The Whys and How Comes of Presupposition and NPI Licensing in Questions

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1. Presuppositions of Questions and Questions of Presupposition

I argue here against the well-established belief that questions contain existential presuppositions. That is, I will try to refute the view espoused by many researchers that in asking a question like (1) the speaker presupposes that *someone* saw Harry.

(1) Who saw Harry?

Katz & Postal (1964, p. 116) equate this supposed existential presupposition with the factive presupposition 'that Harry used to beat his wife' in (2).[1,2]

(2) When did Harry stop beating his wife?

Postal (1971, p. 73, fn. 6) argues for the existence of existential presuppositions in questions based on their apparent non-defeasibility. According to Postal, "...[(3b)] is just as much a contradiction as [(3a)]." That is, if the question 'What is on the table?' presupposes that something is on the table, the questioner contradicts himself by simultaneously asserting that nothing is on the table.

(3) a. #Something is on the table and nothing is on the table.
     b. #Although nothing is on the table, what is on the table?

But if (4a) presupposes that someone came, one might wonder why (4b) seems to be a perfectly acceptable answer to this question.

(4) a. Who came?
     b. No one came.

Comorovski (1996, pp. 23ff.) argues that (4b) is not an answer to (4a), but rather a denial of the presupposition of (4a), just as (5b) denies the presupposition of (5a).

(5) a. The king of France is bald.
     b. There is no king of France.

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[1] It is not clear whether Katz & Postal (1964) mean this presupposition to come from *when* or from the factive verb *stop*. Clearly, though, a question is not necessary to ensure the factive presupposition in this case, as '*Harry stopped beating his wife*' has the same presupposition as the question (2).

[2] Karttunen & Peters (1976, p. 360) make similar points, claiming that, "...*who* and *which boy* differ from their non-interrogative counterparts in that they contribute an existential [conventional] implicature to the construction in which they occur. ...*which boy Mary loves* implicates that Mary loves some boy." Presumably the same holds for *who* since, for Karttunen and Peters, *who* and *which boy* contribute an existential presupposition (or *conventional implicature*, in their terminology).

Comorovski (1996, pp. 23–24) also reiterates arguments from Postal 1971 (see (3)) and Karttunen & Peters 1976 (p. 355) that, "unlike conversational implicature, the existential presupposition of wh-questions cannot be cancelled by the content of an utterance made by the same speaker…" as in (6).

(6) #I know that Mary doesn't read anything. What (exactly) does she read?

I argue below against this line of reasoning and show that, in general, wh-questions do not contain existential presuppositions. I propose that only the wh-operator *how come* is truly presuppositional in English and that evidence for semantic presuppositions in other wh-questions is better treated through pragmatic principles of question asking.

Section 2 asks what is meant by *presupposition* in the case of questions and outlines two possible answers to this question. In section 3 I establish that *how come* is a factive wh-operator whose properties lead to the sort of factive presupposition envisioned by Postal and others. I show there that the behavior of *how come* parallels that of factive predicates like *discover* and *find out*, while nearly synonymous *why* and other wh-phrases fail to show the same behavior. This divergence can be explained if other wh-phrases are not factive. Section 4 outlines a pragmatic explanation for the presuppositional effects noted by Postal (1971), Karttunen & Peters (1976), and Comorovski (1996). I then discuss certain apparently presuppositional properties of *why* brought up by Lawler (1971) and show how they can be explained without factivity.

2. Two Sources of Presuppositions

In discussing whether questions contain presuppositions, one should be clear on what is meant by *presupposition*. Karttunen & Peters (1976), for example, explicitly reject the term, preferring instead the phrase *conventional implicature*. However, the conventional implicatures they discuss are essentially equivalent to the factive-type presuppositions that Katz & Postal (1964) refer to. One must be careful, then, not to equate similarities or differences in terminology with similarities or differences in theory.

Two types of "presupposition" will be relevant in the discussion below. First, and perhaps most familiar, is the idea that a presupposition (of a question, in this case) is something that a speaker must assume to be true in order to use a question (7). This is similar to truth-value gap analyses of uniqueness presuppositions with definites and factive presuppositions with factive predicates.

(7) <u>Condition on usability</u>: a presupposition of a question is a necessary condition for a successful interrogative speech act (Katz 1972).

Another possibility is that, rather than a condition on use, presuppositions in questions are related to entailments by all possible answers, as in (8).

(8) <u>Inference from possible answers</u>: a presupposition of a question is something that is entailed by every possible answer to it (Keenan & Hull 1973).

Since (7) most nearly represents the sense of presupposition generally used in discussion of question presuppositions, I will focus on it for the majority of the paper, returning to (8) in section 4.

