

We present two novel arguments for the A-not-A theory of comparatives. They are based on the behavior of *less*-comparatives with quantifiers and negative polarity items (NPIs) in the *than*-clause.

First puzzle. 1. Sentence (1a) is ambiguous: if there is a prescribed range of speeds at which you are required to drive (say, between 50km/h and 100km/h), the sentence can either convey that Lucinda drove below the minimal required speed (<min; 50km/h), or that below the maximal allowed speed (<max; 100km/h) (Seuren 1973). In contrast, sentence (1b), in which an NPI *anyone* occurs in the subject position of the *than*-clause, only has the <min reading (Rullmann 1997).

- (1) a. Lucinda drove less fast than you are allowed to. (*<min, <max*)
 b. Lucinda drove less fast than anyone is allowed to. (*<min, *<max*)

2. Several approaches to *less*-comparatives tackle such data (Rullmann 1997, Heim 2006a, Büring 2007, Beck 2012, i.a.). For reasons of space, we focus on Heim's and Rullmann/Büring's (RB's) proposals here and gloss over many details. Both proposals adopt an 'antonymizing' operator, LITTLE, as a key ingredient of *less*-comparatives, but they assign it different syntactic/semantic properties – in particular, Heim takes it to move at LF; RB take it to combine with either the comparative morpheme *-er* or the adjective.

3. While the ambiguity in (1a) is correctly predicted on both Heim's and RB's proposal, the lack of ambiguity in (1b) is correctly predicted only on RB's proposal. Namely, on RB's proposal, if an NPI occurs in the *than*-clause, LITTLE must combine with the adjective and thus scope below the modal in (1b); this yields the <min interpretation. On Heim's proposal, LITTLE may in addition scope above the modal; this yields the unobserved <max interpretation. (See Heim 2006a for a detailed discussion.)

4. However, not every occurrence of an NPI in the *than*-clause results in a disambiguation. For example, both sentences in (2) are ambiguous, even though the second one contains an NPI. Similarly, sentence (3) can convey that Sue drove slower than the maximal allowed speed common to all types of weather.

- (2) a. Lucinda drove her car less fast than you are allowed to drive a car that has been serviced.
 b. Lucinda drove her car less fast than you are allowed to drive a car that has ever been serviced.

- (3) As an overly cautious driver, Lucinda drove less fast in today's sunny weather than you are allowed to drive in any kind of weather. (*<min, <max*)

The predictions of the two theories for (2)-(3) are the opposite of their predictions for (1): while the ambiguities are correctly predicted by Heim (LITTLE can be interpreted below or above the modal), they are not predicted by RB (LITTLE can be interpreted below the modal only). We face a dilemma.

Second puzzle. 1. The sentences in (4) convey that every girl is taller than John, and that most girls are taller than John, respectively. (This parallels the observations for *more*-comparatives, e.g., Larson 1988.)

- (4) a. John is less tall than every girl is. b. John is less tall than most girls are.

2. On Heim's proposal, we obtain the correct interpretations for (4) from the representation in (5a). On RB's proposal, we obtain them from the representation in (5b). Other licit representations on the two proposals yield meanings that are too weak (e.g., that John is shorter than the tallest girl for (4a)).

- (5) a. [-er [wh λd [LITTLE_H d] λd' [every/most girls are d'-tall]] [λd [LITTLE_H d] λd' [J. is d'-tall]]] (Heim)
 b. [[-er LITTLE_{RB}] [wh λd [every/most girls are d-tall]] [λd [John is d-tall]]] (Rullmann/Büring)

3. Given that the quantificational subjects in (6) are interpreted as in (4), it is puzzling for both proposals that NPIs *ever* and *any* are licit in (6) (see Beck 2014 on the slight markedness of *every* in *than*-clauses).

- (6) a. Homebrew is far less stable than most homebrewers (myself included) could ever know.
 b. Our coach thinks less of his starters than every other coach thinks of any of his reserve players.

Specifically, on Heim's analysis, on which LITTLE must take scope above the quantifier to obtain the correct interpretation, (7a), we have a violation of the Immediate Scope Constraint (i.e., the NPI is not in the immediate scope of its licenser due to an intervening *every*-quantifier), and so the NPI should not be licit (Linebarger 1987, i.a.). On RB's analysis, on which *-er* must combine with LITTLE, (7b), the NPI is not in the scope of a DE operator ([-er LITTLE] is upward-entailing), and so it should not be licit either.

- (7) a. [-er [wh λd [LITTLE_H d] $\lambda d'$ [every other c. [... any]]] [λd [LITTLE_H d] $\lambda d'$ [our coach...]]] (Heim)
 b. [-er LITTLE_{RB}] [wh λd [every other coach [... any]]] [λd [our coach...]] (Rullmann/Büring)

Resolution. 1. Following Seuren (1973) and others, we assume that there are two components to the syntax/semantics of comparatives: (i) existential closure over degrees, which we encode into *-er*, (8a), and (ii) a (covert) negative element, (8b). In addition, we assume that adjectives in *less*-comparatives are arguments of a covert, syntactically immobile LITTLE operator, (8c) (cf. Rullmann 1997, Büring 2007).

