The semantics of additive *either*

Dorothy Ahn (Harvard University)

Additive *either*: Additive *either* is a Strong Negative Polarity Item (SNPI) that appears sentence-finally in English. It is typically described as requiring both the host – the clause containing *either* – and the antecedent – the clause preceding the host – to be syntactically negative (1a), but, as Levinson (2008) notes, the surface negativity requirement only applies to the host clause, and the antecedent only needs to entail a relevant negative proposition (1b). However, what counts as a relevant negative proposition is not clearly defined.

(1) a. John didn't leave. (i) Bill didn't leave either. (ii) *Bill left either.
b. I love Mary. I don't hate Sue either.

It is observed in this paper that additive *either* is also subject to a focus condition that the antecedent must entail a proposition in the focus value of the host:

(2) a. Bill/*John didn't smoke. Bill didn't drink$_F$ either.
(Focus value of host: {Bill didn't **smoke**, Bill didn't **eat**...})
b. John didn't smoke/*drink. Bill$_F$ didn't smoke either.
(Focus value of host: {**John** didn't smoke, **Sam** didn't smoke...})

This focus condition defines Levinson's "relevant proposition" as a proposition in the focus value of the host. Because the host must always be negative, Levinson's restriction on the antecedent is subsumed under this focus condition. Thus, it can be summarized that for additive *either* to be licensed, a) the host must be syntactically negative, and b) the antecedent must entail a focus alternative of the host.

Previous analysis: Rullmann (2003) suggests that *either* is a negative counterpart of *too*, which applied to ϕ asserts ϕ and presupposes that there is at least one contextually salient proposition ψ such that ψ is true. *Either* is similar to *too* that it adjoins under negation, but differs from *too* in that a) it presupposes that ψ is false, and that b) it has an additional licensing condition that restricts it to negative environments. Rullmann's intuition of deriving additive *either* from *too* is well-motivated because it captures the syntactic position of additive *either* which is similar to *too*, and dissimilar to that of the disjunctive *either* in *John wants either a cake or a cookie*. However, this account requires two ad hoc modifications: switching the sign in the presupposition of *either*, and stipulating an additional licensing condition to capture its negative polarity sensitivity. What there is a need for is a theory that follows up on Rullmann's intuition but minimizes stipulative modifications.

Too: Some well-known facts about the focus particle *too* are as follows: a) an anaphoric constraint requires there to be some salient antecedent information paralleling the host, ruling out (3) when uttered without context; b) this salient information does not need to be a discourse antecedent and can be contextual like (3b); and c) like other focus sensitive adverbials, the focus in the host constraints the quantificational domain.

(3) Gil$_F$ is having dinner in Princeton tonight too. (Kripke, 2009)
a. ? without context, even though it would be true that others are dining in Princeton
b. fine if looking at a broadcast showing people dining in Princeton

One way we can capture this is proposed in (4): *too*, like other focus particles such as *only*, has a focus associate in its c-commanding scope that constrains the quantificational domain. The assertion of *too* contains an anaphor q, which requires an antecedent, either given in discourse or present in the context. The presupposition of *too* specifies that this anaphoric antecedent must be found in D, which is the focus value of the host.

(4) $[\![\textbf{too}]\!]_q(\text{p}) = \lambda\text{w: } \exists\text{z}\in\text{D } [\text{z}=\text{q}\neq\text{p}].\ \text{q}_w \wedge \text{p}_w$

(5) John left. Bill_F left $\textbf{too}_q$.

When applied to the host in (5), it presupposes that there exists a salient focus alternative of *Bill*$_F$ *left*, of which q is an anaphor, and asserts that 'in addition to q, p=*Bill left* holds.' We show that this proposal also correctly predicts the meaning of a negative sentence in (6).