3. *Why* and *How Come*

Lawler (1971, p. 167) notes, in discussing presuppositions in questions (particularly *why* questions), that, "[i]f *why*-class adverbs are viewed as predicates… they are factives, and their behavior under negation in questions becomes explicable… by the same rules that govern other factive predicates." In this section I will test whether *why*, *how come*, and other wh-phrases behave like factive predicates. The result is that wh-phrases in general are quite different from factives, with the exception of *how come*, which is the only truly factive wh-phrase in English.

Following theory (7), we could plausibly assume that *Why P?* presupposes the existential closure of *P*. And so, *Why did John come?* presupposes ∃x[John came for reason/purpose x], which entails that

John came. And so, according to (7), in order to use *Why P?*, a speaker must presuppose *Q* ('∃x[John came for reason/purpose x],' in this case), which entails *P* ('John came,' in this case). This holds, *mutatis mutandis*, for any *P*. And so, to simplify, let us say that (9) holds under theory (7).

(9) *Why P?* presupposes *P*.

Similarly, *How come P?* presupposes the existential closure of *P*. Since *how come* does not move from within *P*, so it does not leave a trace (Zwicky & Zwicky 1971:178–180, Collins 1991, Culicover 1999:160–162), it is quite straightforward to show that, under theory (7), (10) holds.

(10) *How come P?* presupposes *P*.

Why and *how come* are thus both factive under theory (7). That is, they presuppose the truth of their complements, roughly speaking. This commonality means they can be straight-forwardly compared with each other and with factive predicates. Such a comparison shows that *how come* is a factive wh-phrase, while nearly synonymous *why* and other wh-phrases are not. Therefore, *why* and other wh-phrases with the same properties are not presuppositional in the way supposed in analysis (7).

3.1 Rhetorical Questions

As Collins (1991, p. 42–43) notes, *why* and *how come* do not behave the same with respect to certain types of negative-biased questions.[3] While a question like (11a) can be asked rhetorically, where the speaker assumes a negative answer is correct (i.e., John *wouldn't* leave), (11b) is infelicitous as such. For example, (11a) could be part of an exchange where someone asks, 'Did John leave?' and the response is 'No, why would John leave?'. (11b) cannot be used in this case.

(11) a. Why would John leave?
      b. * How come John would leave?

This rhetorical reading is negatively biased, and so such a use should conflict with the positive presupposition of *P* in both *How come P?* and *Why P?*. However, this conflict only arises with *how come* (12).

(12) *How come he would leave?
      a. Presupposed: *He would leave*.
      b. Negative bias: *He would not leave*.

The fact that no such contradiction arises for *why* suggests that *Why P?* does not presuppose *P*.

3.2 NPI Licensing

Though questions with *why* and other wh-phrases seem to license NPIs easily (Higginbotham 1993, Han & Siegel 1996, Gutiérrez 1997, Guerzoni 2003), *how come* does not (13), a fact not previously noted, to my knowledge.

(13) a. Why did John say anything?
      b. * How come John ever said anything?

Incidentally, this is surprising if *how come* is derived from "how did it come about that…" (Zwicky & Zwicky 1971:179), since NPIs *are* licensed in such questions (14).

(14) How did it come about that you ever left?

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[3] Collins (1991) mentions in this context the possibility that *how come* is factive in the sense pursued here, but does not develop the idea further.

NPIs also fail to be licensed in complement clauses of factive verbs in the presence of super-ordinate negation (15).[4]

(15)   *John didn't find out that anyone left.

One must be careful in this case since some verbs, including *find out* and *discover*, are "semifactive" (term from Karttunen 1970, cited in Lawler 1971). These verbs allow licensing of NPIs in their complement by super-ordinate negation under a non-factive reading. Thus (16) is perfectly grammatical if interpreted as including no presupposition that someone left. In this case John simply failed to find out any relevant information regarding anyone leaving the party.

(16)   [Someone was killed at a party. John is a detective sent to investigate whether anyone fled the scene of the crime…]
John didn't find out that anyone left.

What is the nature of NPI licensing in questions such that the factivity of *how come* and certain verbs would resist such licensing? First, in the case of factive verbs, we know that, some complications aside, NPIs must be in a local relation (see Linebarger 1980, Progovac 1993) with a (Strawson) downward entailing operator (von Fintel 1999). This condition is not met with factive predicates, where a factive complementizer C_{FACT} creates an island that blocks this local relation.

(17)   John didn't find out [$_{Island}$ C_{FACT} that anyone left].
         └─────────────*─────────────┘

C_{FACT} introduces a presupposition that its complement is true, perhaps by creating a definite description or introducing an *iota* operator (see Melvold 1991). Presumably *how come*, being factive, unlike *why* and other wh-phrases, has the same factive complementizer. But what is the source of NPI licensing in questions such that the islandhood of the complement of *how come* would matter? One possibility is that NPI licensing in questions is linked to the presence of a covert *whether* (Higginbotham 1993) that must move (Guerzoni 2003) from within the clause to a position above the interrogative complementizer Q.

