

Aggressively Non-D-Linked *Wh*-Phrases and Ellipsis: A Direct Interpretation Approach

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Abstract

This paper discusses non-d-linked *wh*-phrases in ellipsis phenomena. We first explore their grammatical properties on the basis of attested corpus data and show that such expressions can license sluicing as opposed to what previous studies have argued, in addition to some other ellipsis phenomena. We also demonstrate that the ellipsis phenomena involved with the non-d-linked *wh*-phrases are not solely syntax-based but due to tight interactions among a variety of grammatical component such as phonology, morphosyntax, semantics, and discourse/pragmatics. This paper then argues that their authentic uses overall support a Direct Interpretation (DI) approach that can evoke the meanings of the unpronounced material with no syntactic structures.

1 Introduction

Expressions like *what on earth*, *who the hell*, and *what the dickens* are taken to be aggressively non-d-linked *wh*-phrases since they do not occur with the d(iscourse)-linked phrase *which* (Pesetsky, 1987; Dikken and Ginnakidou, 2002; Huang and Ochi, 2004):

- (1) a. What the hell did he buy?
b. I wonder what the hell he is talking about.
- (2) a. *Which the hell did he buy?
b. *I wonder which the hell he is talking about.

These *wh*-interrogatives basically ask the value for the *wh*-phrase, but accompany a negative inference such that he should not buy anything for (1a), for instance.

Literature has noted that such aggressively non-d-linked *wh*-phrases display intriguing properties with respect to ellipsis as compared to normal *wh*-phrases (Pesetsky, 1987; Merchant, 2001; Dikken and Ginnakidou, 2002; Sprouse, 2006; Hartman and Ai, 2009):

- (3) a. They were arguing about something, but I don't know what (*the hell).
b. They were arguing, but I don't know about what (*the hell).
c. They were arguing, but I don't know what (the hell) about.

The data illustrate that aggressively non-d-linked *wh*-phrases cannot occur in sluicing and pied-piped sluicing, but are acceptable in swiping. These three elliptical constructions have been often argued to involve movement as well as clausal ellipsis (see Merchant, 2001, 2002) while attributing the illegitimate presence of the aggressively non-d-linked *wh*-phrase in (3a) and (3b) to a phonological constraint such that the rightmost expression needs to be given stress (Merchant, 2001; Hartman and Ai, 2009).

However, a corpus search reveals that aggressively non-d-linked *wh*-phrases can license sluicing as opposed to what previous studies have claimed.

- (4) a. "My God," he said. "They survived. **How the hell?**" (COCA 2010 FIC)
b. Settled at last, she hit the remote, dialed in her favorite channel, and heard the doorbell ring. "Damn," she murmured, glancing at the digital clock on the set. It was just before ten p.m. "**Who on earth?**" (COCA 2010 FIC)

This paper first discusses grammatical properties of aggressively non-d-linked *wh*-phrases in

sluicing as well as some other ellipsis phenomena. In doing so, we demonstrate real uses of aggressively non-d-linked *wh*-phrases in the ellipsis phenomena we found based on authentic corpus data. We then show that their licensing is due to tight interplay of diverse grammatical components such as phonology, morphosyntax, semantics, and discourse/pragmatics. Lastly, we suggest that the corpus findings overall support a Direct Interpretation (DI) approach (e.g., Ginzburg and Sag, 2000) that can evoke the meanings of the unpronounced material without resorting to underlying syntactic structures.

2 Methodology

In order to investigate authentic uses of aggressively non-d-linked *wh*-phrases in ellipsis phenomena, we have performed a corpus investigation, using COCA (Corpus of Contemporary American English). With the simple search options as listed in (5), we have first obtained 13748 instances of aggressively non-d-linked *wh*-phrases from COCA with the exclusion of irrelevant example as in (6):

- (5) a. wh* (in) the hell|heck|fuck
 b. how* (in) the hell|heck|fuck|
 c. wh* on earth
 d. how* on earth
- (6) a. I call my friend Sally my “**what the hell**” friend because she uses any reason to celebrate. (COCA 2005 MAG)
 b. And shoppers in Santa Fe can find green products at **How On Earth**, with 2,300 square feet of merchandise, ... (COCA 1991 MAG)
 c. The sample contained smectite clay, **which on Earth** is found in alluvial plains and regions washed by monsoons. (COCA 2013 MAG)

Out of 13748 aggressively non-d-linked *wh*-phrases extracted from COCA, we have gathered a total of 1989 tokens of sluicing and 169 tokens of the other ellipsis phenomena and we used them for an analysis.

