrm{et}>,<$ st $\gg$. I propose that this clash is resolved by use of IDENT, which shifts the denotation of the sentential subconstituent IP2 from the proposition $\left[\lambda w\right.$. $\exists x\left[x\right.$ is a girl in $w \& x \in g\left(P_{1}\right) \& x$ was there in $\left.w\right]$ to the set of propositions $\left[\lambda p . p=\lambda w\right.$. $\exists x\left[x\right.$ is a girl in $w \& x \in g\left(P_{1}\right) \& x$ was there in $\left.\left.w\right]\right]$. Our semantics in (6) thus predicts that the node IP4 of the tree in (10) will have the interpretation in (11) below.
(11) a. Presupposition (Additivty Condition): $\forall \mathrm{Y}[\mathrm{Y} \cap\{$ Jane, Eva $\} \neq \varnothing \rightarrow \exists \mathrm{q}[\mathrm{q} \in\{\mathrm{p}: \mathrm{p}=\lambda \mathrm{w} . \exists \mathrm{x}[\mathrm{x}$ is a girl in $w \& x \in Y \& x$ was there in $\left.w]\} \& q\left(w_{3}\right)=1\right]$
b. At Issue Content: $\quad \lambda p . p=\lambda w$. $\exists \mathrm{x}[\mathrm{x}$ is a girl in $\mathrm{w} \& \mathrm{x} \notin\{$ Jane, Eva $\}$ \& x was there in w$]$

As the reader can confirm, the presupposition in (11a) again entails that Jane and Eva were girls (containment) who where there (positive entailment) (under the assumption that $\mathrm{w}_{3}$ will end up denoting the actual world). The at-issue meaning in (11b) is a singleton set of propositions. In order to convert this into a proposition, we can make use of Partee's (1986) iota-operator, which will deliver the unique proposition that is a member of (11b).
(12) ıp. $\mathrm{p}=\lambda \mathrm{w} . \exists \mathrm{x}[\mathrm{x}$ is a girl in $\mathrm{w} \& \mathrm{x} \notin\{$ Jane, Eva $\} \& \mathrm{x}$ was there in w$]$

In this way, our system predicts that (1b) entails that girls other than Jane and Eva were there.
No Well-formed Meaning with Universal Quantifiers: The proposed denotation for besides correctly predicts that it is not compatible with every/all. If some is substituted by all in (10) the overall predicted meaning for the sentence would be as follows.
a. Presupposition (Additivity Condition): $\forall \mathrm{Y}[\mathrm{Y} \cap\{$ Jane, Eva$\} \neq \varnothing \rightarrow \exists \mathrm{q}[\mathrm{q} \in\{\mathrm{p}$ : $\mathrm{p}=\lambda \mathrm{w} . \forall \mathrm{x}[\mathrm{x}$ is a $\operatorname{girl}$ in $\mathrm{w} \& \mathrm{x} \in \mathrm{Y} \rightarrow \mathrm{x}$ was there in w$\left.\} \& \mathrm{q}\left(\mathrm{w}_{0}\right)=1\right]$
b. At-issue content: $\forall x\left[x\right.$ is a girl in $w_{0} \& x \notin\{$ Jane, Eva $\} \rightarrow x$ was there in $\left.w_{0}\right]$

The presupposition entails that every girl in the world was there. This is because the universal set U is such that $U \cap\{$ Jane, Eva $\} \neq \varnothing$, and so (13a) would entail that (14) is true.

$$
\begin{equation*}
\forall \mathrm{x}\left[\mathrm{x} \text { is a girl in } \mathrm{w}_{0} \& \mathrm{x} \in \mathrm{U} \rightarrow \mathrm{x} \text { was there in } \mathrm{w}_{0}\right] \tag{14}
\end{equation*}
$$

However, the at issue content in (13b) is that every girl who is not Jane or Eva was there. Thus, in the predicted meaning for (3e), the presupposition is stronger than the asserted content. Consequently, such a meaning will be ruled out due to a general pragmatic constraint against it (Zucchi 1995).
Besides is Additive with Negative Quantifiers: Following much of the literature, I assume that a negative quantifier is underlyingly an existential in the scope of negation (Ladusaw 1992, Zeijlstra\& Penka 2005, Iatridou\&Sichel 2008 etc). Thus, the LF of (3c) is as in (16). I propose that this LF is well-formed due to the fact that the additive is modifying an existential below negation ((10)-(12)).
(16) $\quad\left[3\left[\mathrm{NEG}\left[\mathrm{w}_{3}\left[\left[\right.\right.\right.\right.\right.$ AddP besides $\mathrm{w}_{3}$ Jane \& Eva $]\left[1\left[4\left[\left[\right.\right.\right.\right.$ a girl $\left.\mathrm{w}_{4} \mathrm{P}_{1}\right]\left[\right.$ was there $\left.\left.\left.\left.\left.\left.\left.\left.\mathrm{w}_{4}\right]\right]\right]\right]\right]\right]\right]\right]$

Furthermore, since the 'containment' and 'positive entailment' of besides are part of its presuppositional content, we correctly predict that they will project past negation in (3c)/(16).
(17) a. Presupposition (Additivty Condition): $\forall \mathrm{Y}[\mathrm{Y} \cap\{J a n e, ~ E v a\} \neq \varnothing \rightarrow \exists q[q \in\{p: p=\lambda w \cdot \exists \mathrm{x}[\mathrm{x}$ is a girl in $\mathrm{w} \& \mathrm{x} \in \mathrm{Y} \& \mathrm{x}$ was there in $\left.\left.\left.\mathrm{w}^{\prime}\right]\right\} \& \mathrm{q}\left(\mathrm{w}_{0}\right)=1\right]$
b. At-Issue Content: $\neg \exists \mathrm{x}\left[\mathrm{x}\right.$ is a girl in $\mathrm{w}_{0} \& \mathrm{x} \notin\{$ Jane, Eva $\}$ \& x was there in $\left.\mathrm{w}_{0}\right]$

Focus: Finally, I will show how this approach straightforwardly extends to cases like (3b) under Rooth's (1992) theory of focus, where focus necessitates an implicit variable of question type.

