

Contradiction and Ungrammaticality: The Case of Negative Islands

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The aim This paper proposes a new semantic explanation for the ungrammaticality of negative island violations with manner questions.

- (1) How did John behave at the party?
- (2) *How didn't John behave at the party?

The traditions for accounting for weak islands with manner questions range from Rizzi (1990)'s syntactic account to the scope-based account of Szabolcsi and Zwarts (1993), and Honcoop (1998)'s dynamic account. Rullmann (1995), Fox and Hackl (2005) proposed a maximality-based account, however only for negative *degree* questions. This paper proposes an extension of the maximality-based view to manner questions: We will propose that the deviance of negative manner questions is based on the fact that these questions cannot have a maximally informative answer.

The proposal Negative manner questions are ungrammatical because all of their complete (=maximally informative) answers are predicted to be ill-formed, *where*, (a) Complete answers to a question are understood as being exhaustive in the sense of Groenendijk and Stokhof (1984) (b) Complete answers to negative manner questions are ill-formed because their meaning expresses a contradiction under any variable assignment.

Background assumptions Following Heim (1994) and Beck and Rullmann (1999), Groenendijk and Stokhof (1984)'s (strongly) exhaustive answer to a question will be derived in two steps: by assuming a Hamblin (1973) /Karttunen (1977) theory of questions complemented with an Exhaustive operator (=Heim's *Answer* 2).

- (3) $\|\text{Exh}\|^w(Q_{H73})(p) = p(w) \ \& \ \forall q \in Q_{H73} [p \not\subseteq q \rightarrow q(w)=0]$

Manners denote functions from events to truth values. The set of manners (D_M) in a context C is any proper subset of $\{f \mid E \rightarrow \{1,0\}$ i.e. $\wp(E)$, that satisfies the following two conditions:

- (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 , there is a set of events e , such that $[e \notin P \ \& \ e \notin P']$

The condition in (i) ensures that for statements about manners, the Law of Contradiction is observed: There is no context such that e.g. *John behaved in P* and *John behaved in P'* can both be true, where P and P' are contraries. This can be illustrated by observing that *#John behaved wisely and un-wisely* denotes a contradiction. The condition in (ii) however ensures that the Law of the Excluded Middle is not observed: *John behaved neither wisely nor unwisely* might be true. This might be the case e.g. if we don't think that John's behaviour can be described as particularly wise or unwise, or if John is a newborn baby, who cannot be said to behave wisely or unwisely.

A note on plurals: Extending Landman (1989)'s version of Link (1983) to manner predicates, I will assume that we form plural manners are formed as sets of manners. Plural predicates of manners, similarly to other plurals, trigger a homogeneity presupposition, which requires that a predicate be true for either all the elements of the plural manner or none (Schwarzschild (1994), Beck (2001) e.g.) Therefore the negative sentence like *John did not behave fast+carelessly* will require that the behaving was neither fast nor careless.

Negative islands with manner questions The Hamblin-denotation of a negative manner question:

- (4) $\|\text{How didn't John behave?}\| =$

= $\{\lambda w. \text{John did not behave in } \alpha \text{ in } w \mid \alpha \text{ is a singular or plural manner}\}$

Suppose we select *that John did not behave politely+respectfully* as a complete answer. Because of the already familiar homogeneity presupposition, this will mean that *he did not behave politely* and *he did not behave respectfully*. However, all the propositions that do not contain *politely* and *respectfully* will not be weaker: hence by exhaustive interpretation we will assert that they are false. Since we are negating negative propositions, we are in fact requiring that the positive counterparts of these propositions be true. But recall that the domain of manners contains contrary predicates, such as *competently* and *incompetently*. This leads to serious trouble, as the set of propositions that now we require to be true by exhaustive interpretation is incoherent: For each respective proposition that is required to be true, its contraries are also required to be true. When we are talking about one particular event, as it is normally the case with questions, this will always lead to stating a contradiction.

(5) $\|\text{Exh}\|^w (\|(4)\|)(\lambda w. \text{John did not behave politely+respectfully}) = \text{John } \neg\text{-behaved politely+respectfully in } w \ \& \ \forall q \in \|(4)\| [\lambda w. \text{John } \neg\text{-behaved politely+respectfully in } w] \not\subseteq q \rightarrow q(w)=0]$

In fact since the domain of manners is infinite, no matter which (negative) proposition in (4), we select as an answer, there will always be an infinite number of (negative) propositions that will be required to be ruled out by the exhaustive interpretation of the complete answer, i.e. there will be an infinite number of positive propositions that will be required to be true. Thus, no matter which answer we select among the propositions in (4), we will always generate a contradiction. In the case of positive questions the same problem does not arise because of the condition in (ii).

Ways to rescue Negative Islands There are two ways in which negative manner questions can be improved: First, if we restrict the set of possible answers in appropriate ways, e.g. by listing the available answers, the negative manner question becomes acceptable.(cf. Kroch (1989)):

(6) How did you not behave: A-nicely, B-politely, C-kindly?

This is because by restricting the domain it becomes possible to chose a set such that there is complete answer to the question that is not contradictory. Secondly, Fox and Hackl (2005) and Kuno and Takami (1997) have noted that certain modals can save negative island violations: more precisely negative islands can be saved by inserting existential modals below negation or by inserting universal modals above negation:

(7) How is John not allowed to behave?

The reason why (7) is predicted to be good in our system is that the contrary alternatives that are required to be true by exhaustive interpretation of the complete answer can be distributed over different possible worlds, hence the contradiction can be avoided:

(8) $\|\text{How is John not allowed to behave?}\| = \{\neg\exists w' \text{Acc}(w, w') \text{ John behaves in } \alpha \text{ in } w' \mid \alpha \in D_M\}$

(9) $\|\text{Exh}\|^w (\|(8)\|)(\lambda w. \text{John is not allowed to behave impolitely in } w) = \neg\exists w' \text{Acc}(w, w') \text{ John behaves impolitely } w' \ \& \ \forall q \in \{\exists w' \text{Acc}(w, w') \text{ John behaves in } \alpha \text{ in } w' \mid \alpha \in \{D_M - \{\text{impolitely}^+\}\}\}. q(w)=1$

The offending contraries can each be true in a different possible world, hence the contradiction disappears. On the other hand we predict manner questions where universal modals can be found under negation to be unacceptable, which is indeed the case. This is because in this case, instead of distributing the mutually exclusive propositions over different worlds, we require them to be true in every possible world, which of course is impossible.

On Contradiction Our analysis provides an additional piece to the set of puzzles where analyticity can be blamed for ungrammaticality: (cf. e.g. Barwise and Cooper (1981), von Stechow (1993), Gajewski (2002), Guerzoni (2003), Menendez-Benito (2005))