(6) Mary bought books, but Sue didn't buy them too. (cf. Soames, 2009)

a. $\neg[\![\textbf{too}]\!]_q(\text{p}=\text{S}_F \text{ bought books}) = \lambda\text{w:}\exists\text{z}\in\text{D}[\text{z}=\text{q}\neq\text{p}].\ \neg(\text{q}_w \wedge \text{p}_w)$
$= \neg\text{q}_w \vee\neg\text{p}_w = (\textit{that } q_w \text{ is already established, so}) \neg\text{p}_w = \underline{\neg(\text{Sue bought books})}$

Either: I propose that additive *either* is a fully parallel disjunctive counterpart of *too*, with its meaning identical to *too* except that it asserts a disjunction. This correctly predicts the meaning of the negative sentence (1a).i : in addition to ¬q, p=*B left* is also false.

(7) $[\![\textbf{either}]\!]_q(\text{p}) = \lambda\text{w: } \exists\text{z}\in\text{D } [\text{z}=\text{q}\neq\text{p}].\ \text{q}_w \vee \text{p}_w$

(8) $[\![\textbf{(1a).i}]\!] = \neg[\![\textbf{either}_q]\!](\text{p})$ (p = Bill left z = X left)

a. presupposes: z = q = X left
b. asserts: $\neg(\text{q}_w \vee \text{B left}_w) = \underline{\neg\text{q}_w\wedge \neg\text{B left}_w}$

In order to explain why *either* is restricted to negative environments and (1a).ii is ruled out, I argue that additive *either* activates the domain and scalar alternatives (9) which are independently necessary for an ordinary disjunction in explaining its Free Choice effect (Fox, 2006). NPIs are characterized as having obligatorily active alternatives (Chierchia, 2013). Following the exhaustification-based analysis (Krifka, 1995; Lahiri, 1998) of NPIs which reduces the NPI behavior to the process of exhaustification that affirms the prejacent and negates all non-entailed alternatives, the positive environment in (1a).ii is ruled out because the unentailed alternatives of disjunction in (10b) lead to a contradiction as in (10c):

(9) $\text{ALT}([\![\textbf{either}]\!]_q(\text{p})) = \{\text{p}_w, \text{q}_w, \text{p}_w\wedge\text{q}_w\}$

(10) $[\![\textbf{(1a).ii}]\!] = [\![\textbf{either}_q]\!](\text{p})$

a. (i) presupposes: z = q = X left (ii) asserts: $(\text{q}_w \vee \text{B left}_w)$
b. $\text{ALT} = \{\text{B left}_w, \text{q}_w, (\text{q}_w\wedge\text{B left}_w\}$ (none entailed by(10a))
c. $\text{B left}_w \vee \text{X left}_w \wedge \neg\text{B left}_w \wedge\neg\text{X left}_w \wedge \ldots = \perp$

On the other hand, adopting this analysis does not affect the negative case of (1a).i because all alternatives are entailed by the prejacent, leading to a vacuous exhaustification.

(11) $\text{ALT}((\text{1a}).\text{i}) = \{\neg\text{B left}_w, \neg\text{q}_w, \neg(\text{q}_w\wedge\text{B left}_w)\}$ (all entailed by (8b) and (8a))

Discussion: Analyzing additive *either* as a disjunctive counterpart of *too* with the assertion and the alternatives of an ordinary disjunction accounts for its clause-final position and the anaphoric requirement, while adopting the exhaustification theory explains how this fully parallel counterpart of *too* can come to have an NPI distribution.

References **Chierchia**, G. 2013. *Logic in Grammar: Polarity, free choice, and intervention.* **Fox**, D. 2006. Free choice and the theory of scalar implicatures. **Krifka**, M. 1995. The semantics and pragmatics of polarity items. *Linguistic Analysis*, 25. **Kripke**, S. 2009. Presupposition and Anaphora: Remarks on the formulation of the projection problem. *Linguistic Inquiry*, 40. **Lahiri**, U. 1998. Focus and Negative Polarity in Hindi. *NLS*, 6. **Levinson**, D. 2008. Licensing of Negative Polarity Particles Yet, Anymore, Either and Neither, PhD Thesis. **Rullmann**, H. 2003. Additive particles and polarity. *Journal of Semantics*, 20(4). **Soames** S. 2009. Kripke on presupposition and anaphora.