

# Incredulity Questions

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Suppose Bill hears Ann uttering (1); in response, Bill utters (2a) or (2b) (the interpretation of the capital letters will be discussed momentarily).

- (1) John is going to be appointed manager.
- (2) a. JOHN is going to be appointed manager?!
- c. WHO is going to be appointed manager?!

Bill's utterances have a dual aspect: a question, answerable by "yes" or "John"; and an assertion/expressive, conveying incredulity or outrage. A multidimensional theory is called for.

Asher and Reese (2005) assign to incredulity questions a complex semantic type: *question • assertion*. They use a standard partition semantics for the question, i.e. its meaning is a set of propositions  $C$ .<sup>1</sup> The assertion is that one of the propositions in  $C$ , pragmatically determined, is unexpected:  $\exists p(p \in C \wedge \mathbf{Expect}\neg p)$ .

I believe this view is essentially correct.<sup>2</sup> However, while Asher and Reese claim that the meaning of the assertion is provided by the intonation of an incredulity question, I will argue that the intonation affects the meaning of the question itself. Once the meaning of the question is determined, the incredulity interpretation falls out naturally, with no need for additional assumptions. Let us, therefore, determine exactly what Bill is actually asking.

One might suggest that Bill's questions are rhetorical, since he already knows the answer: he heard and understood that John will be appointed manager. But this will not do, since (except for some well known exceptions) a rhetorical yes/no question is interpreted as implying a negative answer, and a rhetorical *wh*-question implies that its answer is the empty set—but (2a) and (2b) do not imply that John will not be appointed manager, or that nobody will, respectively.

Artstein (2002) treats questions like (2a) and (2b) as echo questions. He notes that echo questions have a distinctive contour with a rising pitch accent (L+H\*), and a high-rising boundary (HH%), and claims that this pitch accent is an instance of focus. Following Rooth's (1985) *alternative semantics*, the focus semantic value of (2a) or (2b) will be a set of alternative propositions of the form *x is going to be appointed manager*; assuming Hamblin's (1973) partition semantics for questions, this corresponds to a question inquiring which of these alternative propositions was asserted.

While this may be the meaning of an echo question, it is not really the meaning of an incredulity question, which is used to express incredulity or indignation, rather than seek clarification. Incredulity questions also differ in their intonation from echo questions: they have a tune similar to that of ordinary declaratives, except that, being questions, they have a final rise

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<sup>1</sup>I will maintain this assumption throughout. More sophisticated theories may be necessary for other uses of questions, but not, I believe, for incredulity questions.

<sup>2</sup>In fact, Asher and Reese only deal with incredulity *assertions*, in which the set of propositions  $C$  is a singleton; but I believe a theory of incredulity questions follows straightforwardly from their paper.

rather than a final fall (Moulton 1987). The meaning of incredulity is expressed not through the tune, but via an expanded pitch range (Hirschberg and Ward 1992, among others); this is what the capital letters in the examples in (2) indicate.<sup>3</sup>

Incredulity questions, then, are not focused. Nonetheless, I believe that Artstein’s insight, namely that they invoke a set of alternatives, is correct. These alternatives are not invoked by focus, but by the expanded pitch range. What sort of alternatives are these? And how do they generate the incredulity/outrage interpretation?

I suggest that expanded pitch range induces alternative possible worlds. The identity of the alternative worlds depends on the modal base (which, in turn, is dependent on the context). The modal base can be doxastic, i.e. the alternative worlds are Bill’s belief worlds: in each one of these worlds, some candidate is getting the job. In his question, then, Bill is asking Ann to find a world among them in which John gets the job. This is a rhetorical question, because Bill already knows the answer—he hardly needs us to tell him what’s in his belief worlds! Therefore, when Bill is asking about his belief worlds, he is implying that the answer is the empty set: i.e. in none of his belief worlds (prior to hearing Ann) does John get the job. Hence, his getting the job is incredible. Alternatively, the modal base may be deontic. In this case, Bill’s rhetorical question implies that in none of the worlds that he considers permissible does John get the job. His promotion, therefore, is outrageous.