3 Corpus Findings

3.1 Sluicing

As shown earlier, one interesting observation we could make from the corpus data concerns the presence of aggressively non-d-linked *wh*-phrases in sluicing as opposed to what previous studies have claimed.

Note, at this point, that previous literature has provided merger type sluicing examples with an aggressively non-d-linked *wh*-phrase in embedded environments, where the aggressively non-d-linked *wh*-phrase has an overt linguistic correlate in the antecedent clause (Merchant, 2001; Dikken and Ginnakidou, 2002; Sprouse, 2006; Almeida and Yoshida, 2007; Hartman and Ai, 2009; Craenenbroeck, 2010; Radford and Iwasaki, 2015).

- (7) a. They were arguing about something, but I don’t know {what/*what the hell}.
 b. Someone bought that book. John knows {who/*who the hell}.

Note, in addition, that the expressions like *What the hell|heck|fuck|on earth?* introduced by *what* are used when a situation under discussion is strange or surprising from the speaker’s point of view. In this regard, we can assume that those expressions license sluicing where their antecedent clause is just pragmatically controlled without no overt linguistic antecedent from the beginning. In fact, out of 1989 sluicing examples with aggressively non-d-linked *wh*-phrases found in COCA, 1914 examples are of this type introduced by *what*.

Related to this, one salient fact about those attested sluicing examples with aggressively non-d-linked *wh*-phrases found in COCA is that they show particular preference depending on antecedent/correlate types. First, as in (4b), they are predominantly used when their antecedent is just pragmatically controlled and this is mainly because all the instances with *what* such as *what the hell?* and *what one earth?* are of this type. Next, they are less frequently used when their correlate is implicit (i.e., sprouting type) as in (4a). In the meantime, they are rarely used when their correlate is linguistically overt (i.e., merger type) but it is possible with an emphatic function as in (8):

- (8) a. Ms-BOYD: (Voiceover) Where did he put her? Where did he put her? I mean,

I sit up at night, 2, 3, 4 AM, just thinking, **where on earth?** (COCA 2007 SPOK)

- b. With her right hand she felt around on the Honda's passenger seat. Where was her gum? She always had gum in the car. Right? **Where the fuck** - no, wait - that was the patrol car, that was when she always had gum. (COCA 2017 FIC)

In these examples, the aggressively non-d-linked *wh*-phrases are used to emphasize the previously uttered *wh*-questions (i.e., *where did he put her?* in (8a) and *where was her gum?* in (8b)), meaning that the aggressively non-d-linked *wh*-phrases do have an overt linguistic correlate in the antecedent clause.

The examples in (4) and (8), therefore, clearly show us that aggressively non-d-linked *wh*-phrases can license sluicing in some certain contexts, contrary to what previous literature has argued.

One more observation we could make about the 1989 sluicing examples with aggressively non-d-linked *wh*-phrases in COCA is related to their preferred occurrences in matrix environments rather than embedded environments. Only 19 instances out of the entire 1989 examples occur in embedded environments (0.96%) as in (9):

- (9) a. Foxy. You're elected. Get out there and see **what the fuck**. (COCA 2005 FIC)
- b. " ... I see you've brought your big bone as advertised. I don't know **why on earth** -" (COCA 2012 FIC)

Thus, the authentic corpus examples suggest that overall aggressively non-d-linked *wh*-phrases prefer to participate in sluicing when they have no antecedent clause/overt correlate and they occur in matrix environments more frequently than in embedded environments. This is, in fact, the opposite environment previous literature has come up with to argue that sluicing is not licensed by aggressively non-d-linked *wh*-phrases as in (3a).

Lastly, the distribution of aggressively non-d-linked *wh*-phrases in sluicing by registers in COCA is as follows:

- (10) ACAD: 17 instances; FIC: 1435 instances; MAG: 177 instances; NEWS 103 instances; SPOK: 257 instances

As shown here, aggressively non-d-linked *wh*-phrases in sluicing occur most frequently in fiction register. This distribution by registers indicates that they are favorably used in informal, colloquial dialogue situations.

3.2 Other ellipsis phenomena

In COCA, aside from sluicing we could find aggressively non-d-linked *wh*-phrases in some other ellipsis phenomena as exemplified in (11):

- (11) a. "I didn't call them." "**Why the hell not?**" "Because I don't want a big deal made of this." (COCA 2012 FIC) (negative sluicing)
- b. "Did you get through to Manolo this morning?" Halliburton nodded. "He was headed for the site. Says they're going to test the rollers today." "**What on Earth with?**" (COCA 2004 FIC) (swiping)
- c. " ... A hundred ten years ago, the first colonists brought along frozen bird embryos-mostly chicken embryos, I understand." "**Why the hell chickens?**" "For eggs... and meat..." (COCA 1991 SPOK) (stripping)
- d. How about Detroit? – Detroit? **Why the hell not Detroit?** (COCA 2015 FIC) (negative stripping)

Note here that in these ellipsis examples, the right-most elements such as the negative marker *not* in negative sluicing, the preposition in swiping, the focused expressions in stripping and negative stripping, receive stress.

