

Interpreting Raising and Matching Analyses of Relative Clauses: Two Roads to Heim's Ambiguity.

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Introduction. The heart of the debate on the structure of English relative clauses (see Bianchi (2002a, 2002b)) centers on whether the surface head should have both an *external and internal* source (the Matching Analysis, see Sauerland (1998), and Hulsey and Sauerland (2006)) or just an *internal* one (the Raising Analysis, see Bhatt (2002), Bianchi (2000), and Kayne (1994)). A recent analysis (Hulsey and Sauerland (2006), following Carlson (1977)) argues that *both* structures are available to the grammar, pace Henderson (2007), and are typically licensed in distinct environments (1). If there are unique interpretations (LF representations) associated with the two structures, these interpretations should be dependent on the proper licensing of their respective structures (2). I present novel evidence supporting view (1), by showing that a semantic ambiguity for Concealed Questions, known as Heim's ambiguity, in fact reflects the structural ambiguity of relative clauses. In particular, it is shown from several tests that while one reading (Reading A) is available whenever the Matching structure is licensed, another reading (Reading B) is available just in case the Raising structure is.

Matching and Raising, defined. In the Matching Analysis (MA), there is both an external and an internal head of the relative clause (3a). The external head is generated above a late merged CP (Lebeaux, 1990), whereas the internal head must be generated sister to the embedded verb to receive a θ -role, and deletes under some metric of similarity (the Matching relation, depicted as the boxed region in (3a)). Crucially, the external head is derivationally unrelated to the internal source, and thus cannot reconstruct into the CP. In contrast, the Raising Analysis (RA) proposes that the relative clause head noun raises from a position internal to the CP, forming a movement chain and licensing reconstruction of the head into CP internal positions (3b). Following Hulsey and Sauerland (2006), there are several environments that distinguish between the MA and RA, summarized in Table 1. The MA is consistent with extraposition of right adjoined adverbs, Antecedent Contained Deletion (ACD) environments (Fox, 2002), and non-reconstructed 'High' readings of superlative modifiers and amount relatives. As the RA supports reconstruction into the CP, it is thus licensed with idiom chunks and reconstructed 'Low' interpretations of superlative modifiers and amount relatives (Bhatt, 2002).

Concealed Questions and Heim's Ambiguity. The term 'Concealed Question' (CQ, see Baker, 1968; Grimshaw, 1979; Heim, 1979) describes a nominal (4a) which can be paraphrased as a *covert indirect question* (4b). Notice that the complex nominal, e.g., *the price of milk*, receives an identity question paraphrase, *what the price of milk is*. Heim's ambiguity concerns the fact that (5) can be interpreted in two ways: the price that John guessed is coincidentally the same price the Mary guessed (Reading A), or John's guess consists in guessing something about Mary, namely about a particular price that she guessed (Reading B).

Two Roads to Heim's Ambiguity. However, the ambiguity in (5) disappears in both extraposition (6a) and ACD (6b) contexts. Further, only the 'High' readings are available in these contexts (6c). As only Reading A survives where the MA is licensed, the distribution suggests that Reading A is dependent on the Matching structure. Likewise, where the RA is permitted, so too is Reading B and corresponding Low readings. This pattern, see Table 1, evinces initial evidence in favor of Hypothesis (2.i), through its corollary (2.ii). It also provides crucial evidence that Heim's ambiguity reflects structural ambiguity, a fact that should be honored independently of any particular semantic analysis (e.g., Romero (2004, *et seq*); Frana (2007); Nathan (2007); Schwager (2007)). The pattern raises an important question for the syntax-semantics interface: why should the MA support Reading A, and the RA, Reading B? The answer largely depends on how the different structures are interpreted, indicating that (i) the contribution of the semantic content of the late merged relative clause in the MA is perhaps integrated into the rest of the structure differently at LF, and (ii) the availability of reconstruction reflects semantic constituency of the CP, such that the two structures deliver different kinds of objects at LF.

Examples.

CLAIMS:

- (1) There are (at least) two distinct relative clause constructions: Matching and Raising.
- (2) i. HYPOTHESIS: Matching and Raising engender distinct interpretations: LF_M and LF_R .
- ii. COROLLARY: LF_M and LF_R are licensed only if their respective structures are.

THE MATCHING AND RAISING ANALYSES OF RELATIVE CLAUSES:

(3) the book that Mary read

- a. $[_{DP} \text{the } [_{NP} \text{book}_k]] [_{CP} [\text{that } \text{book}_i]_j \text{ Mary read } \text{that } \text{book}_j]$ (Matching)
- b. $[_{DP} \text{the } [_{NP} \text{book}_i]] [_{CP} [\text{that } \text{book}_i]_j \text{ Mary read } \text{that } \text{book}_j]$ (Raising)

CONCEALED QUESTIONS:

- (4) a. John knows/remembered/guessed the price of milk (Concealed Question)
- b. John knows/remembered/guessed what the price of milk is (Indirect Question)

HEIM'S (1979) AMBIGUITY:

- (5) John guessed the price that Mary guessed
 - A. John and Mary happened to guess the same price, but not necessarily anything about one another. John and Mary need not even know of the other's existence.
 - B. John guessed something about Mary; that is, John guessed the answer to the question "What price did Mary guess?", without necessarily guessing the price itself.

HEIM'S (1979) AMBIGUITY REFLECTS STRUCTURAL AMBIGUITY:

- (6) a. John guessed the price yesterday that Mary guessed (A/#B)
- b. John guessed the price that Mary did (A/#B)
- c. John guessed {the highest price / the few prices} yesterday that Mary guessed / did (High/#Low)

Table.

Diagnostic	RC STRUCTURE		HEIM'S AMBIGUITY	
	Matching	Raising	Reading A	Reading B
Idioms	*	✓	N/A	N/A
Amount Relatives (Low)	*	✓	*	✓
Superlative Modifiers (Low)	*	✓	*	✓
Extrapolation of Adverbs	✓	*	✓	*
ACD Environments	✓	*	✓	*
Amount Relatives (High)	✓	*	✓	*
Superlative Modifiers (High)	✓	*	✓	*

Table 1: Distribution of Matching and Raising pattern with Heim's Ambiguity for Concealed Questions

Selected References. **Bhatt (2002).** The raising analysis of relative clauses. *NLS*, 10. **Carlson (1977).** Amount relatives. *Language*, 50. **Fox (2002).** Antecedent-contained deletion and the copy theory of movement. *LI*, 33. **Hulsey and Sauerland (2006).** Sorting out relative clauses. *NLS*, 14 .