

Judgment testing of adverb topicalization in irregular wh-questions

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Abstract

In current scholarship, irregular wh-questions (IWQs) such as *what about* are followed by a gerund clause or NP (Huddleston et al. 2002). However, based on data from the British National Corpus, Li & Liu (2023) concluded that “topicalizable” adverbs can follow IWQs, but “untopicalizable” adverbs cannot. The current study puts this claim to the experimental test, utilizing a 2x2 factorial design to examine the interaction between question type (irregular vs. regular wh-questions) and adverb type (untopicalizable vs. topicalizable adverbs). A contextualized acceptability judgment task completed by 51 native speakers of American English failed to find the interaction purported by Li & Liu’s (2023) probing of the British National Corpus, underscoring the potential pitfalls of using production data to study syntax.

Keywords: irregular wh-question, adverb topicalization

Introduction

Although the syntactic structure of various wh-questions has attracted significant scholarly attention (Chomsky 1977; Chomsky 1981), work on the syntax of wh-questions has rarely included theorization about what Quirk et al. (1987, 768) dub “irregular wh-questions” (IWQs): wh-questions in English that consist of *what* or *how* and the prepositional phrase *about* or the conditional clause *if*. The sparse literature on IWQs describes *what about* as a diagnostic tool in discourse studies but rarely includes theorization about the syntax of IWQs (Quirk et al. 1987; Huddleston et al. 2002). However, data that Li and Liu (2023) extracted from the British National Corpus (BNC) seemingly demonstrate that while domain, locative, and temporal adverbs can appear as topics in *what about* IWQs, epistemological, predicational, and discourse-oriented adverbs cannot.

IWQs and adverbial syntax

Prior to Li and Liu’s (2023) discovery of the co-occurrence of *what about* and certain adverbs in the BNC, the fact that adverbials may follow *what about* IWQs was likely overlooked because the location of adverbs in IWQs creates

empirical problems for existing theories of the syntactic distribution of adverbials. The cartographic theory assumes that an adverbial occurs either in the specifier position of some functional projection or in the complement position of a verb phrase. However, adverbials of different types occur in the same syntactic position in IWQs, and IWQs do not contain an explicit verb, posing two challenges to the cartographic theory (Li and Liu 2023). On the other hand, the scopal theory claims that different adverbials assume different syntactic positions, yet adverbials in IWQs appear where they are base-generated (Li and Liu 2023). Furthermore, arguments and some adverbials appear in the same position in IWQs, a fact that neither the cartographic nor scopal theory can accommodate.

This raises two important questions: Because existing literature cannot accommodate the empirical fact that both arguments and adverbials can appear as the complement of *about* in *what about* IWQs, does the co-occurrence of *what about* and an adverb produce an unacceptable sentence? How do question and adverb types impact participants' rating of the grammaticality of a question in an acceptability judgment task?

Methodology

We investigated the grammaticality of different adverb types in the context of IWQs by conducting an experiment that utilizes a 2x2 factorial design. We manipulated two factors, question type and adverb type, each with two levels: irregular wh-questions versus regular wh-questions and untopicalizable adverbs versus topicalizable adverbs. We created twelve contextualized token sets, all lexically matched.

Table 1. 2x2 factorial design.

Context: Tim loved to listen to music in the car, but his little brother, a talented piano player, constantly critiqued his taste and asked annoying questions about aspects of the music. This morning, Tim's brother asked:

Question Type Adverb Type	Irregular Wh-Question	Regular Wh-Question
Untopicalizable	(1) * What <u>about clearly</u> the song's sound?	(2) What <u>is clearly</u> the song's sound?
Topicalizable	(3) What <u>about tonally</u> the song's sound?	(4) What <u>is tonally</u> the song's sound?

