INTERROGATIVE CONTINUATION: A NEGLECTED PUZZLE

A thesis submitted in partial satisfaction
of the requirements for the degree of

MASTER OF ARTS

in

LINGUISTICS

by

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June 2018

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Abstract

Interrogative Continuation: A neglected puzzle

Lydia Werthen

This paper centers on a phenomenon known as INTERROGATIVE CONTINUATION, which encompasses a class of fragment questions that depend on a linguistic antecedent and contain at least one apparently unraised interrogative element, as illustrated by the example in (1).

(1) A: John bought a picture.
    B: A picture of whom?  [Bechhoffer 1976:45]

First appearing in the literature via Ross’s (1969) discussion on sluicing, the construction in (1) has received little attention to date and all investigations thus far have been largely inconclusive, inconsistent, and independent of one another. The goal of the current investigation is therefore to provide the most detailed account of interrogative continuation by building upon previous works about the phenomenon and drawing on aspects from all major subfields of linguistics. The widespread usage of this construction both within and across languages and the fact that it has been so understudied make this an all the more worthwhile endeavor.

In this paper, I survey a wide range of naturally-occurring data and lay out the core principles of interrogative continuations, which include their commonly sub-sentential fragment structure, discourse dependence, unembeddability, and apparent lack of wh-movement. Using two acceptability judgment surveys, I resolve one major disagreement in the limited existing literature pertaining to the constructions’ dependence on preceding discourse material. I also discuss the distinction between interrogative continuations and echo questions, which I attribute primarily to the presence of a [Q]-related [F] feature that is inherent to genuinely interrogative elements but absent in echo questions (following Truckenbrodt (2012)). This featural difference in the syntax contributes to both prosodic and semantic differences between echo questions and continuations,
where interrogative continuations follow an intonational pattern similar to that of regular constituent questions and function as genuine information-seeking questions. To account for these facts in the syntax, I propose a fragment-based analysis which builds on an account proposed by Weir (2017) and makes use of a new copying mechanism called **Reuse-XP**. I posit that this mechanism copies syntactic material from a linguistic antecedent into the continuation site, wherein an interrogative element is adjoined or realized as an overt complement to a copied predicate. Although many puzzles remain, this paper should serve as a starting point for future investigations into the nature of fragment questions.
Acknowledgments

There are several people without whom this project would not have been possible. My thanks go first and foremost to my advisor Jim McCloskey, who coined the original term ‘wh-continuation’ and who has been a source of invaluable guidance during the course of this project and my time at UC Santa Cruz. Many thanks also to Jorge Hankamer, who provided me with the proper analytical tools to conduct the initial stage of this investigation and to launch it forward in my undergraduate syntax courses; to the members of my committee, Ryan Bennett and Donka Farkas, who helped me expand this investigation into the realms of phonology and semantics; and to Junko Ito, who guided my journey into the syntax-prosody interface. Additional thanks go to the attendees of SCULC, LURC, TULCON10, and LASC for giving me feedback at each major stage of this project; to Jaime Adame, Jérémie Beauchamp, Ásta Eyjólfsdóttir, Filippa Lindahl, and Jan Werthéén for the provision and corroboration of cross-linguistic data; and to the countless people who used interrogative continuations at an audible level in their everyday conversations. Finally, I want to thank my friends and family for their endless support, the UCSC Music Department for keeping me sane, and Boo the cat for providing intermittent animal therapy during long days of writing. This project is supported in part by NSF Award #1451819, which currently funds the Santa Cruz Ellipsis Consortium sluicing project that provided the initial data for this investigation in 2015.

‘I just defended my thesis. Now I’m going to be a master!’

‘A master of what?’
Background

The earliest literature on sluicing includes some discussion of a construction which has left syntacticians ‘totally baffled’ (Ross 1969:281). This is the construction we see in Speaker B’s response in (1).

(1) A: John bought a picture.
    B: A picture of whom? [Bechhoffer 1976:45]

Through its appearances in the works of Ross (1969) and Bechhofer (1976), the only solid conclusion drawn within this first decade of investigation was that such constructions ‘are not derived by sluicing’ and that the patterns of their derivation ‘have yet to be explained’ (Bechhofer 1976:45). Although a few recent works have since revitalized the investigation into this construction after the near thirty-year hiatus following its first appearance in the literature, almost all are brief or are focused primarily on other matters. They also largely proceed in ignorance of one another. The goal of the present investigation will therefore be to provide the most comprehensive account of the phenomenon to date. Drawing from the limited existing literature on the construction and a substantial corpus of naturally-occurring cross-linguistic data, this paper will highlight issues that touch on many major subfields of linguistics, with particular implications for the question of how syntactic structures are built and how syntax interacts with semantic interpretation and with the prosodic contour of interrogative fragments.

For the purposes of the present investigation, I shall call the construction illustrated in (1) INTERROGATIVE CONTINUATION. This term will encompass a class of fragment questions that depend on a linguistic antecedent and contain an apparently unraised interrogative phrase as illustrated by example (1). The frequency of this phenomenon in everyday use and its cross-linguistic abundance make it all the more surprising that it has been so little discussed in theoretical contexts and suggest that a full and detailed investigation would be worthwhile. The outline of this paper will be as follows.

In the first section, I will lay out some of the defining characteristics of interrogative
continuations, which I will illustrate by way of examples from English and several other languages from the Indo-European, Sino-Tibetan, and Austronesian families. I will then delve into some of the more complex restrictions that constrain the phenomenon. The specific attributes of interrogative continuations that will be considered in the first section include their apparent lack of wh-movement, the fact that they commonly appear as subsentential fragments, their sensitivity to context, and their genuinely interrogative function. Another important consideration here will be the distinction between interrogative continuations and echo questions, which surfaces not only in the syntax, but also in the pragmatic functions and prosodic characteristics of the two kinds of constructions.

The second section will consider the existing literature on interrogative continuations, which is limited, incomplete, and inconsistent in its conclusions. Drawing together the works of Ross (1969), Bechhofer (1976), Ginzburg & Sag (2000), Bobaljik & Wurmbrand (2015), Abels (2017), and Weir (2017), I will consolidate the findings from these investigations with my own in an attempt to provide a broader and more cohesive account of interrogative continuations. In Section 3, I discuss two acceptability studies that have aimed to resolve the issue of discourse dependence, a particular point of disagreement in the existing literature.

In Section 4, I turn to the intonational properties of interrogative continuations. Through a comparison of these constructions with both echo questions and multiple-wh-questions, drawing especially on Truckenbrodt (2012), I identify some of the syntactic features that account for the prosodic differences among the three phenomena. The findings in this section suggest that the intonational difference between echo questions and interrogative continuations in particular can be attributed to a fundamental difference in syntactic features. The fifth section will consider two possible syntactic analyses in an attempt to account for the range of facts presented and resolve some of the theoretical issues at hand. Both a move-and-delete ellipsis approach of the kind developed by Merchant (2004) for fragment answers and a fragment-based approach of the kind
developed by Stainton (2005) will be tested and discussed in this section. In this section, I propose a copying mechanism, Reuse-XP, to account for the patterns of connectivity that are observed between interrogative continuations and their antecedents. Although the fragment-based account will ultimately be favored, several theoretical issues will remain. The investigation will conclude with a discussion of additional puzzles to be considered in the future, specifically pertaining to a potential link between interrogative continuations and root sluices.

The data that originally sparked the present investigation were a set of naturally-occurring examples extracted from the New York Times subpart of the Gigaword Corpus (Graff et al. 2005), which has served as the primary source of data for the Santa Cruz Ellipsis Consortium annotation project funded by the NSF. These first examples consisted of constructions which had been incorrectly parsed as sluices. From this database, 30 examples of interrogative continuation formed the initial basis for the current project. Subsequent sources of data have included the Corpus of Contemporary American English, the media, and my own observations of informal usage, which together have supplied an estimated 50 to 100 additional examples. An ever increasing number of naturally-occurring examples continues to drive the investigation.
1 Overview of the phenomenon

To begin, let us now take a general look at the interrogative continuation landscape, illustrated by Speaker B’s utterances in the following exchanges.