(18)   Why$_2$ Whether$_1$ [Q t_1 John ever leave t_2]?
              └────────┘

In *how come* questions, there is either a factive version of Q, or both a Q and a C_{FACT} head (19). But here, due to the islandhood of the factive clause, *whether* cannot escape the factive island.

(19)   How come Whether [Q [$_{Island}$ C_{FACT} t_1 John ever left]]?
                  └────────*────────┘

Since *whether* cannot move above Q, it cannot be interpreted, and NPIs cannot be licensed. *How come* questions, therefore, do not contain *whether*, and so NPIs are not licensed.[5]

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[4] Emotive factives like *surprise* license NPIs in their complement clause without external negation, and so must be avoided in the present comparison.

   (i)   John was surprised that anyone came to the party.

[5] If *whether* is linked to exhaustivity, *how come* questions should then behave as if they do not contain *whether*.

3.3 Pair-list Questions

A final parallel between factive verbs and *how come* questions, and a divergence between these and other wh-questions, provides further evidence for the islandhood of the complement of *how come*. *Why* questions allow pair-list and functional readings (20a), while *how come* questions do not (20b).

(20)　　a. Why did everyone come? wh > ∀, ∀ > wh
　　　　　　　i.　John came because…, Bill came because…, … (pair-list)
　　　　　　　ii.　Because his mother asked him to. (functional)
　　　　b. How come everyone came? wh > ∀, *∀ > wh

Functional and pair-list questions (shown here as inverse scope) are also unavailable when the universal quantifier is embedded in the complement of a factive verb (21a). Compare this to the bridge verb *say* in (21b).

(21)　　a. Who found out that everyone left? wh > ∀, *∀ > wh
　　　　　　cf. Someone found out that everyone left. ∃ > ∀, *∀ > ∃
　　　　b.　Who said that everyone left? wh > ∀, ∀ > wh
　　　　　　cf. Someone said that everyone left. ∃ > ∀, ∀ > ∃

Pair-list and functional readings require either quantifying in (Krifka 2001) or a functional reading (Chierchia 1993). The former is impossible if the complement of *how come* is an island since the quantifier is unable to escape the island and quantify in (22).

(22)　　a.　　　Everyone [Why did t come]?

　　　　b.　　　Everyone [$_{Island}$ t came]?

　　　　c.　　　Everyone　[Who said　[that t left]]?

　　　　d.　　　Everyone [Who found out [$_{Island}$ that t left]]?

Functional readings, either giving function-type answers (20bii) or extensional definitions of functions (pair-lists) as answers, require a wh-trace (Chierchia 1993). But it seems plausible that no trace exists with *how come*. Collins (1991) argues extensively for the lack of a *how come* trace on the basis of data such as (23), where no long-distance reading of *how come* is possible.

(23)　　How come Bill said [that Mary quit]?
　　　　a.　　　What is the cause of Bill's saying that Mary quit?
　　　　b.　　＊What is the cause of Mary's quitting that Bill reported?

I conclude that, due to the islandhood of the complement of *how come* and the lack of a wh-trace therein, pair-list and functional questions are unavailable.

3.4 Summary

From the parallel behavior of *how come* and factive predicates, I have argued that *how come* is factive, while *why* and other wh-phrases are not. The parallel behavior of factives and *how come*, as opposed to other wh-phrases, is summarized in table (24) along with the facts from section 3.1 regarding rhetorical questions.

(24)

	Negative Biased Qs	NPIs	Pair-List
Why	ok	ok	ok
How Come	*	*	*
Factive Verbs	n/a	*	*

Theory (7), where wh-phrases introduce existential presuppositions that must be true if the question is to be useable at all, cannot be true for the majority of wh-phrases. Instead, it seems that only *how come* provides a true example of a factive wh-phrase, and so mirror the behavior of factive verbs.

4. Conditions on Questions and Answers

If only *how come* is factive, and other wh-phrases are not, how are we to explain the apparent presuppositions of questions argued for in Postal 1971 (25; repeated from example 3), and Comorovski 1996 (26; repeated from 6)?

(25) a. # Something is on the table and nothing is on the table.
      b. # Although nothing is on the table, what is on the table?

(26) #I know that Mary doesn't read anything. What (exactly) does she read?

I propose that, though these examples are infelicitous, and do contain a sort of contradiction, this infelicity is not due to a presupposition introduced in the questions, but rather to a simple and fundamental condition on question-asking (27).

(27) A speaker can only ask an information-seeking question if he or she does not know the answer(s).

In (25-26), the speaker explicitly asserts that he or she knows the answer to the question before asking that question, in clear violation of (27). Thus principle (27) goes a long way toward explaining the apparent presuppositions of non-*how come* questions (25–26).