We created twenty-four contextualized filler items that range the spectrum of acceptability, including fifteen grammatical and nine ungrammatical fillers, to ensure that participants receive a fifty-fifty split of grammatical and ungrammatical sentences. This prevents participants from attempting to equalize their grammatical and ungrammatical ratings, which Sprouse (2009) describes as a potential source of bias. Furthermore, we balanced the

occurrence of *what* at the beginning of our test and filler items to ensure that participants do not associate the word with grammatical items.

Our experimental items and filler items were arranged into four test lists using a Latin Square design. We pseudorandomized each list to prevent test items from appearing next to each other. Additionally, we added six practice items at the beginning of each list to allow participants to familiarize themselves with the use of the acceptability rating scale.

Data was collected via a 7-point Likert scale acceptability judgment task from 51 native speakers of American English. We conducted a linear mixed-effects regression analysis on z-transformed ratings with question and adverb types included as fixed factors and subject and item included as random factors.

Results

Before z-transforming the ratings, we conducted a difference-in-means test to examine any initial interaction between the two factors. The difference-in-means test revealed that IWQs were consistently rated lower than regular wh-questions, regardless of adverb type. Hence, no interaction seemed to occur between question type and adverb type.

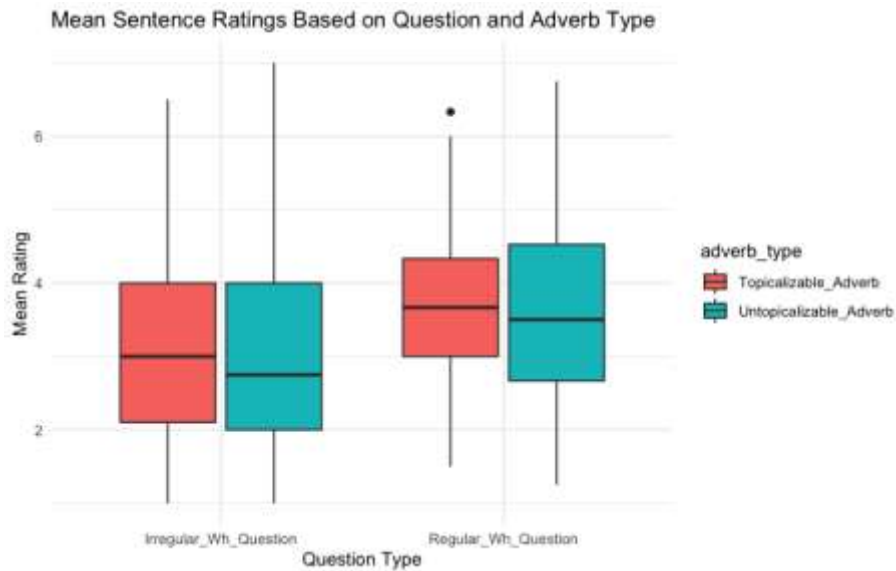


Figure 1. Mean sentence rating for each condition.

We then conducted the linear mixed-effects regression analysis on z-transformed ratings. Results indicated significant effects of question type (Estimate = 0.267, SE = 0.132, $p < 0.05$), as regular wh-questions were rated higher than irregular wh-questions. However, there was no significant interaction effect of

question type and adverb type, indicating that participants rated irregular wh-questions lower than regular wh-questions, regardless of adverb type. This contradicts the claim made by Li & Liu (2023).

Conclusions

A contextualized acceptability judgment task failed to find the interaction between question type and adverb type suggested by Li & Liu's (2023) probing of the BNC. This underscores the potential pitfalls of using production data like corpora to study syntax because "absence of evidence does not mean evidence of absence"; merely because IWQs with untopicalizable adverbs are not frequently found in the BNC does not mean that they are necessarily ungrammatical. By the same token, however, we cannot conclude based on the lack of statistical power that question type and adverb type do not interact. Thus, this hypothesized interaction warrants further research: If adverbials can appear as a topic in IWQs as Li and Liu (2023) claim---a novel assertion that adds to the existing literature on topics and adverbials---then that fact should be corroborated by judgment data.

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