(2) A: Something about this is kind of weird.
   B: Weird how? [conversation]

(3) A: Did you tell him?
   B: [overhearing] Tell me what? [The Office: Season 4]

(4) A: We really need to get going.
   B: Going where? [HTGAWM: Season 1]

(5) A: I thought I saw her.
   B: You saw who? [Jane the Virgin: Season 2]

The core properties of interrogative continuation that I will introduce in this subsection are primarily syntactic in nature; characteristics pertaining to the pragmatics and prosody will be introduced in Section 1.3 when I compare interrogative continuations to echo questions. Section 1.2 will present some cross-linguistic data from the Indo-European, Sino-Tibetan, and Austronesian language families.

1.1 Absence of wh-movement

Perhaps the most striking feature of these constructions is the occurrence of an apparently unraised interrogative phrase (which often presents itself sentence-finally). In each of the examples above, this element is either the complement to some predicate head or an adjunct within some maximal projection (which is, in turn, often contained within a larger XP). The example in (2) provides an illustration of how as an adverbial adjunct belonging to either an AP or DegP maximal projection, while (3)-(5) show what, where, and who as complements to transitive verbs. All of these interrogative elements appear to remain in their base (first-Merge) positions rather than in the specifier position of C, thus implying that wh-movement has unexpectedly not taken place.
1.2 Fragment structure

Another notable characteristic of interrogative continuations is that the majority take the form of a subsentential fragment rather than a full CP-sized clause. Crucially, these fragments are always phrasal constituents, as shown by the AP in (2) and the VPs in (3)-(5). While these particular subsentential fragment structures have made up all of the data presented thus far, other possibilities include phrases at the DP, vP, TP, and CP levels, as shown by the following examples in (6)-(9).

(6) A: How dare you question my loyalty!
   B: Loyalty to who? [24: Legacy]

(7) A: CNN had an ad about immigration reform earlier tonight.
   B: Sponsored by whom? [conversation]

(8) A: They’re leaving.
   B: To go where? [COCA]

(9) A: What are we going to do about them?
   B: What are we going to do about what? [conversation]

1.3 Discourse dependence and antecedence requirements

Many of the previous examples of interrogative continuation have shown some similarities between the utterances of Speaker A and Speaker B; that is, the majority of the utterances by Speaker B contain some material that has been repeated from the preceding utterance. Consider, for instance, the most recent example in (9). All of the material in the interrogative continuation produced by Speaker B, save for the interrogative phrase what, seems to have been copied, or perhaps reused, from Speaker A’s utterance. If this reuse is an essential element of the interrogative continuation structure, it should logically follow that these constructions are thereby discourse dependent; that is, interrogative continuations rely on the presence of a linguistic antecedent in order to be considered felicitous. Indeed, it would be awkward at best to generate a interrogative
continuation given only a pragmatic context, such as in the following scenario.

(10)  [loud thunderclap]

   A: A storm brewing where?

It should be noted that some speakers might accommodate an example like (10) in the given context; this discrepancy will be discussed in Sections 2 and 3, which will address the limited existing literature on these constructions and two recent acceptability surveys pertaining to this specific issue. For the time being, let us return to the discourse dependence of interrogative continuations. When present, the linguistic antecedent often lies across a speaker boundary, as has been seen in all of the examples considered so far; however, same-speaker antecedents are also common, particularly in print media. Consider, for instance, the following excerpts from The New York Times subpart of the Gigaword Corpus.

(11) My father understood that the gun had to go. But go where? [NYT: 255917]

(12) And they ask you if you’re physically able to work. I mean, work what? A paper route? [NYT: 51344]

Regardless of the exact location of the linguistic antecedent within the discourse, it would appear from the examples presented thus far that some material, parallel in some sense with the continuation, must be present in the local discourse context in order for the interrogative continuation to be felicitous. A interrogative continuation itself, is therefore a ‘response’ to an ‘initiative’ (in the sense of Farkas and Roelofsen (2015)): the interrogative continuation, or the response, is a reaction to an immediately preceding utterance, or the initiative. Examples (11) and (12) illustrate an ‘internal monologue’, wherein both the initiative and the response are contained in the same utterance. In all instances of interrogative continuation, the initiative provides the presuppositional content for the response; in this way, interrogative continuations presuppose whatever material is presented in the antecedent and thereby serve to continue the discourse. This now raises the question of what sort of linguistic material is actually required to be in the
proposed antecedent and how this material connects to the interrogative continuation within the realm of syntax and phonology.

The examples shown in (2)-(5) indicate that the antecedent of an interrogative continuation ought to contain some sort of predicate that may be copied into the continuation site. In (2)-(3) this predicate is either an adjective (such as weird) or a verb (such as get or going), and subsequent examples indicate that the copied material can be something else such as the DP loyalty in example (6). When the copied predicate is a verb, the form appears to remain consistent between the antecedent and interrogative continuation, implying that what takes place is indeed a true copying procedure; this observation will be discussed alongside other remaining puzzles in Section 5. For now, we shall move on to the question of the correlate.

Oftentimes the interrogative phrase in a continuation, particularly in the cases of what and where, will have a correlate in the antecedent; this correlate may be either an implicit or an explicit complement to the predicate. Consider, for instance, examples (11) and (12); the verbs go and work allow implicit arguments in the linguistic antecedent, and these arguments are in turn realized as interrogative phrases in the continuation site. Looking back to example (9), on the other hand, the interrogative phrase what in the continuation site takes the explicit argument them from the antecedent as its correlate.

Though apparent copying between the antecedent and interrogative continuation is a common pattern in many examples, sprouting (in the sense of Chung, Ladusaw, & McCloskey 1995) is also possible, as illustrated by examples (6)-(8) for instance. In these cases, there is no phrase in the antecedent corresponding to the interrogative phrase of the continuation, and the material in the interrogative continuation is instead sprouted in a location that could be occupied by either a complement or an adjunct to whatever lexical item occurs sentence-finally in the antecedent.
1.4 (Un-)embeddability

A final syntactic property of interrogative continuations that can be observed from the present data is that the construction is apparently limited to root contexts, meaning that despite their interrogative semantics, they cannot occur as complements of question-embedding verbs. Consider, for instance, the following examples.

(13) ?? I went to see a professor, but I don’t remember a professor of what.

[conversation]

(14) ?? I heard a report that 124 people had been arrested, but the report did not go on to say arrested for what.

[KQED]

Although these examples are not necessarily completely ill-formed, most speakers who have been exposed to them have judged them as being awkward at best. The issue of embeddability will be discussed again when I summarize the current literature on interrogative continuations. For now, we might consider whether the marginality of these examples is due to the possibility of a quotative interpretation in the embedding site, which is at least a likely explanation for the example in (14).

1.5 The typological landscape

Interrogative continuations are by no means limited to English; indeed, this pattern can be seen across a wide variety of languages and language families. The following data illustrate some examples from Swedish, Icelandic, French, Spanish, Irish, Mandarin Chinese, and Indonesian. While the first five of these languages are known to require the movement of an interrogative phrase in question formation, they all appear to allow interrogative continuations as well. The same characteristic fragment structure and apparent lack of movement can be seen in examples (15)-(19). Although the final two languages in this set are known for keeping interrogative phrases in-situ, what is surprising about these cases is the apparent sub-sentential fragment that takes the place of and serves the same function as its syntactically complete clausal question alternative.
(15) Swedish
A: Han sa att vi borde läsa.
   he said that we should read
   ‘He said that we should read.’

B: Läs vad? 
   read what
   ‘Read what?’
   [Jan Werthén, p.c.]

(16) Icelandic
A: Íg aetla að borða.
   I will to eat
   ‘I want to eat.’

B: Borða hvað?
   eat what
   ‘Eat what?’
   [Ásta Eyjólfsdóttir, p.c.]