In addition, aggressively non-d-linked *wh*-phrases in these non-sluicing ellipsis phenomena also preferably occur in matrix environments. Out of 169 examples involving these ellipsis phenomena with aggressively non-d-linked *wh*-phrases other than sluicing found in COCA, only one instance occurs in embedded environments.

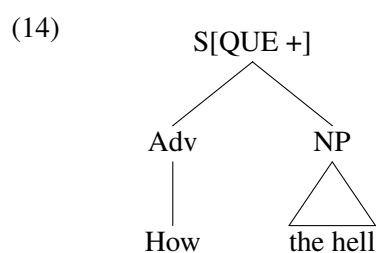
- (12) "... You need the instructor's signature." "The instructor's signature?" he winced, pain in his voice. "Jeez!... What in the hell for?" "Because the president said so. That's **what in the hell for,**" she snapped. (COCA 1995 FIC)

Furthermore, aggressively non-d-linked *wh*-phrases in these non-slucing ellipsis phenomena are favorably used in informal, colloquial dialogue situations as well, showing their similar distribution pattern by registers:

- (13) ACAD: 1 instance; FIC: 139 instances;
MAG: 9 instances; NEWS: 4 instances;
SPOK: 16 instances

4 A Direction for a Direct Interpretation Approach

We have noted that attested corpus examples challenge the claim made by previous studies on aggressively non-d-linked *wh*-phrases in sluicing. The examples further indicate that the interpretation of an aggressively non-d-linked *wh*-phrase depends heavily on the context without resorting to the linguistic antecedent clause. Within the Direct Interpretation approach (see Ginzburg and Sag, 2000; Culicover and Jackendoff, 2005; Kim, 2017 among others), there is no syntactic structure for the unpronounced material (i.e., at the ellipsis site) and an aggressively non-d-linked *wh*-phrase in sluicing can thus be treated as a categorial phrase projection of the *wh*-expression itself as illustrated in (14) and this is directly generated from the Head-Fragment Construction as defined in (15):

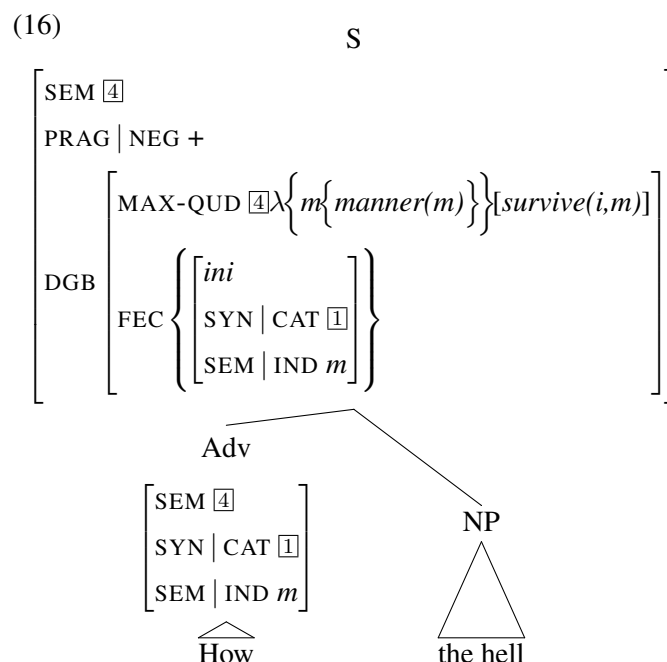


- (15) Head-Fragment Construction:
Any category can be projected into an NSU (non-sentential utterance) when it functions as a focus establishing constituent (FEC).

In (14), the *wh*-expression *how* combines with the taboo expression *the hell* and the interpretation of this aggressively non-d-linked *wh*-phrase in sluicing is dependent on the context as it belongs to the Head-Fragment Construction. Note that the role of DGB (dialogue-game-board) is important here. DGB anchors the contextual parameters and keeps track of who said what to whom, and what/who they

were referring to (Ginzburg, 2012). Uttering a question or an utterance can introduce the information about QUD (Question-Under-Discussion) in addition to FEC.