- (8) a. [[-er]] = $\lambda D_{dt}.\lambda D'_{dt}.\exists d[D(d)\&D'(d)]$ b. [[NOT]] = $\lambda p_t.\neg p$ c. [[LITTLE]] = $\lambda R_{(d,et)}.\lambda d_d.\lambda x_e.\neg R(d)(x)$

2. Ambiguous sentence (1a) may have the two representations in (9)-(10), which differ in the scope of NOT and yield the two observed readings of the sentence: if NOT occurs below the modal, as in (9a), we obtain the <max reading, (9b) (NOT and LITTLE cancel each other out in the *than*-clause). If NOT occurs above the modal, as in (10a), we obtain the <min reading, (10b) ('NOT- \diamond -LITTLE' is equivalent to ' \square ').

- (9) a. [-er [λd [\diamond [NOT [you drive d-[LITTLE fast]]]]] [λd [Lucinda drive d-[LITTLE fast]]]]
 b. $\exists d[\neg \text{Lucinda drive d-fast} \& \diamond(\text{you drive d-fast})]$ (<max)

- (10) a. [-er [λd [NOT [\diamond [you drive d-[LITTLE fast]]]]] [λd [Lucinda drive d-[LITTLE fast]]]]
 b. $\exists d[\neg \text{Lucinda drive d-fast} \& \square(\text{you drive d-fast})]$ (<min)

3. If an NPI occurs in the *than*-clause, as in (1b), NOT must take scope above it (otherwise the NPI will not be in the scope of a DE operator, given that *-er* is not DE). In the case of (1b), where the NPI scopes above the modal, (11a), this means that NOT is also interpreted above the modal. This explains the disambiguation of (1b) to the <min reading ('NOT-ANY- \diamond -LITTLE' is equivalent to ' \forall - \square ').

- (11) a. [-er [wh λd [NOT [anyone] λx [\diamond [x drive d-[LITTLE fast]]]]] [λd [Lucinda drive d-[LITTLE fast]]]]
 b. $\exists d[\neg \text{Lucinda drive d-fast} \& \forall x[\text{person}(x) \rightarrow \square(x \text{ drive d-fast})]$ (<min)

4. However, if the NPI occurs below the modal, NOT may scope above it without also scoping above the modal. In this case, we may obtain both the <min and the <max readings. This explains why (2b)-(3) are ambiguous: the sentences can have two parses along the lines of (12). This resolves the first puzzle.

- (12) a. [-er [wh λd [NOT [\diamond [u drive [...ever] d-[LITTLE fast]]]]] [λd [L drove C d-[LITTLE fast]]]] (<min)
 b. [-er [wh λd [\diamond [NOT [u drive [...ever] d-[LITTLE fast]]]]] [λd [L drove C d-[LITTLE fast]]]] (<max)

5. The correct interpretation of *every* and *most* in *than*-clauses is obtained if NOT is interpreted in their scope (see, e.g., Gajewski 2008, Schwarzschild 2008). Thus, the sentences in (6) have representations like (13), where the NPI is in the immediate scope of a DE operator. This resolves the second puzzle.

- (13) [-er [wh λd [every other coach [λx [NOT [x ...any]]]]] [λd [our coach think d-[LITTLE much] of ...]]]

Issues and outlook. 1. The A-not-A theory, just like other theories of comparatives, faces problems with the interpretation of sentences in which DE/non-monotone differentials modify comparatives with quantified *than*-clauses (esp., Dotlačil & Nouwen 2015, Fleisher 2015). For example, the theory fails to generate the inference that every girl has the same height for *John is exactly 2cm taller than every girl is*.

2. The A-not-A theory, relatedly, admits unobserved readings for comparatives with quantificational subjects in the *than*-clause (which can be derived by NOT being interpreted above the quantificational subject) (see von Stechow 1984, Gajewski 2008, i.a.).

3. One possible path in dealing with these issues, which would leave our account above unaffected, is to replace NOT with an appropriate DE functor over degrees (or a group of functors that conspire to yield DE_{ness}, cf. Heim 2006b), specifically, a functor that would allow the degrees associated with the quantified-over individuals in the *than*-clause to be distributed over by the matrix degree predicate (cf. Fleisher 2015). Such a path would also allow us to subsume the observed patterns in the interpretation of quantified *than*-clauses under the Heim/Kennedy generalization (cf. Alrenga & Kennedy 2014).

References. Alrenga & Kennedy 2014, No more shall we we part. Beck 2012, Lucinda driving too fast again. Beck 2014, Plural predication and quantified *than*-clauses. Büring 2007, More or less. Dotlačil & Nouwen 2015, The comparative and degree pluralities. Fleisher 2015, Comparing theories of quantifiers in *than*-clauses. Heim 2006a, Little. Heim 2006b, Remarks on comparatives as generalized quantifiers.