(17) French
A: Je veux cuisiner quelque chose.
   I want cook.INF something
   ‘I want to cook something.’

B: Cuisiner quoi?
   cook.INF what
   ‘Cook what?’
   [Jérémie Beauchamp, p.c.]

(18) Spanish
A: Quiero cocinar algo.
   I want cook.INF something
   ‘I want to cook something.’

B: Cocinar qué?
   cook.INF what
   ‘Cook what?’
   [Jaime Adame, p.c.]

(19) Irish
A: Bhí leigheas iontu.
   be.PST healing in-them
   ‘There was healing-power in them.’

B: Leigheas do chad?
   healing to/for what
   ‘Healing power for what?’
   [Jim McCloskey, p.c.]
1.6 Distinction from echo questions

It may be tempting to assume, as Bolinger (1978) briefly does in a discussion of ‘repetitive questions’, that interrogative continuations are merely echo questions, as both of these constructions are partially defined by the presence of an in-situ interrogative phrase; however, there are a number of important distinctions between the two, which shall be introduced in this subsection and discussed in further detail in Section 3. The first and perhaps most notable of these differences lies in the intonational contours of interrogative continuations and echo questions. Whereas echo questions are consistently marked by a rising intonation, interrogative continuations are normally uttered with a falling intonation. This distinction can be seen in the pitch tracks in Figures 1.1 and 1.2, which depict the sentence What was what? uttered as an echo question and as an interrogative continuation. Figure 1.1 shows the echo question reading, which could be licensed by an antecedent such as What was [inaudible]?, Figure 1.2 shows the interrogative continuation reading, which could be licensed by an antecedent such as What was that?
The difference that is illustrated by the pitch tracks in Figures 1.1 and 1.2 lies in the intonational contour of the final unraised interrogative phrase *what*. When uttered in the context of an echo question, this phrase shows a final rising intonation that is common to such constructions. In the context of a interrogative continuation, however, this phrase shows a final falling intonation more similar to that of a regular constituent question or a declarative, an observation that comes from a conversation with Shin Ishihara regarding the intonation of interrogative continuations (November 2017).

The second notable difference between interrogative continuations and echo questions lies in their pragmatic function. Echo questions are generally licensed due to a failure in either perception or belief on the part of the speaker and therefore call for a repetition of previously uttered material; the purpose that they serve is fundamen-
tally metalinguistic. Consider, for instance, the following example of a standard echo question.

(22) A: What was [inaudible]?
B: What was what?

Whereas we previously saw that the correlate in the antecedent to a interrogative continuation could be either implicit or explicit, the correlate in an echo questions antecedent must be explicit in order for the echo question to be licensed felicitously; this is because the wh-element in an echo question always takes the place of whatever material in the antecedent is being requested for repetition. It therefore makes sense that interrogative continuations should contrast with echo questions in this way, since interrogative continuations are used consistently to request new information. That is: interrogative continuations are genuinely information-seeking interrogative utterances, while echo questions are requests for repetition.

The pragmatic difference between echo questions and constructions like interrogative continuations was first observed by Ginzburg & Sag (2000), whose work on the syntax and semantics of interrogatives considers, in brief, what the authors call ‘non-reprising in-situ wh-interrogatives’ (2000:280). As this label might suggest, the authors note that such constructions share the defining unraised wh-element with echo questions (hence ‘in-situ wh-interrogatives’) but that their semantic nature is not that of an echo question (hence ‘non-reprising’).

A final contrast between echo questions and interrogative continuations regards the possibility of sprouting, in the sense that an XP which is essentially copied from the antecedent may be extended by way of a phrase containing an interrogative phrase (Chung, Ladusaw, & McCloskey (1995)). It has been previously shown that interrogative continuations do not always simply reuse material from the linguistic antecedent, as sprouting is also possible in these constructions. This, however, does not hold of echo questions; such constructions require either direct copying from the antecedent, or the presence of a correlate to which the in-situ wh-phrase can refer. Consider, again, example
(7) from earlier, reproduced as (23) below.

(23) A: CNN had an ad about immigration reform earlier tonight.
    B: Sponsored by whom? [conversation]

In this example, Speaker B’s utterance can only be felicitous as a interrogative continuation; the echo question reading is unavailable in this context because the wh-pronoun in (23B) does not ‘echo’ any phrase in the local discourse context.

1.7 Summary of theoretical issues

In this section, I have laid out a few of the defining characteristics of interrogative continuations. With these in mind, I shall summarize the theoretical issues that are raised by such findings, presented below. The remaining two sections will address these issues and aim to resolve them at least partially.

(i) What allows the interrogative phrase (wh-element) to remain in-situ?

(ii) How can we explain the fragment structure of so many examples?

(iii) In light of (i), what gives continuations their genuinely interrogative interpretation?
2 Existing literature

The landscape of literature on interrogative continuation is sparse, with only a few publications having surfaced in the last couple of decades. First acknowledged as a unique construction by Ross (1969) and later by Bechhofer (1976), interrogative continuations have received little analytical attention until the present century. The first significant attempt to explain these constructions was made by Ginzburg & Sag (2000), who briefly discuss what they call ‘non-reprising in-situ wh-interrogatives’. As suggested by the label, their analysis recognizes the distinction between interrogative continuations and echo questions, and also identifies propositional antecedence requirements for the construction. In more recent years, Bobaljik and Wurmbrand (2015) have classified these constructions as ‘questions with declarative syntax’ and have concluded that in the apparent absence of wh-movement, the interrogative interpretation of these constructions must be derived solely through pragmatic inference. Even more recently, Abels (2017) has labeled these constructions ‘swamps’ to reflect his analysis that they are derived through ‘sluicing with apparent massive pied-piping’. Finally, Weir (2017) has considered these constructions in brief, though the author does not propose any unique label or significant analysis for the phenomenon. The following subsections will discuss all of these contributions in more detail.

2.1 Early identifications: Ross (1969) and Bechhofer (1976)

The first instance of interrogative continuation in the literature appeared in Ross’s 1969 discussion of the syntax of sluicing in embedded contexts. Among the sluicing examples presented in this paper is the DP a picture of whom, which is not analyzed in any depth; in fact, he later confesses to being ‘totally baffled by such sentences’ in a footnote discussion of the following example (1969:281).

(24) He has a picture of somebody, but a picture of whom I don’t know.

[Ross 1969:281]
The only solution that Ross provides here is to ‘call the attention of future researchers [...] in the hope that they will be able to solve it’ (Ross 1969:281). The first answer to this call then appears in Robin Bechhofer’s 1976 article on *Reduced Wh-Questions*, an investigation that looks primarily at root sluices. The interrogative continuation that arises in this paper is again the DP *a picture of whom*, used instead as a root question illustrated by (25).

(25) A: John bought a picture.
    B: A picture of whom? [Bechhofer 1976:45]

Like Ross (1969), Bechhofer (1976) provides little in the way of a formal analysis of the observations, stating only that ‘these questions are not derived by sluicing’ with the reasoning that ‘since a picture of whom cannot be pied-piped, it cannot be a remnant of sluicing’; finally, Bechhofer concludes, ‘at this point we can only conclude that [these patterns] have yet to be explained’ (1976:45).

2.2 The first analysis: Ginzburg & Sag (2000)

It was not until thirty-one years following its first appearance in the literature that interrogative continuation received a distinct label and formal analysis. In a discussion that first lays out the broad class of in-situ wh-constructions, Ginzburg & Sag (2000) establish what they call ‘non-reprising in-situ wh-interrogatives’ as a construction that is both phonologically and pragmatically distinct from echo and other types of reprise questions (2000:280). Part of the same logic that I used in drawing this distinction in Section 1.3 is applied here, where the authors identify echo questions as ‘resulting from mishearing a previous speech act’ and being ‘marked by a characteristic intonation pattern (focus-associated rise with spreading high tone)’ (Ginzburg & Sag 2000:256). In contrast, they note that for interrogative continuations, Speaker B ‘has heard and fully understood A’s utterance’ and, in uttering the interrogative continuation, ‘proceeds to query for specific information [through] an independent use of the wh-phrase’ (Ginzburg & Sag 2000:281).
Although they do not specifically note the intonational pattern of non-reprising in-situ wh-interrogatives as a broad class, the authors do mention that so-called ‘quizmaster questions’, which they believe fall under the same category as these interrogative continuation equivalents, involve ‘a terraced downstep’ in their prosodic structure (Ginzburg & Sag 2000:285).