With this much background, the aggressively non-d-linked *wh*-phrase in (4a) can be represented to have the following structure:



As shown here, the meaning of the aggressively non-d-linked *wh*-phrase in sluicing receives its interpretation from the information in the QUD and FEC evoked from the context. In addition, the negative pragmatic inference arises from the aggressively non-d-linked *wh*-phrase as a whole.

The present analysis assumes that any aggressively non-d-linked *wh*-phrase in sluicing can be projected into an S so long as an appropriate context can be retrieved. This allows us to account for the cases where the aggressively non-d-linked *wh*-phrase has no linguistic antecedent clause at all but its antecedent is just pragmatically controlled. For instance, the aggressively non-d-linked *wh*-phrase in (4b), repeated in (17a), can have several different types of MAX-QUD:

- (17) a. Settled at last, she hit the remote, dialed in her favorite channel, and heard the doorbell ring. “Damn,” she murmured, glancing at the digital clock on the set. It was just before ten p.m. **“Who on earth?”** (COCA 2010 FIC)
- b. Who rang the doorbell this late?

- c. Who wants to visit me now?
- d. Who is it out there at the door?
- e. ...

In a similar manner, the current analysis provides a neat explanation for aggressively non-d-linked *wh*-phrases introduced by *what* as in (18a), since it enables us to have diverse types of MAX-QUD as well:

- (18) a. Natalie-Morales: It's good. He is having fun. Al Roker: **What the heck?** (COCA 2013 SPOK)
- b. What is going on?
 - c. What is happening?
 - d. What did you say?
 - e. ...

Although we have just sketched a Direct Interpretation (DI) approach for aggressively non-d-linked *wh*-phrases in sluicing here, it first can avoid pitfalls that any analysis resorting to syntactic identity between the antecedent clause and the unpronounced material encounters. In addition, it is feasible to be extended to aggressively non-d-linked *wh*-phrases in the non-sluicing ellipsis phenomena, given their similar grammatical properties.

5 Conclusion and Implications

Contradicting what previous studies have claimed, aggressively non-d-linked *wh*-phrases can license sluicing and some other ellipsis phenomena as well, showing a special mapping relation between form and function. In this paper, we first explored their authentic uses in sluicing on the basis of corpus data, pointing out the discrepancies between the grammatical properties of the attested legitimate examples and those of the illegitimate ones constructed in previous literature. We also noted some similarities found in different ellipsis phenomena with aggressively non-d-linked *wh*-phrases. We then sketched a Direct Interpretation approach to aggressively non-d-linked *wh*-phrases in sluicing, making use of enriched discourse information along with DGB, MAX-QUD, FEC, etc., showing that it is a plausible alternative to the so-called movement-deletion approach.

Before we close this up, we would like to make some comments on its potential implications, however. First, we performed a corpus search, using literary texts in contemporary French (Frantext from 1960 to present). In the corpus, we found 61 occurrences of *pourquoi diable* 'why the hell' and *comment diable* 'how the hell', among which 4 are sluicing examples as in (19):

- (19) a. Gustave Practeau! Il est au moins reconnu, Martine m'a téléphoné tout à l'heure, précisa Mamoune. Gustave! **Pourquoi diable?** demanda Tio. (Bazin 1991)
'Gustave Practeau! He is at least recognized. Martine has phoned me a while ago, said Mamoune.' 'Gustave! Why the hell? asked Tio (= why the hell did they call him that)'
- b. Vous avez plus de peur que de mal, et votre cœur crie avant qu'on l'écorche. **Comment diable?** Il est écorché depuis la tête jusqu'aux pieds. (Delpeschin 1998)
'You have more fear than harm and your heart screams before one skins it.' 'How the hell? It is skinned from head to toes.'

Next, it has been noted that *wh*-words + *ça* in French appear to be the exact opposite of aggressively non-d-linked *wh*-phrases in English in that the former require an answer from a contextually introduced set (i.e., d-linked) and they are prohibited from moving (Cheng and Rooryck, 2000; Petsky, 1987). Interestingly, previous literature has not mentioned that sluicing is possible with these French expressions. In the same corpus (Frantext from 1960 to present), however, we found 74 *qui ça* 'who+ça', all of which are matrix sluicing examples, and 79 *où ça* 'where+ça', out of which 76 are sluicing examples and 3 are in-situ question examples. Notably, we have observed that it is difficult to reconstruct a full *wh*-interrogative sentence even with an in-situ example. French examples like these await a proper account of their grammatical properties and their authentic uses in ellipsis phenomena including sluicing and we leave them for future research.

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