

Wh-movement and sentence stress

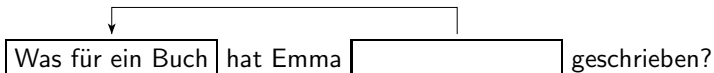
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Research question

How do interface mapping principles interact with movement?



Is this position relevant for syntax-prosody mapping?

- Can the displaced object exempt the verb from being stressed?
- Default sentence stress is on the object — does that also hold when the object is displaced?

Syntax-prosody mapping

The following mapping constraints are one way to capture the basic prosodic pattern in German and English sentences (Truckenbrodt 1995):

- **STRESS-XP**: each lexical **XP needs to be stressed**; within transitive VPs, stressing an object XP is sufficient to satisfy Stress-XP for the VP.
- **HI**: it is preferred to assign **sentence stress to the rightmost stressed element**, which usually is the object in transitive sentences.

Example

...dass [Emma]_{NP} [ein [Buch]_{NP} geschrieben]_{VP} hat.

'...that Emma has written a book.'

Interaction with syntactic movement

When a wh-object is fronted, the question arises if mapping constraints apply in a **surface-oriented** way or traces/lower copies are taken into account, which I will refer to as **prosodic reconstruction**.

Example

[Was für ein Buch] hat Emma [~~was für ein Buch~~ geschrieben]_{VP} ~~hat~~?

- Can the trace/unpronounced copy of the wh-phrase satisfy STRESS-XP for the VP, or does the verb need to be stressed?
- Can the fronted wh-phrase count as “rightmost” for the purpose of HI?

Interaction with syntactic movement

(At least partial) **prosodic reconstruction** has been proposed for...

- ...**relative clauses** (Bresnan 1971, Truckenbrodt forthcoming)
- ...movement to the **prefield** in German V2 clauses (Wierzba forthcoming, Korth 2014)
- ...**wh-movement** (Bresnan 1971, Selkirk 1995)

Wh-movement data

- (1) Object NPs, but not pronouns exempt the verb from being stressed:
 - a. Helen has written some book.
 - b. Helen has written something.
- (2) The same pattern is reported for wh-questions (Bresnan 1971):
 - a. What book has Helen written?
 - b. What has Helen written?

There are also some approaches that argue for strictly surface-based prosody-syntax mapping, e.g.: Kahnemuyipour (2009).

Interaction with syntactic movement

1. research question: where does sentence stress preferably fall in German wh-questions?

Can the object's trace satisfy Stress-XP for the VP?

Does the position of the object's trace count for HI?

sentence stress falls on...

no: O... S... [Θ V]_{VP}

...the verb

yes: O... S... [Θ V]_{VP}

...the object

yes: O... S... [Θ V]_{VP}

...the subject

Prosody-meaning mapping

2. research question: wh-questions and wh-exclamatives are **structurally similar** in that they both involve a fronted wh-phrase, but **differ in meaning**; does this affect sentence stress placement preferences?

Example

[Was für ein Buch] hat Emma [~~was für ein Buch~~ geschrieben]_{VP} ~~hat~~?

[Was für ein Buch] Emma [~~was für ein Buch~~ geschrieben]_{VP} hat!

Experiment: participants and method

I investigated sentence stress preferences in different wh-constructions in an **acceptability rating experiment** with auditory stimuli.

42 native speakers rated the acceptability of the target utterance (preceded by a short context) on a 1–7 scale.

In total, each participants heard 168 stimuli in randomized order (48 from the experiment described here; most other materials concerned object fronting in declarative V2 clauses).

Experiment: design and stimuli

Manipulated factors:

- **Type of construction:** (1) subordinate clause with canonical word order (baseline), (2) wh-question, (3) split wh-question, (4) wh-exclamative.
- **Position of sentence stress:** (1) on the subject, (2) on the object, (3) on the verb (only tested for some of the structures).
- **Object type:** (1) full phrase, (2) pronoun (only tested for some of the structures) – this is relevant for the predictions of STRESS-XP.

To get a first idea of default preferences, I intended to hold **information-structural factors** as **constant** as possible. All items were preceded by a context intended to trigger an all-new reading (e.g., 'Was there anything interesting on the news?', 'You wanted to ask me something?', ...).

Experiment: examples

- (3) **Subordinate clause:** *subject* < *object* < *verb*
- a. Ich habe gelesen, dass Emma Anderson ein Buch geschrieben hat.
I have read that Emma Anderson a book written has
'I read that Emma Anderson has written a book.'
 - b. Ich habe gelesen, dass Emma Anderson ein Buch geschrieben hat.
 - c. Ich habe gelesen, dass Emma Anderson ein Buch geschrieben hat.
 - d. Ich habe gelesen, dass Emma Anderson was geschrieben hat.