The focus semantic value is not able to generate this reading. But there is a different semantic value that can. In order to account for the meaning of *many*, *often*, and generics, Cohen (to appear) proposes a new type of semantic value: *world semantic value*,  $[[\phi]]^W$ , which takes into account alternatives to the world of evaluation of  $\phi$ .  $[[\phi]]^W$  is a set: each member of the set is the ordinary semantic value of  $\phi$  in some world. Specifically, if  $\phi$  is an individual, it makes sense to use Lewis’s (1968) *counterpart theory* (cf. Kratzer 1989), so that  $[[\phi]]^W$  is the set of counterparts to  $\phi$  in all worlds.

It has often been noted that focus has two (not unrelated) roles: it introduces alternatives, and it gives rise to a presupposition. Expanded pitch range, while not focus, is similar to focus in that it, too has a double role: it induces alternatives (alternative belief/normative worlds), and it gives rise to presuppositions (but these presuppositions must be satisfied in the belief/normative worlds of the speaker, rather than the actual world). Thus, (2a) presupposes that it’s expected/ok to promote some people (but not John); while (3) presupposes that it’s expected/ok for John to get various appointments (but not manager).

(3) John is going to be appointed MANAGER?!

This can be seen even more clearly when what is questioned is not Ann’s utterance, but a statement implied by it:

- (4) a. JOHN will give orders to me?!  
 b. John will give orders to ME?!

Sentence (4a) presupposes that it’s ok for someone to order the speaker (though not for John); while (4b) presupposes that it’s ok for John to order some people around (but not the speaker).

In the case of focus, the two roles usually receive one representation, and one role is argued to follow from the other. But since, in the case of expanded pitch range, the alternative worlds are the same regardless of the constituent that is intonationally marked, it makes sense to add an additional device for the representation of the presupposition. I will use structured propositions for this purpose. The structured proposition is an ordered pair: the first element is a property

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<sup>3</sup>Of course, one may use expanded pitch range simply to get oneself heard better; but, typically, this will affect the whole sentence, rather than only a constituent, as in (2).

(treated as a set of all individuals, in all worlds, who satisfy the property), and the second is an individual (cf. Dorr 2005 for structured propositions in counterpart theory).

We now have everything in place to account for incredulity questions. The expanded pitch range used in (2a) indicates that the world semantic value of *John* ought to be invoked. This is the set of counterparts to John in each one of Bill’s belief (or normative) worlds:  $\{John_{w_1}, John_{w_2}, John_{w_3}, \dots\}$ . If we combine the world semantic value of *John* with the other elements of the sentence, the world semantic value of (2a) is a set of propositions. Using structured propositions, this set is formalized as follows:

$$\{ \langle \{x \mid x \text{ is going to be appointed manager in some world}\}, John_{w_1} \rangle, \langle \{x \mid x \text{ is going to be appointed manager in some world}\}, John_{w_2} \rangle, \dots \}$$

This corresponds to the following question: in which world (among Bill’s doxastic/deontic alternatives) is John going to be appointed manager? This is a rhetorical question: Bill knows better than anyone else what happens in his belief or normative worlds. Hence, the question implies that none of its possible answers is correct. Therefore, Bill is implying that (prior to Ann’s utterance) in none of his belief/normative worlds does John get the job, which is why he is incredulous/indignant. It is important to emphasize that the rhetorical question is about Bill’s belief/normative worlds, not about the identity of the person who will be appointed manager.

In incredulity *wh*-questions, such as (2b), the *wh*-word is not quantificational, but is anaphoric on *John* (Authier 1993). Hence, the meaning of (2b) is the same as that of (2a), and the incredulity (outrage) reading is generated in the same way.

Thus, an incredulity question has a dual aspect. On the one hand, it is a question: Bill is asking in which world John is going to be appointed manager. An answer of *yes* or *John* is just an elliptical repetition of (1), thus indicating that John is getting the job in the actual world, though this world may not be among Bill’s belief or normative worlds. On the other hand, it is a statement of incredulity or indignation: by being rhetorical, the question implies that none of the possible answers are true, i.e. that Ann’s statement is incredible or outrageous.

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