Regarding the issue of context sensitivity, Ginzburg & Sag (2000) claim that ‘out of the blue an in-situ wh-interrogative clause is typically infelicitous’; however, while certain examples ‘suggest that the factor licensing non-reprising in-situ wh-clauses is an overt linguistic expression’, the authors cite an example from Bolinger (1978) which implies that ‘the factor is more closely related to the salience of the question at hand’ (Ginzburg & Sag 2000:281). The findings pertaining to this issue are ultimately inconclusive, as the authors admit in summarizing that these constructions are ‘subject to certain, not entirely understood, presuppositional factors’ (Ginzburg & Sag 2000:281).

Operating within the framework of HPSG, Ginzburg & Sag (2000) propose the following syntactic analysis for interrogative continuations. First, they formally classify these constructions as in-situ-wh-interrogative-clauses, a subtype of direct-in-situ-interrogative-clauses. is furthermore a subtype of the clausal class known in their system as the in-situ-interrogative-clause. Following this classification, their analysis places two main restrictions on this clausal type, namely that such constructions must consist of finite matrix clauses (a restriction imposed specifically on the in-situ-wh-interrogative-clauses) and must denote a proposition.


The literature on interrogative continuations has seen a recent spike in activity, beginning with work by Bobaljik & Wurmbrand (2015), who discuss a construction which they call DSQs, or ‘question(s) with declarative syntax’ (Bobaljik & Wurmbrand 2015:1). In this investigation, which makes no reference to the earlier discussions considered
above, the authors claim that the constructions in question are not only embeddable by proposition-embedding verbs, but also licensed (under the right pragmatic circumstances) in the absence of a linguistic antecedent. They cite the following examples as evidence. The first of these shows the interrogative continuation without an antecedent, while the second is claimed to show the continuation in an embedded context. It would appear, however, that the example in (27) is actually a syntactically complete clausal interrogative continuation rather than an embedded fragment; I believe that this fact causes the portion of their account which relates to the issue of embeddability to be invalid.


(27) And the defendant claimed that he was standing where? [B&W 2015:4]

While many speakers, myself included, disagree with the judgment in (26), the observations that Bobaljik & Wurmbrand (2015) offer in their work make an important contribution to this investigation, one that is in some ways directly in line with my own findings. To briefly summarize the syntactic analysis that Bobaljik & Wurmbrand (2015) propose, the in-situ wh-elements that occur in DSQs, or interrogative continuations, are said to already be equipped with valued, interpretable [WH] and [Q] features that allow such elements to avoid any requirement of raising into Spec-CP (2015:9). By this logic, they claim that ‘wh-XPs have the power to contribute an interrogative interpretation by themselves’ and that ‘once set in an appropriate pragmatic and semantic context, interrogative XPs can trigger an interrogative interpretation and yield a DSQ’ (Bobaljik & Wurmbrand 2015:9).

It turns out that many of these conclusions are nearly identical to the analysis that I have proposed in previous versions of this investigation, which is laid out in Section 5 of this paper. The important differences between our accounts, then, are that Bobaljik & Wurmbrand (2015) believe these constructions to be both embeddable by proposition-selecting verbs (albeit under questionable metrics) and able to be licensed without an
antecedent, given a sufficiently informative pragmatic context; this last assumption is
shared by Ginzburg & Sag (2000). I maintain, on the other hand, that interrogative
continuations are restricted to root contexts and that they require an overt linguistic
antecedent.

The most recent work on these constructions has been done by Abels (2017) and
Weir (2017), whose analyses differ greatly from one another’s but provide equally im-
portant contributions to the limited literature on interrogative continuations. In the
first of these two discussions, Abels (2017) labels the construction ‘swamps’ to reflect
his observation that they share some properties with sluices and seem to involve an
apparent massive pied-piping mechanism. Abels (2017) lays out an analysis of contin-
uations which involves contrastive left-dislocation followed by clausal ellipsis and holds
well for data in German. The analysis itself does not account for the wide range of
possibilities that continuations show in terms of size and distribution both within and
across other languages, nor does Abels (2017) work recognize the two previously dis-
cussed treatments of this phenomenon; however, Abels (2017) does address, briefly, the
issue of embeddability. On the other hand, Weir (2017) discusses many of the proper-
ties already laid out here and eventually concludes, as I also do in this investigation,
that interrogative continuations are formed in the absence of a C-layer in the syntax.
Although our analyses are similar, the present investigation ultimately provides a more
in-depth summary of the phenomenon as a whole.

2.4 Consolidation

To conclude this section, I will briefly summarize the findings from the past thirty-
nine years of literature on interrogative continuations in order to paint a more cohesive
picture of the phenomenon. This consolidation will lead into a discussion in the next
section of how I have attempted to resolve the issue of discourse dependence, a point of
disagreement that has run through all of the works considered here.
An entirely predictable yet nevertheless comforting fact to begin this summary with is that all of the existing literature on interrogative continuation recognizes the apparent lack of wh-movement in these constructions. This is probably the point where the unanimity ends. Only the works by Ross (1969), Bechhofer (1976), Abels (2017), and Weir (2017) have acknowledged that interrogative continuations commonly occur as sub-sentential fragments. Regarding discourse dependence, both Ginzburg & Sag (2000) and Bobaljik & Wurmbrand (2015) claim that these constructions are licensed in the absence of a linguistic antecedent; the other three authors do not make any claims about this issue. Finally, the question of embeddability is still up for debate, as the same authors who claim that interrogative continuations do not need to be licensed by linguistic antecedents also accept these constructions in embedded contexts, interestingly enough.
3 Discourse dependence revisited

As we have seen, there are many disagreements within the current literature on interrogative continuations concerning the need for an antecedent. A central goal of the current paper has been to help to resolve these disagreements and to do that in a way that goes beyond contesting intuitions. Two experiments have been conducted for this purpose and will be the focus of the current section.

3.1 Experiment 1

In order to determine whether interrogative continuations can indeed be derived through pragmatic context alone, as has been previously suggested by Ginzburg & Sag (2000) and Bobaljik & Wurmbrand (2015), I designed an initial acceptability judgment survey for what I will call Experiment 1 in this investigation. The survey for this pilot study consisted of six mandatory questions presented in a randomized order with an optional free response at the end. Each question was made up of a few sentences describing a pragmatic context followed by a single utterance in quotation marks. Of the utterances in question, three were target interrogative continuation fragments and the remaining three were VPE fillers; the full list of tokens can be found in the Appendix. Instructions at the beginning of the survey asked respondents to rate each utterance on a standard likert scale (1-7), where 1 indicates minimal acceptability and 7 maximal acceptability) with the assumption that the material in quotation marks was the first thing to be spoken in each context.

Although this experiment did not specifically aim to compare the acceptability of pragmatically derived interrogative continuations with similar instances of VPE, the results show that there is in fact a contrast between the two. The mean rating for all interrogative continuation targets was 3.35 with a median of 3, while the VPE fillers received a slightly higher mean rating of 4.35 and median of 5. Sixteen total responses were recorded for the survey and the results from these are illustrated in Figure 3.1.
Figure 3.1: Experiment 1 results
(Key: VPE = VP Ellipsis, IC = Interrogative continuation.)
While Figure 3.1 displays only the numerical results from Experiment 1, one respondent did complete the optional free response at the end of the survey and stated that the example utterances ‘felt too fragmented even for the contexts’. As it relates to the current investigation of interrogative continuations, this sentiment suggests that these constructions indeed require the presence of a linguistic antecedent in order to be considered felicitous, at least to the same extent that VP Ellipsis does.