However, Lawler (1971. p. 163) argues that, even within non-*how come* wh-phrases, some wh-phrases are more presuppositional than others. For him, *why* is a prototypical strongly factive wh-phrase. Evidence for this includes (28), where a *when* question, but not a *why* question, can be used when the speaker is unbiased with respect to whether Max did in fact hit anyone.

(28) a. Why did Max hit anybody?
          [Seems to assume that Max did hit someone.]
      b. When did Max hit anybody?
          [Quite plausible that he didn't hit anyone.]

I suggest that another principle of question-asking (29), coupled with certain properties of why-type adverbials, provides an explanation of this apparent presuppositionality, without invoking factivitity.

(29) A speaker assumes that their question has a non-null set of true answers.

Let us assume that the semantic value of a question gives a set of possible answers, a set that contains all possible values for the trace x, including a negative value (30). That is, replace the wh-trace in the LF representation with all possible values, including a negative.[6]

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[6] Clearly the notion 'possible answer' needs to be fleshed out here. Something like this approach to the set of possible answers is explored in Han & Siegel 1996. I did not adopt Han & Siegel's (1996) approach to NPI licensing in questions above due to some empirical difficulties, including the false prediction that *Who left until 3am?* should be acceptable just as is *Nobody left until 3am*. The *whether* theory of NPI licensing, however, likely

(30)   Who [x saw John]?
        {Mary saw John, Bill saw John, …, **No one** saw John}

If the negative answer is included in the answer set, the following exchange is not a case of denying a presupposition (*pace* Comorovski 1996), but a true question-answer pair.

(31)   a.   Who came?
        b.   No one came.

(32) shows that negative answers are included in the set of possible answers (and therefore that this question does not presuppose a non-null set of people who came to the party).

(32)   Both Bill and Mary think no one came to the party, and so they agree on who came.

Note that the presuppositions of the complement of *agree on* project at least into the belief worlds of the matrix subject (33), and so if the embedded question introduced an existential presupposition, it should project at least this far.

(33)   Bill and Mary believe they have rich uncles from Australia, and so they agree on where their rich uncles are from.

If negative answers are included in the set of possible answers given by the semantic value of a question, we can ask whether a negative answer will lead to Lawler's observations without a presupposition. For adjunct questions, sometimes a negative value for x will have wide scope (34).

(34)   When has [John hit anyone x]?
        {Yesterday John hit someone, Two weeks ago John hit someone, **Never** has John hit anyone}

Here wide-scope of *never* leads to a possible answer that entails that John *didn't* hit anyone. Reason clauses, on the other hand, do not easily admit wide-scope negation (35). Negative inversion, which is a good test for the possibility of wide-scope negation, is generally quite difficult with reason clauses (35b).

(35)   a.   Why did John hit Bill?
              {John hit Bill for reason x, John hit Bill for reason y, John hit Bill **for no reason**}
        b.   * For no reason did John hit Bill.
        c.   (Then…) For no reason, John hit Bill.
                (→ John hit Bill.)
              * (→ ¬(John hit Bill.))

Given this difference in the scope of negation, I suggest that *when* and *why* questions differ not in their presuppositions, but in whether their set of possible answers allows for wide-scope negation. The perception of presupposition in *why* questions is the result of inference from all possible answers. None of the possible answers in (35a) entails that *John didn't hit Bill*. Or, alternatively, all answers entail that *John hit Bill*.[7] Presuppositions in *how come* questions govern the ability to use these questions. Apparent assumptions in other wh-questions (e.g., *why*-questions) can arise if they are entailed by all possible answers.

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fails to capture the facts regarding rhetorical readings that Han & Siegel (1996) discuss, and so more work is needed.

[7] Even reason clauses can be forced in exceptional cases to take wide scope in certain cases (i), and so wide-scope negative answers can also arise in this case. Thanks to Irene Heim for this example.

(i)   I love working here so much that for no reason would I (ever) leave. (→ I wouldn't leave)

This difference between *inference from possible answers* and *conditions on possible use* allows us to explain the common characteristics of questions (apparent assumptions of the speaker) while at the same time explaining their differences with respect to factivity, NPI licensing, and so on.

5. Conclusions

I have argued that many wh-phrases that were presumed to trigger factive-type existential presuppositions (*who*, *what*, etc.) do not. *How come* is the only example in English of a factive wh-phrase whose presupposition is akin to the presuppositions introduced by definites and factives. The factivity of *how come* explains its many syntactic and semantic differences with other wh-phrases. Nearly synonymous *why* does seem to have a residual type of presupposition, but this is not a factive presupposition (*pace* Katz & Postal (1964) and Lawler (1971), *inter alia*). Rather, it is the result of inference from the set of possible answers. Examples of other wh-phrases that purport to show presuppositions in wh-questions are explicable through simple pragmatic rules of question asking.

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