A new account for *too* and *either*
PLC 39 | Dorothy Ahn (Harvard University)

Introduction *Too* and additive *either* have similar meanings that can be paraphrased with *also* (Rullmann 2003) but often occur in complementary contexts, with *too* appearing in positive contexts and *either* being restricted to negative contexts as an NPI.

(1)   a.   (Bill left.) John left too.
      b.   (Bill didn't leave.) John didn't leave either.

This paper proposes a new account of *too* and additive *either*, where they are two-place predicates that assert a conjunction and a disjunction, respectively. Advantages of this proposal include accounting for the behavior of *too* in the antecedent of couterfactuals, explaining the NPI intervention of *too*, as well as providing a natural way to explain the NPI nature of additive *either*.

Previous accounts of *too* Previous accounts have analyzed *too* as a presuppositional trigger that does not affect the truth conditions of the sentence it adjoins to. For example, in Rullmann (2003), *too* applied to p – the host proposition – asserts p and presupposes that there is at least one contextually salient proposition q such that q is true. Kripke (2009) adds to the meaning of *too* a *non-identity* presupposition, which requires the salient alternative to be different from the host proposition, explaining the presupposition in (2a).

(2)   If John comes to the party, the boss will come to the party too.
      a.   John $\neq$ the boss

However, there are limitations to a presuppostional account which only requires a distinct salient antecedent, as Cohen (2009) notes. For example, *too* contributes a conjunctive meaning when in the antecedent of counterfactuals. In (3), Rooth (n.d.) notes that B's reply means that the weight limit would be violated if *both* John and Mary were in the elevator. If *too*'s presupposition is simply satisfied by the existence of a distinct salient antecedent, this conjunctive meaning cannot be captured.

(3)   A: Mary is in the elevator.
      B: If John were in the elevator too, the weight limit would be violated.

Proposal *Too*: The interpretations in (3) falls out naturally if *too* is analyzed as asserting a conjunction. We propose that *too* is a two-place predicate, such that when adjoining to a proposition P, it takes as an additional argument q, a silent propositional anaphor, and asserts a conjunction of q and P, as shown in (4). In (4), q_w stands for $[\![X]\!]^o(w)$ where X is the proposition the anaphor q stands for.

(4) $[\![too]\!](q)([\![P]\!]_{\sim C}) = \lambda w: q \in C - \{[\![P]\!]^o\}.\ q_w \wedge [\![P]\!]^o(w)$
      a. $[\![(1a)]\!] = [\![too]\!](q)([\![J\ left]\!]) = q \wedge J\ left$ ('In addition to q, J left.')

As a propositional anaphor, q requires an antecedent, whose form is presupposed to be a focus alternative of P. This anaphoricity explains the observation that (5) is infelicitous out of the blue even when it is known that many people dine in New York every night.

(5)   John$_F$ is having dinner in New York tonight too.   (Kripke 2009)

With the assertion of a conjunction, the antecedent in (3) is now [If $q \wedge P$] where P is *John is in the elevator* and q refers to the salient antecedent *Mary is in the elevator*, giving the desired conjunctive meaning.

Either: We also propose that additive *either* is a disjunctive counterpart of *too*, with its meaning identical to *too* except that it asserts a disjunction between q and P.

(6) $[\![\text{either}]\!](q)([\![P]\!]_{\sim C}) = \lambda w: q \in C - \{[\![P]\!]^o\}.\ q_w \vee [\![P]\!]^o(w)$

    a. $[\![(1b)]\!] = \neg[\![\text{either}]\!](q)(\text{J left}) = \neg(q \vee \text{J left})$ $(= [\neg q \wedge \neg[\text{J left}]])$
        ('In addition to $\neg q$, J didn't leave.')

Crucially, the switch from a conjunction to a disjunction can be used to explain why additive *either* is an NPI when *too* is not: cases of polarity sensitive disjunction, but not conjunction, have been attested (e.g. Amritivalli 2003), and existentials in general have been shown to take an NPI behavior more readily than universals (Chierchia 2013). This has an advantage over an account like Rullmann's (2003), which treats *either* as a negative counterpart of *too*, meaning that it presupposes that the distinct salient antecedent is false. This switch of the sign in the presupposition does not have any implications on the NPI nature of *either*, and thus requiring an additional licensing condition to account for the NPI distribution.

The NPI nature of additive *either* can be formally derived with the exhaustification-based analysis of NPIs (Krifka 1995, Lahiri 1998, Chierchia 2013) which reduces the NPI behavior to a process of exhaustification by a covert O operator that affirms the prejacent and negates all non-entailed alternatives. Because it asserts a disjunction, additive *either* is assumed to activate the same scalar and domain alternatives as a regular disjunction (7a).

(7)   a. $\text{ALT}(q \vee p) = \{q \vee p,\ q,\ p,\ q \wedge p\}$
     b. $\text{ALT}([\![\text{either}]\!](q)([\![p]\!])) = \{q_w \vee p_w,\ q_w,\ p_w,\ q_w \wedge p_w\}$

With this assumption, *either*'s restricted distribution is derived because in non-DE contexts like (8), none of the alternatives are entailed, and negating all of them leads to a contradiction. On the other hand, in DE contexts like (9), all alternatives are entailed by the prejacent, so exhaustification is vacuous and does not lead to a contradiction.

(8) O_{ALT} [John left **either**]

    a.   Asserts: $q_w \vee p_w$ $(p = [\![\text{John left}]\!])$
    b. O_{ALT} [p **either**] $= [q_w \vee p_w] \wedge \neg q_w \wedge \neg p_w \wedge \neg[q_w \wedge p_w] = \bot$

(9) O_{ALT} [John didn't leave **either**]

    a.   Asserts: $\neg[q_w \vee p_w]$ $(p = [\![\text{John left}]\!])$
    b.   Alt $= \{\neg[q_w \vee p_w],\ \neg q_w,\ \neg p_w,\ \neg[q_w \wedge p_w]\}$
    c. $O_{ALT} \neg$[p **either**] $= \neg[q_w \vee p_w] = \neg q_w \wedge \neg p_w$

Amritivalli, R. 2003. Question and negative polarity in the disjunction phrase. *Syntax*. **Chierchia**, G. 2013. *Logic in Grammar*. **Cohen**, S. 2009. On the semantics of Too and Only, UMass PhD Thesis. **Heim**, I. 1992. Presupposition Projection and the Semantics of Attitude Verbs, *Journal of Semantics 9*. **Kripke**, S. 2009. Presupposition and Anaphora. *LI*, 40. **Lahiri**, U. 1998. Focus and Negative Polarity in Hindi. *NLS*, 6. **Rooth**, M. n.d. Association with Focus or Association with Presupposition?, ms., University of Stuttgart. **Rullmann**, H. 2003. Additive particles and polarity. *Journal of Semantics 20*.