Although no specific predictions were made for Experiment 1, it was expected that both the interrogative continuation targets and VPE fillers would receive generally low ratings on the 1-7 scale. It has long been recognized that VPE cannot be successfully licensed by pragmatic context alone, as was first established in the discussion of deep and surface anaphora by Hankamer & Sag (1976) and later confirmed by Pullum (2000). In light of these observations, it is surprising that every target and filler received at least one rating of 6 or 7, as can be seen in Figure 3.1. These ratings might have been due to accommodation effects by individual participants. Another possible explanation for these values is that some speakers’ notions of acceptability and unacceptability are simply defined differently from others’ with respect to the 1-7 scale. Experiment 2, whose design is discussed next, aims to resolve some of these unclarities.

3.2 Experiment 2
The same VPE and interrogative continuation stimuli from Experiment 1 were used in Experiment 2 with the addition of 6 fillers. These additional stimuli consisted of the same context-utterance format as the original stimuli, with the six new utterances comprising two island violations, two impossible passives, and two well-formed instances of left-edge ellipsis. Both the island violations and impossible passives were chosen in order to gauge the participants’ lower grammaticality judgments, while the well-formed instances of left-edge ellipsis were chosen to control for the highest ratings. The left-edge ellipsis examples also functioned as distractors because of their fragment structure, which made them look similar to the VPE distractors and interrogative continuation
targets. In addition to these changes, a larger sample size was collected for Experiment 2, totaling at 53 participants. In designing Experiment 2, the general prediction was that the pragmatically derived interrogative continuations would still rank below the VPE distractors, as had been the case in Experiment 1. The island violations and impossible passives were expected to rank the lowest, having been selected specifically for control purposes, and the left-edge ellipsis distractors were expected to rank highest for the same reason.

Regarding the ratings for pragmatically derived interrogative continuations and instances of VPE, the results from Experiment 2 were consistent with those from Experiment 1: the interrogative continuations without linguistic antecedents received a mean rating of 3.23 with a median of 3, while the antecedentless VPE examples received a mean rating of 4.25 with a median of 5. At the lower end of the likert scale, the island violations and impossible passives used for control both had a median rating of 2, with the island violations receiving a mean rating of 2.60 and the impossible passives a mean rating of 2.72. Finally, the well-formed instances of left-edge ellipsis also used for control purposes received a mean rating of 6.81 with a median of 7. These findings are illustrated in Figures 3.2 and 3.3.

The results from both experiments show a remarkably clear pattern wherein the interrogative continuations targets are consistently ranked as less acceptable in comparison to the VPE distractors. In contrast, the interrogative continuation targets rank only slightly higher than the island violations and impossible passives. Finally, the well-formed instances of left-edge ellipsis, as expected, were the highest ranked group of stimuli in Experiment 2. Because it is relatively uncontroversial that VP Ellipsis sites require linguistic antecedents, the most important conclusion that we can draw from these two experiments is that there is as much reason to make the same assumption with respect to interrogative continuations as there is in the case of VP Ellipsis.
Figure 3.2: Experiment 2, individual token results
(Key: LEE = left-edge ellipsis, ISL = island violations, PASS = impossible passives,
VPE = verb phrase ellipsis, IC = interrogative continuation.)
Figure 3.3: Experiment 2, token group results
(Key: LEE = left-edge ellipsis, ISL = island violations, PASS = impossible passives,
VPE = verb phrase ellipsis, IC = interrogative continuation.)
4 The intonational contour

This section will examine the prosodic characteristics of interrogative continuations in greater detail through a comparison with both echo questions and multiple-wh-questions. These two constructions are similar to interrogative continuations in that they share the defining characteristic of an unraised wh-element, but differ from one another in terms of their intonational contours. The comparison in this section will therefore aim to identify some of the factors responsible for the prosodic differences between all three of these constructions, with special focus on the syntax-prosody interface. Through the consideration of the prosody of these phenomena, I will narrow down the two syntactic features that help explain the intonational differences between echo questions and multiple-wh-questions and, by extension, interrogative continuations.

In doing these comparisons, we can draw on the existing literature on both echo questions and multiple-wh-questions in the syntax-prosody literature. For this comparison, I will concentrate on Truckenbrodt (2012), specifically the sections that consider the ways in which focus features affect the prosody of interrogative constructions. I will look mostly at the relationships between focus and accent in echo questions and multiple-wh-questions in German and English, although some attention will also be paid to Truckenbrodt’s (2012) description of regular wh-questions in Japanese. In this section, I will ultimately argue that it is a combination of the features [Q] and [F] that explains the accent with falling intonation exhibited by the unraised wh-element in interrogative continuations. I will begin by summarizing the findings of Truckenbrodt (2012) for echo questions and multiple-wh-questions in isolation, and then proceed to individually compare each of these accounts to the current analysis for interrogative continuations.

Before we dive into this part of the present investigation, though, let us first recall the basic patterns that distinguish echo questions and interrogative continuations from each other. These could be seen in the prosodic contour of the sentence-final interrogative element shown in Figures 1.1 and 1.2, reproduced below in Figures 41. and 4.2.
While these examples only show the distinction as it pertains to sentence-final interrogative elements, there is evidence to suggest that these prosodic effects carry through the remainder of the intonational phrase when some material follows the interrogative element. Consider, for instance, the following minimal pair.

(28) A: I hope {it/[inaudible]} all works out.
    B: That what all works out?\(^1\) [conversation]

The current section will only focus on clause-final interrogative elements in both echo questions and continuations; however, the patterns seen in Figures 4.3 and 4.4 are certainly interesting and merit further investigation.

\(^1\)This example is also interesting because of the overt realization of C in the continuation site.
4.1 Echo questions and multiple-wh-questions: Truckenbrodt (2012)

As Truckenbrodt (2012) observes at the start of his account of echo questions, these constructions follow a characteristic rising intonation pattern (2012:144). Syntactically, they lack the [Q] feature that is present in regular interogatives, which explains, at least in part, why they do not always follow the syntactic structure of a regular interrogative (2012:144). An additional defining feature of echo questions is the consistent attraction of sentential stress onto the unraised wh-element. From this observation about the prosodic pattern of echo questions comes an important assumption about the syntax; specifically, the position of sentential stress on the unraised wh-element must be the result of a focus feature [F] that is inherent to the wh-element itself (2012:145). The presence of this feature triggers what Truckenbrodt (2012) calls the F-effect on prosody,
defined by the FOCUS principle below (Truckenbrodt 2012:147).

(29) **FOCUS**: F attracts the strongest stress in its scope-domain (the domain of Q or of EQ)

As it pertains to a regular constituent question where the interrogative element is left in-situ, this principle is realized through an intonational peak that forms on the wh-element bearing [F], with the interrogative phrase forming the scope-domain of [F]; since this is a genuinely interrogative structure as well, this focus feature is specifically a [Q]-related [F] (2012:144). The particular effect of this [Q]-related [F] is illustrated for a regular constituent question in Japanese below (Truckenbrodt 2012:144, from Ishihara 2003:53).

(30) Naoya-ga nani-o nomiya-de nonda no?
    N,NOM what,ACC bar,LOC drank Q
    ‘What did Naoya drink at the bar?’

