

ISLANDS OF CONTRADICTION: PRESUPPOSITIONAL AND NEGATIVE INTERVENERS

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STARTING POINT Currently there is no solution to the classic puzzle of why factive verbs block the extraction of manner and degree expressions, but not the extraction of arguments:

- (1) *How does Mary regret that John fixed the car?
- (2) *How much does John regret having scored?
- (3) Who does John regret that he invited?

Syntactic accounts to weak islands (Rizzi (1990) and subsequent works) have failed to demonstrate a convincing and crosslinguistically stable syntactic difference between factive and non-factive verbs (cf. discussion in Szabolcsi (2006)). Semantic approaches to weak islands do not fare better: Szabolcsi and Zwarts (1993) admittedly do not offer a real solution, Honcoop (1998)'s solution applies only to split constructions such as *Was ...für ein NP...*, but not to (1) and (2). Rullmann (1995) and Fox and Hackl (2005)'s semantic accounts are tailored to negative degree islands. The present paper explains both presuppositional and negative islands.

PROPOSAL 1 Presuppositions project from questions in a universal fashion (cf. Heim (2001) and Guerzoni (2003)), as illustrated by the following examples:

- (4) Which of his three wives has John stopped beating?

Inference: John was beating all three of his wives.

A question including a presuppositional item therefore comes with a set of presuppositions: the presuppositions of all the propositional alternatives. However, this set of presuppositions turns out to be contradictory in the case of (1) and (2), but not in the case (3). A set of contradictory presuppositions has the consequence that the sentence is unassertable in any context.

BACKGROUND ASSUMPTIONS *Manners:* The domain of manner predicates contains *contraries*:

- (5) The set of manners (D_M) in a context C is a subset of $[\{f \mid E \rightarrow \{1,0\}\} = \emptyset(E)]$ such that
 - i. for each predicate of manners $P \in D_M$, there is at least one contrary predicate of manners $P' \in D_M$, such that P and P' do not overlap: $P \cap P' = \emptyset$.
 - ii. for each pair (P, P') , where P is a manner predicate and P' is a contrary of P , and $P \in D_M$ and $P' \in D_M$, there is a set of events $P^M \in D_M$, such that for every event e in $P^M \in D_M$ [$e \notin P \in D_M$ & $e \notin P' \in D_M$].

The context might implicitly restrict the domain of manners, just as the domain of individuals, but for any member in the set $\{P, P', P^M\}$, the other two members are alternatives to it in any context. An example of such a triplet is shown below:

- (6) *{wisely, unwisely, neither wisely nor unwisely}*

Degrees: Following Schwarzschild and Wilkinson (2002) and Heim (2006), I propose that degree predicates are actually not predicates of degrees but predicates of *intervals* of degrees :

- (7) $[[\text{tall}]] = \lambda I_{\langle d, t \rangle} : I \text{ is an interval. } \lambda x. x \text{'s height} \in I$

As a result, the variable bound by a degree operator also ranges over intervals, and a positive degree question receives the following representation:

- (8) How tall is John?
- (9) For what interval I , John's height is in I ?

UNFOLDING PROPOSAL 1 FOR PRESUPPOSITIONAL ISLANDS *Manners* Even though the domain of manners might be covertly restricted by the context, it will always include pairs of contraries: e.g. any domain of manners that includes *wisely* will always include its contrary *unwisely*, and an 'elsewhere' manner. However, it is not possible for a single event to be an element of all the sets of events denoted by the manner predicates in the domain, because at least some of these sets are exclusive. Therefore the presupposition set is incoherent:

- (10) a. $[[[1]]]^w = \lambda p. \exists q [q \in D_M \ \& \ p = \lambda w'. \text{Mary regrets that John fixed the car in } q \text{ in } w']$
 b. presupposition of (1): $\forall q \in D_M: \text{Mary believes that John fixed the car in } q$

Degrees If the domain of degrees has as much as two degrees in it, d_1 and d_2 , the domain of intervals will contain at least two exclusive intervals (sets of degrees): $\{d_1\}$ and $\{d_2\}$. Already this much is enough for John's belief set to be incoherent. [In domains with only a single degree asking a degree question is infelicitous because an answer to such a question is a tautology]

- (11) a. $[[[2]]]^w = \lambda p. \exists I [I \in D_{Intervals} \ \& \ p = \lambda w'. \text{John regrets that his score is in } I \text{ in } w']$
 b. presupposition of (2): $\forall I \in D_{Intervals}: \text{John believes that his score is in } I$

The paper shows that the account can also cover other islands created by presuppositional items, e.g. response stance verbs, extraposition islands based on factives, certain adverbs and *only* NP's.

PROPOSAL 2: EXTENDING THE ACCOUNT TO NEGATIVE ISLANDS Dayal (1996) has proposed that a question presupposes that it has a most informative true answer. Given this condition and the assumptions above about contraries and intervals, the analysis predicts that examples of negative islands such as (12) and (13) result in a presupposition failure as well:

- (12) *How didn't John behave at the party?
 (13) *How tall isn't John?
 (14) Who didn't John invite to the party?

Degrees Given the interval-semantics introduced above, (13) is analyzed as follows:

- (15) $[[[13]]]^w = \lambda p. \exists I [I \in D_{intervals} \ \& \ p = \lambda w'. \text{John's height is } \notin I \text{ in } w']$

Let John's height be any non-zero degree d . The set of all intervals that do not include John's height (=N) contains exactly two exclusive sets of intervals: all the intervals fully below d , contained in $[0, d)$ (=A) and all the intervals fully above d , contained in (d, ∞) (=B). It is easy to see that for any interval I included in A, the (true) proposition that John's height is not in I , does not entail that John's height is not in B, and vice versa. Hence, there is no interval I in N such that the true proposition that John's height is not in I entails all the true propositions of the same form in N. Dayal's (1996) condition cannot be met, and we predict a presupposition failure.

Manners (16) seems to show that it is a presupposition on forming plural manner predicates $\{p_1, p_2\}$ that $p_1 \cap p_2 \neq 0$. (cf. also Spector (2007), Szabolcsi and Haddican (2005) on a related point)

- (16) #John did not reply *wisely and unwisely*

Manner questions talk about a particular event, which I will represent here by (e^*) :

- (17) $[[[12]]]^w = \lambda p. \exists q_{manner} [q \in D_M \ \& \ p = \lambda w'. \text{behave } (\tau')(e^*)(\text{John}) \wedge \neg q_{manner} (\tau')(e^*)]$

Given (5), the minimal set of propositions (=M) of the question denotation above includes at least $\{\text{that John's behaving event } e^* \notin p, \text{ that John's behaving event } e^* \notin p', \text{ that John's behaving event } e^* \notin p^M\}$. None of these can be the maximally informative true answer, because that would entail that the event e^* is included in the two other exclusive sets of manners. Plural manners cannot be formed on the basis of M because of the impossibility of forming incoherent plural manners. It is easy to see that (a) adding more propositions to M will not dispel the problem (b) positive questions about manners can have a maximally informative answer.

Modal obviation Fox and Hackl (2005) observe that existential modals below negation improve negative islands:

- (18) How much radiation are we not allowed to expose our workers to?

This fact is straightforwardly predicted by the present account: While wrt. (13) it was a fact about the world that John's height is a single degree, the degrees of radiation that we allow our workers to be exposed to might correspond to an interval, e.g. $[d, \infty)$. In this case, there can be a maximally true answer to (18): the true proposition that the amount we are not allowed to expose our workers to is $\in (0, d)$.