

Rullmann Ambiguities as Plural Comparisons

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This paper reexamines a phenomenon in comparatives called Rullmann ambiguities. An empirical study is conducted that casts doubt on the standard perception of the phenomenon. Since these ambiguities have been used as arguments for both a decomposition analysis of less-comparatives and scope interaction in than-clauses, they have played an important role for the development of semantic theory in this domain. The study is based on judgements of consistency vs. contradictoriness of short texts that bring out exactly one of the purported readings of Rullmann sentences. It shows that the ambiguity is not perceived by many speakers, and that less-comparatives are no different from more-comparatives. This is incompatible with proposals in the literature. A novel analysis is argued for in which such data involve a comparison to a plurality of degrees.

The semantic literature on comparatives contains a lively discussion of data like (1), called Rullmann ambiguities (e.g. Rullmann (1995), Meier (2002), Heim (2007, 2008), Buring (2008)). (1) is said to be ambiguous between (1'a) and (1'b). Suppose that (1) is used in a context in which there is a speed limit of 50mph and a minimum speed of 30mph. Then (1) could either claim that Lucinda's speed was less than 50mph ((1'a)), or that it was less than 30mph((1'b)). Giving the *than*-clause in (1) a standard denotation as a predicate of degrees, as in (2), makes the two interpretations look as if there were a choice between making a comparison to the minimal degree or the maximal degree described by the *than*-clause.

- (1) Lucinda was driving less fast than was allowed.
(1') a. Lucinda was driving (legally) below the speed limit.
b. Lucinda was driving (illegally) below the minimum speed permitted.
(2) $[\lambda d. \text{Lucinda was allowed to drive } d\text{-fast}] = [30\text{mph}-50\text{mph}]$
(2') a. Lucinda was driving less fast than
 $\max([\lambda d. \text{Lucinda was allowed to drive } d\text{-fast}])$ max: 50mph
b. Lucinda was driving less fast than
 $\min([\lambda d. \text{Lucinda was allowed to drive } d\text{-fast}])$ min: 30mph

A choice between a minimum and a maximum degree is not per se plausible, because comparatives as a rule permit no such choice. Analyses of the two readings in (1'a) and (1'b) have accordingly been rather more abstract. Heim's (2007) influential analysis decomposes *less* into *little* and the comparative, (3). This makes possible two different structural analyses of the *than*-clause, (4). The two LFs differ in terms of where *little* takes scope. Skipping over the steps of a detailed semantic derivation Heim provides, the two interpretations in (5a) and (5b) are derived, which match the description of Rullmann's ambiguity.

- (3) a. *less* Adj = *-er* + *little* + Adj
b. degree predicate negation *little* (type $\langle d, \langle \langle d, t \rangle, t \rangle \rangle$): $[[\text{little}]] = \lambda d. \lambda P. P(d) = 0$
(4) a. L was driving -er little fast than $[1[\text{allowed } [t1 \text{ little}]] [2[\text{L drive } t2 \text{ fast}]]]$
b. L was driving -er little fast than $[1[[t1 \text{ little}]] [2[\text{allowed L drive } t2 \text{ fast}]]]$
(5) a. Lucinda was driving less fast than [she was allowed to drive slowly] =
Lucinda drove (illegally) below the minimum speed permitted
b. Lucinda was driving less fast than [she was not allowed to drive fast] =
Lucinda drove (legally) below the speed limit

This analysis sees the ambiguity in (1) as structural, in the sense that the ellipsis in the *than*-clause can receive two different resolutions. The ellipsis includes *little*=negation. The resolutions differ in terms of the scope that negation takes. The analysis has repercussions for our understanding of *little* and *less*. Moreover, it argues for scope interaction in *than*-clauses -

a topic that is controversial and has given rise to a host of proposals in the semantic literature (e.g. Heim (2006), Gajewski (2008), van Rooij (2008), Schwarzschild (2008), Beck (to appear), besides the papers cited above).

For all their importance, semantic analysis of Rullmann sentences faces the problem that the data are far from clear. In this paper, I present the results of an empirical study which investigates such sentences in German. They are placed in a context in which only one of the two potential readings - the max-interpretation and the min-interpretation - is consistent. Then a judgement of consistency vs. contradictoriness is elicited. Two factors are varied in the test data: whether the sentence with the comparative is a *more*-comparative or a *less*-comparative, and whether there is a *than*-clause or a plural degree DP. Judgements are elicited for a total of 40 test items. (6)-(8) provide English translations of some of the test items.

- (6) *than*-clause/DP combined with *more*, context to test availability of min-interpretation:
On this highway there is a speed limit of 50mph and a minimum speed of 30mph. Yesterday, Sarah had a box of glasses in her trunk and wanted to drive very carefully. But she drove faster than was allowed/than the permissible speeds. This way she could not get a ticket.
- (7) *than*-clause/DP combined with *more*, context to test availability of max-interpretation:
On this highway there is a speed limit of 50mph and a minimum speed of 30mph. Yesterday, Sarah was in a rush. She drove faster than was allowed/than the permissible speeds. That's why she got a speeding ticket.
- (8) *than*-clause/DP combined with *less*, context to test availability of max-interpretation:
On this highway there is a speed limit of 50mph and a minimum speed of 30mph. Yesterday, Sarah was in a rush. But she drove less fast than was allowed/than the permissible speeds. This way she could not get a ticket.

The core results of the study are (i) that the original Rullmann sentences (with *than*-clauses and *less*) are largely, but not completely, judged unambiguous. The min-interpretation is much more acceptable than the max-interpretation; and (ii) that the version with *more* instead of *less* is the mirror image: The max-interpretation is much more acceptable than the min-interpretation. Furthermore, there is almost no difference between *than*-clauses and plural degree DPs. We need to conclude that the presence of *less* is immaterial, and so is ellipsis. The paper develops a novel analysis which takes its starting point from the fact that the plural degree DP versions of the Rullmann sentences involve a comparison to a plurality - a plurality of degrees. It is straightforward to argue that this is shared by the *than*-clause versions of the data. This distinguishes Rullmann data from ordinary comparatives like (12), where a comparison is made to just one degree. Hence, plural predication is the source of the readings we observe. Ordinary distributive predication predicts the following readings, which, notice, look like comparison with a minimum and a maximum respectively.

- (12) Lucinda ran faster than the world record. -> there is a unique relevant world record
Lucinda drove faster than Bill did. -> there is a unique speed Bill reached
- (13) a. Lucinda drove less fast than the permissible speeds.
 b. $\forall s \in [\text{the permissible speeds}]: \text{Lucinda drove less fast than } s \quad \text{min!}$
- (14) a. Lucinda drove faster than the permissible speeds.
 b. $\forall s \in [\text{the permissible speeds}]: \text{Lucinda drove faster than } s \quad \text{max!}$

This analysis is extended to the original Rullmann data. I suggest that the leeway for interpretation that plural predication brings about is the source of the ambiguity. The dispreferred readings may arise when the domain of quantification is narrowed down contextually. The study highlights the importance of thorough empirical investigation for the development of semantic theory.