![Figure 4.5: Constituent question in Japanese](image)

As it pertains to echo questions, the F-effect of (29) places the strongest stress within the domain of the entire echo question (EQ) on the unraised wh-element because of the [F] feature that inherently co-occurs with [WH], just as before. In these instances, however, the intonational accent that forms on the wh-element remains high rather than falling to a low tone as it would in a regular constituent question. This was the effect illustrated in Figures 1.1 and 4.1.
To summarize the discussion so far, Truckenbrodt posits that the focus feature \([F]\) is inherent to wh-elements and whichever elements bears \([F]\) will have the strongest stress within the domain of \([F]\) (2012:144-5); furthermore, we have observed that the outcomes of the F-effect on prosody differ based on whether the regular Q-marker is present or absent. Maintaining that the feature \([F]\) is inherent to wh-elements and that echo questions lack the regular interrogative feature \([Q]\), we can reasonably assume that this difference in F-effect outcomes is in fact due to the value of the \([Q]\) feature in the various constructions. More specifically, the feature combination \([+F, -Q]\) gives echo questions their distinctive rising intonation, while the combination \([+F, +Q]\) gives regular wh-questions their characteristic intonational peak. This tentative proposal will be explored in greater depth when we consider Truckenbrodts (2012) account of multiple-wh-questions next, and again when we consider how all of these facts fit in with our developing new analysis of interrogative continuation.

In Truckenbrodt’s (2012) analysis of multiple-wh-questions, the primary observation is that ‘a wh-phrase in situ in a multiple-wh-question inherently attracts stress’; this property is attributed in part to the wh-inherent F-feature, just as was assumed to be the case for echo questions (2012:150). In the case of multiple-wh-questions, however, some additional factors influence the distribution of sentence stress. The two principles of particular importance here are \textsc{Stress-XP} and the \textsc{NSR-I}, defined below (Truckenbrodt 2012:133-134). Following these definitions is a pitch track of a simple multiple-wh-question in English.

(31) \textsc{Stress-XP}: Each lexical XP must contain phrasal stress (coextensive with accent).

(32) \textsc{NSR-I}: Strengthen the rightmost phrasal stress in the intonational phrase.

As these principles pertain to multiple-wh-questions for Truckenbrodt (2012), \textsc{Stress-XP} first assigns accent to the wh-element in situ, which \textsc{NSR-I} then strengthens to sentential stress due to its position as the final element in the syntax (2012:150).
Importantly, the [F]-feature that is assumed to factor into the attraction of sentential stress in these constructions is specifically a [Q]-related [F], the very same [F] that we previously saw in the account of in situ wh-questions in Japanese.

In Section 4 thus far, we have found that the F-effect on prosody draws sentence stress to the in situ wh-element in three different constructions: in situ wh-questions (in Japanese), echo questions, and multiple-wh-questions. The manifestations of this F-effect varies, however, depending on the value of the [Q] feature with which the [F] feature co-occurs in the structure. When this feature is [-Q], as it is in an echo question, the stressed element will receive a sustained high tone. On the other hand, when this feature is [+Q], as it is in wh-questions in situ (for Japanese) and in multiple-wh-questions, the stressed element will receive an intonational peak consisting of a high tone that is followed by a low tone.

4.2 Comparison of Truckenbrodt (2012) to present analysis

The observations made by Truckenbrodt (2012) suggest the existence of an additional distinction between echo questions and interrogative continuations, specifically one that concerns their respective underlying syntactic structures and influences their semantic interpretations. Although Truckenbrodt (2012) assumes that both echo questions and multiple-wh-questions carry an inherent F-feature on the unraised wh-element, this element in a multiple-wh-question crucially exhibits the additional feature of [+Q],
which is not present in echo questions. It is the presence of this [+Q] feature that allows for both the attraction of sentential stress onto this element and its interrogative interpretation in a multiple-wh-question; in this way, it is also the absence of [+Q] in an echo question that renders the unraised wh-element uninterrogative and attracts a different intonational contour onto the focused element.

Insofar as this analysis extends to the current investigation of interrogative continuations, we can make similar assumptions for interrogative continuations as Truckenbrodt (2012) does for the multiple-wh-question cases in order to provide a richer comparison between these constructions and echo questions. First, given the genuinely interrogative interpretation that interrogative continuations carry despite the apparent lack of wh-movement, we can posit that the feature [+Q] is present on the unraised wh-element in these instances just as it is in multiple-wh-questions. Adopting further the assumption of an inherent focus F-feature on wh-elements, this account would then posit that the unraised element in a interrogative continuation carries a [Q]-related-F, which is precisely the feature that Truckenbrodt (2012) assumes to be responsible for the falling intonational pattern of multiple-wh-questions. The success of this adaptation of Truckenbrodt’s (2012) account of multiple-wh-questions to the present context is made apparent by the similar intonational patterns of the two constructions; indeed, both multiple-wh-questions and interrogative continuations are uttered with a similar falling intonation, as illustrated by the pitch tracks in Figures 4.7 and 4.8s.

![Figure 4.7: What held what? as a multiple-wh-question](image)
The similarities here suggest that both of these constructions share the same featural contrast with echo questions, which in turn accounts for the fact that they share an intonational contour that is likewise distinct from that of a typical echo question. Specifically, it is the feature combination \([+Q, +F]\) that accounts for the attraction of sentence stress with a falling intonation on the unraised wh-element in a multiple-wh-question and, for the purposes of the current investigation, an interrogative continuation.
5 Narrowing the hypothesis space

With these conclusions in place, we can go on to consider the analytic options open to us. Whatever the ultimately correct analysis may be, it must guarantee the following outcomes: that interrogative continuations are not echo questions; that they are genuinely interrogative; that they do not involve wh-movement; that they have an antecedent requirement similar to, and as strong as, that of the silent VP in a VP Ellipsis construction; and that they are, or may be, subsentential fragments. We will begin with the last two properties.

5.1 Interrogative continuations as fragments

The rich literature on fragments (especially fragment answers) provides two analytic options for cases like (33).

(33) A: What are we going to order?  
    B: Pizza.  

[Jim McCloskey, p.c.]

The first of these analyses features most prominently in the work of Merchant (2004), who states that ‘ellipsis in these cases is preceded by A-movement of the fragment to a clause-peripheral position’ (2004:661). The second option, proposed by Stainton (2005), treats fragments as base-generated subsentential structures which involve neither movement nor ellipsis.

Adapting these ideas, one possible analysis for interrogative continuations would make use of both raising and ellipsis in the style of Merchant (2004). Under this account specifically, an ellipsis-licensing feature [E] on the matrix interrogative C head would raise a constituent into its specifier position for focus and subsequently elide the remainder of its complement. The account laid out for sluicing involves standard wh-movement followed by the deletion of what remains in the TP complement of C. Modified for interrogative continuations, this analysis would only have to stipulate a new kind of movement of some maximal projection containing a wh-element into the
specifier of C. A derivation of the interrogative continuation in (34B) *Get what?* under this analysis would proceed as follows.

(34) A: You just don’t get it, do you?

B: Get what? [NYT: 208685]

This analysis seems to have success in accounting for examples like (34) at first glance; here, a VP maximal projection containing a wh-element as its complement is raised into the specifier of interrogative C, and the remainder of the TP is subsequently elided, resulting in a VP-sized interrogative continuation. Crucially, the presence of the E-feature on C would guarantee the antecedence requirement established in the two experiments described earlier.

As attractive as this analytic path might seem, upon closer consideration we can see that it in fact brings with it numerous problems. The first of these regards the issue of pied-piping. Currently, this mechanism is known to only work on minimal DPs and PPs, but not any larger phrases such as VPs of APs which appear in many examples of interrogative continuation. In order for the currently proposed analysis to work, we would need some sort of hyperactive pied-piping mechanism capable of spreading the
[WH] feature onto a much larger constituent for raising.

Were this in fact possible, the second issue to arise would then regard the insensitivity to island constraints involved in the raising mechanism, as well as the fact that subsequent ellipsis would be obligatory in order for grammatical structures to be produced. Consider, for example, the following construction in which deletion does not occur after raising.

(35)  A: I think chicken parts are the way to go.
     B: Cooked how?
     B: *Cooked how do you think chicken parts are the way to go?

[Jim McCloskey, p.c.]

The final issue with this analysis arises when we consider the fact that interrogative continuations are not always fragments, but rather are sometimes full CPs as seen in (36); these are most obvious when the antecedent itself is a full clausal wh-question and the interrogative continuation merely replaces some internal complement with an interrogative pronoun. The following example is a good illustration of one of these.

(36)  A: What are we going to do about them?
     B: What are we going to do about what?  
     [conversation]

In this example, the interrogative continuation is not a fragment XP, but rather corresponds to the entire CP which provides its antecedent; nothing is deleted between the antecedent and the interrogative continuation, and there is no sign that anything has raised either. In fact, it would likely be impossible for anything to actually raise in such a case, since the specifier position of interrogative C is already occupied by a wh-phrase. With these observations in mind, it would be sensible to consider an alternative hypothesis for the derivation of interrogative continuations.

Given that the majority of the examples provided here (and the majority of attested examples) are in fact subsentential in syntactic terms, we can entertain a purely fragment-based analysis for interrogative continuations. This analysis will be based on
the work of Stainton (2005), who proposes an account of how fragment answers may be freely formed subsentential XPs rather than full clauses to which subsequent deletion applies. Applying this theory to the current investigation, the only mechanisms involved in deriving a interrogative continuation would be the function Merge for structures below the TP level, and then any other raising operations mandated by the functional heads which are contained within this fragment XP. In the absence of a TP layer, there would be no subject-raising; in the absence of a CP layer, there would be no wh-movement. Given purely probe-driven theories of wh-movement, a derivation of (37B) is given below to illustrate how this analysis would work.

(37) A: I need some time to think about this.
    B: Think about what? [conversation]

The interrogative interpretation would then have to be assumed to come from an inherent feature on the wh-element, enabling the absence of the C layer. It has been previously suggested, specifically by Ginzburg & Sag (2000), Bobaljik & Wurmbrand (2015), and Weir (2017), that the interrogative force of this construction ought to be derived from principles of pragmatic inference. In my own prior analyses of interrogative continuations, I have stipulated that the [Q] feature could be an inherent property of wh-phrases, a feature whose semantic properties determine interrogative semantic force for the fragment XP. Both approaches seem a priori reasonable, but in both cases all of the serious analytical work remains to be done.
5.2 Antecedence requirements and patterns of connectivity

We will now return to the issue of connectivity between a interrogative continuations and its linguistic antecedent. It has been observed that, aside from the cases in which a interrogative continuation consists of only a sprouted XP, all of the material in a interrogative continuation corresponds with material from the antecedent, with the wh-phrase itself being the only exception. This observation is consistent across all of the well-formed examples used here so far. Because no formalized mechanism for the copying that occurs between a interrogative continuation and its antecedent appears to exist in the literature, I will propose one in this section.

This copying mechanism, which will be called Reuse-XP, will need to be able to account for a range of important patterns that I will discuss first. In revisiting these facts in closer detail, I hope to answer the question of how interrogative continuations connect to their antecedents syntactically, semantically, and phonologically; furthermore, I hope to identify what exactly carries over from the antecedent into Speaker B’s utterance during the formation of a interrogative continuation. To begin this discussion, we will revisit this notion of linguistic borrowing in the broadest sense with the following examples.

(38) A: How dare you question my loyalty!
    B: Loyalty to who? [24: Legacy]

(39) A: Something about this is kind of weird.
    B: Weird how? [conversation]

(40) A: Luca doesn't know that; that's why he's hiding.
    B: Hiding where? [24: Legacy]

(41) A: I'll pay you, Christophe.
    B: Pay me for what? [HTGAWM: Season 4]

(42) A: I'm sorry, I did not know.
    B: Didn't know what? [COCA]
(43) A: What if something happened?
   B: What if something happened when? [unknown movie source]

(44) A: I hope it all works out.
   B: That what all works out? [conversation]

As previously established in Section 1, the material that makes up the interrogative continuation is always some XP maximal projection; this observation is evidenced by the NP in (38), the AP in (39), the VPs in (40) and (41), the TP\(^1\) in (42), and the CPs in (43) and (44). In a previous discussion of this construction, Weir (2017) claims that interrogative continuations may only consist of XPs that, under the right conditions, are able to undergo \(\overline{\lambda}\)-movement; however, the fact that (38) shows a bare NP without its possessive determiner suggests that this claim does not always hold (Weir 2017:402).

Regarding the syntactic and phonological patterns in particular, it is an interesting and important property of interrogative continuations that, apparently, no mismatches of form other than those involving indexical features and subject-verb agreement are possible. Examples (45)-(47) show that mismatches in voice, finiteness, and category are all unavailable in interrogative continuations; examples (48) and (49) illustrate the necessary changes in indexicality and verb form.

(45) A: The chicken parts need to be cooked.
   B: Cooked how? [Jim McCloskey, p.c.]
   B: \#Cook them how?

(46) A: I'm sorry, I did not know.
   B: Didn't know what? [COCA]
   B: \#To not know what?

(47) A: I do it for anxiety.
   B: Anxiety about what? [conversation]
   B: \#Anxious about what?

\(^1\)Although this appears to be a \(T'\)-level fragment, it is most likely a case of left-edge ellipsis applied to the TP <You> didn't know what?. For a discussion of left-edge ellipsis, see Weir (2012).
A: Does he know?
Bj: [overhearing] #Does he know what?

A: How did I lose that in the last two seconds?
Bk: How did you lose what? [conversation]
Bk: #How did I lose what?

Additionally, examples (50) and (51) show that NPIs, reflexives, and reciprocals appear to be licensed in interrogative continuations, despite the absence of any over licenser in the interrogative continuation itself. Cases such as these further suggest that the antecedence requirement of interrogative continuations must be relatively strict.

(50) A: You need not say a word.
B: Say a word about what?

(51) A: Did they help each other/themselves?
B: Help each other/themselves with what?

Where semantics is concerned, one puzzle regards the ability of an interrogative continuation to introduce a new discourse referent in the presence of an indefinite DP. Consider, for instance, the example in (52).

(52) A: I found a book in the library.
B: A book about what?

Crucially, the interpretation of *a book* in the interrogative continuation site here denotes the exact same entity that is introduced by the indefinite DP in the antecedent; it is therefore not possible for *a book* in this case to introduce a new discourse referent. The interpretation of (51) is something along the lines of *What is that book about?*, which makes specific reference to the book that has been introduced into the discourse rather than to a book that has not yet been mentioned. This suggests that the DP *a book* has effectively been borrowed from the antecedent for syntactic and phonological purposes, but not for the semantic purpose of introducing a new discourse referent.
5.3 Reuse-XP

These observations in 5.2 are important because such mismatches in form are well-documented for well-studied ellipsis processes such as VP Ellipsis and sluicing; as such, they draw a clear line between interrogative continuations and ellipsis and suggest that the antecedence requirement for the interrogative continuations is much stricter than for ellipsis constructions. This is the property that the procedures in Reuse-XP are principally designed to capture. With these observations in mind, we can now define Reuse-XP as follows.

(53) Reuse-XP

1. Select an XP (maximal projection) from Speaker A’s utterance; call this XPₐ.
2. Copy XPₐ into Workspace.
3. Replace a pronoun or demonstrative in XPₐ with an interrogative phrase or Merge an interrogative phrase as a new argument of or adjunct to XPₐ.
4. Change the phonological content of any indexicals and verbs whose existing phonological content does not match the expressed combination of features.
5. The maximal projection of the new structure will be labeled XPₐ.

The mechanism laid out in (53) will copy all of the targeted syntactic and phonological material from the linguistic antecedent into the site of the interrogative continuation in preparation for Speaker B’s utterance, with one major exception. Step 4 requires that any pronouns present in the antecedent change their phonological shape in order to pick out the same referent from the point of view of the current speaker. The indexical change will thus be the only mismatch between a interrogative continuation and its linguistic antecedent. The following example in (54) gives an illustration of how Reuse-XP would apply in the derivation of the VP interrogative continuation, reproduced from example (37) and adopting the featural composition of the interrogative phrase that was derived in Section 4.
Although this proposal ultimately favors base-generated fragments over movement and deletion, Ryan Bennett has alerted me to the possibility that both fragment generation and ellipsis might be involved in certain instances of interrogative continuation (personal communication, November 2017). Consider the following examples.

(55) A: I think chicken parts are the way to go.
B: <Chicken parts> cooked how? [Jim McCloskey, p.c.]

(56) A: They’re leaving.
B: <Leaving> to go where? [COCA]

It is possible that the interrogative continuations in (55) and (56) originate as larger fragments that later undergo ellipsis, whereby chicken parts and leaving are deleted. Alternatively, it may be the case that REUSE-XP copies the syntactic material of these phrases from the antecedent without carrying over any of the phonological material. Yet another possibility, which Donka Farkas has alerted me to, is that REUSE-XP is a feature-copying mechanism that can be optionally followed by phonological spell-out (personal communication, May 2018). Whether the examples in (55) and (56) are cases of pure sprouting, a combination of sprouting and deletion, or a combination of featural copying and sprouting has yet to be determined.
5.4 Summary of analysis

In the investigation so far, I have provided what I believe is the most comprehensive overview provided to date of the interrogative continuation phenomenon and I have proposed a preliminary analysis for both its intonational contour and its syntactic derivation. Within this analysis, I have proposed a new copying mechanism, REUSE-XP, to help account for the apparent borrowing of material that can be observed between linguistic antecedents and interrogative continuations. Additionally, some novel facts regarding the construction have been brought to light, particularly the unacceptability of interrogative continuations in environments which do not provide an appropriate environment for REUSE-XP.

Much remains unclear about the crucial operation REUSE-XP at both the technical level and the level of theory. Furthermore, the crucial question of its interaction with the system of semantic composition remains to be explored. Hopefully, however, the proposal in its current form can serve as a useful starting point for future explorations.
6 Challenges, puzzles, and prospects

To conclude this investigation, I will discuss some of the puzzles that I feel warrant future consideration. Given that the original data for this investigation came in the form of incorrectly parsed material from the NSF project on sluicing, one must wonder whether interrogative continuations and root sluices share any properties with each other where their syntactic derivations are concerned. One example from a radio broadcast implies that the two constructions are in fact closely linked.

(57) A: This is actually very typical behavior.
   B: Typical of what? Of whom?

The first part of the response in (57B) is clearly a interrogative continuation. The second part of the response might be interpreted as a root sluice (which has the interrogative continuation as its antecedent), or it might be interpreted as a particularly small interrogative continuation. It may be, then, that such confounds help us understand why root sluices have proven so difficult to integrate with sluices in general. It could be that apparent root sluices have a number of sources.

6.1 A Swedish puzzle

Further evidence from Swedish paints an even clearer picture of the patterns of connectivity between interrogative continuations and root sluices. From these data, it appears that interrogative continuations and root sluices might be more closely linked to each other than either one is to syntactically complete clausal constituent questions. Specifically, the discourse marker då ‘then’ is obligatory in both root sluices and interrogative continuations, but prohibited in clausally complete constituent questions and echo questions that arise from a failure in perception.

(58) A: Vi borde läsa.
    we should read.INF
   ‘We should read.’
B: Vad/*Vadâ borde vi läsa.
   what should we read.INF
   ‘What should we read?’

B': Läsa vadâ?
   read what
   ‘Read what?’

B’’: Vadâ?
   what
   ‘What?’ [root sluice interpretation]

(59) A: Vi borde [inaudible].

B: Vad/*Vadâ? [echo question interpretation]

The examples in (58B’) and (58B’”) suggest that in ‘reduced’ constituent questions, to harken back to Bechhofer’s (1976) term, the dâ particle serves some purpose that may be crucial to the interrogative interpretation of these constructions. This notion seems to hold true when comparing these examples to (58B) and (59B). In (58B), we can assume that an interrogative C-layer serves this purpose in the syntax, since this example shows a clausally complete constituent question. On the other hand, (59B) is an echo question which we understand does not carry the same genuinely interrogative interpretation as a root sluice or an interrogative continuation does. It would not be outlandish to assume that perhaps the dâ particle in these examples is functioning as an overt realization of the [Q] feature.

6.2 REUSE-XP revisited

Much work remains to be done regarding the copying mechanism REUSE-XP and to be said about the interactions between the copying process and the semantic interpretation of interrogative continuations. What is clear from Section 5 is that some sort of featural copying must occur within the syntax, as evidenced by the minor adjustments in the phonological contents between the initiative and the response. The scopal effects of the new interrogative element in a continuation, however, are not completely clear. In
previous sections, we saw that interrogative continuations could sometimes take the
appearance of multiple-wh-questions, such as the following.

(60)  A: How did I lose that in the last two seconds?
        B: How did you lose what?  [conversation]

Although the interrogative continuation in (60B) contains two interrogative elements,
only the sentence-final what functions as a genuinely interrogative phrase; the phrase
how has simply been reused from the antecedent. This is made clear by Speaker A’s
actual response to the continuation, which was My worksheet. Importantly, the felicitous
response to the question in (60B) could not be a set of answer pairs, but rather a single
answer corresponding to the interrogative phrase what. While this much is clear, exactly
how this observation can be accounted for theoretically remains a mystery. It is my hope
that the puzzles laid out in this investigation will be pursued for further exploration.
Appendix

Data
The data used for this project, as well as the results from Experiments 1 and 2, are available to the public and can be found here: https://people.ucsc.edu/~lwerthen/research.html.

Experiment 1

Your friend is a coffee enthusiast and tends to order a new type of roast every time they visit a coffee shop. You decide to meet this friend for coffee one morning, and upon entering the coffee shop you see that they are already seated with a fresh hot beverage. Pointing to your friends mug, you ask: ‘A cup of what today?’ (IC)

You come home and see your roommate storming around the kitchen, smashing plates while cursing under their breath. You ask: ‘Angry about what?’ (IC)

You and your partner have been discussing possible dishes to make for an upcoming potluck. While shopping for the event together, you see your partner place a pack of raw chicken thighs into the shopping cart. Wondering how they plan to prepare these, you point to the chicken and ask: ‘Cooked how?’ (IC)

You arrive home to find the kitchen a total mess. You see that your roommate has at least prepared the trash bag to be taken out, but has now moved on to washing the dishes. Looking at the trash bag, you say: ‘Okay, I will.’ (VPE)

You are enrolled in a class that is taught by two professors who normally take turns leading each lecture. One day, the two walk in and one professor begins coughing. The other then says: ‘I suppose I should today.’ (VPE)

You and your partner are getting ready to leave the house. The weather report had predicted rain showers today, but looking outside, you see that the sky is only slightly overcast. At the door, your partner grabs an umbrella and says: ‘It still might.’ (VPE)
Experiment 2
(excluding VPE and IC tokens from Experiment 1):

You and your neighbor are planning to go out for a jog. As you meet up on the sidewalk, you both look up at the sky and notice dark rain clouds in the distance. You say: ‘Looks like it might rain soon.’ (LEE)

You arrive home and are immediately greeted by a delicious smell coming from the kitchen, where your partner is cooking something delicious. As you walk into the kitchen, you say: ‘Smells good in here!’ (LEE)

You recently had a delicious meal at a restaurant whose name you cannot remember. When telling a friend about this experience, you say: ‘I had a great meal at some place that I can’t remember what was called.’ (ISL)

You and a friend are at a bookstore. You know that your friend is an avid reader, but you can’t remember who their favorite author is. You ask: ‘Which author do you like’s books the most?’ (ISL)

You notice one day that your friend has gotten a flattering new haircut. You tell them: ‘I like your haircut; you are really suited by it.’ (PASS)

You recently gave away a pair of shoes to a friend but are not sure if they were quite the right size. One day, you see your friend wearing the shoes and walking around comfortably. You say: ‘It looks like you are fitted by those shoes.’ (PASS)
References


Chung, Sandra; William Ladusaw; and James McCloskey. 1994. Sluicing and logical form. 9-13. Santa Cruz, CA.