Experiment: examples

- (4) **Wh-question:** *object* < *subject* < *verb*
- a. Was für ein Buch hat Emma Anderson geschrieben?
what for a book has Emma Anderson written
'What book has Emma Anderson written?'
 - b. Was für ein Buch hat Emma Anderson geschrieben?
 - c. Was für ein Buch hat Emma Anderson geschrieben?
 - d. Was hat Emma Anderson geschrieben?

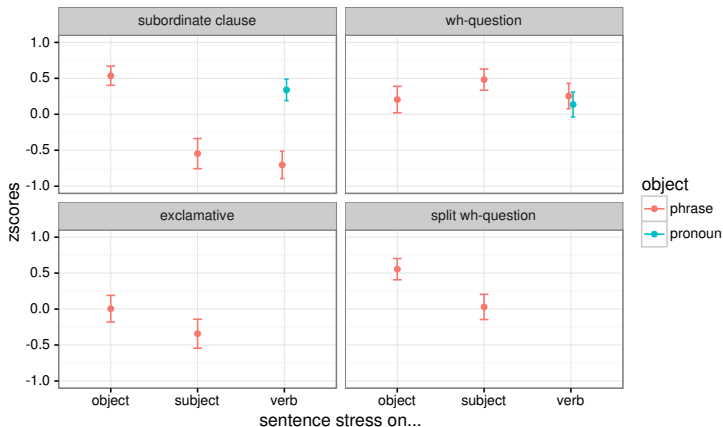
Experiment: examples

- (5) **Split wh-question:** *part of the obj.* < *subject* < *part of the obj.* < *verb*
- a. Was hat Emma Anderson für ein Buch geschrieben?
what has Emma Anderson for a book written
'What book has Emma Anderson written?'
 - b. Was hat Emma Anderson für ein Buch geschrieben?

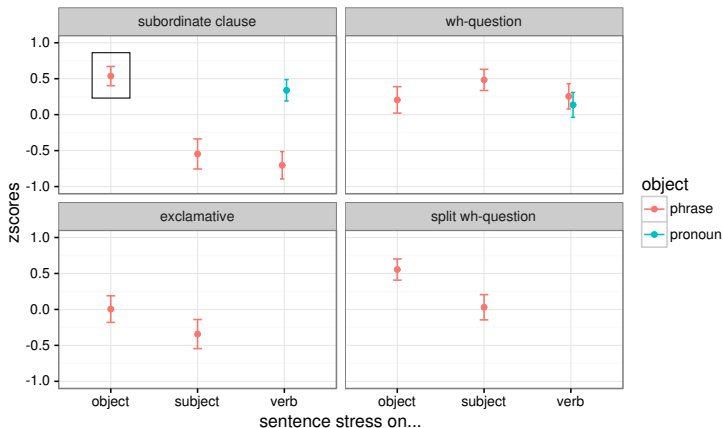
Experiment: examples

- (6) **Exclamative:** *object* \prec *subject* \prec *verb*
- a. Mann, was für ein Buch Emma Anderson geschrieben hat!
man what for a book Emma Anderson written has
'Man, what a book Emma Anderson has written!'
 - b. Mann, was für ein Buch Emma Anderson geschrieben hat!

Experiment: results

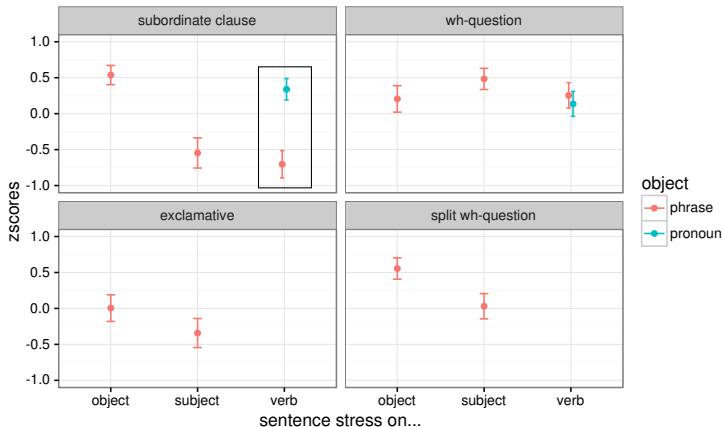


Experiment: results



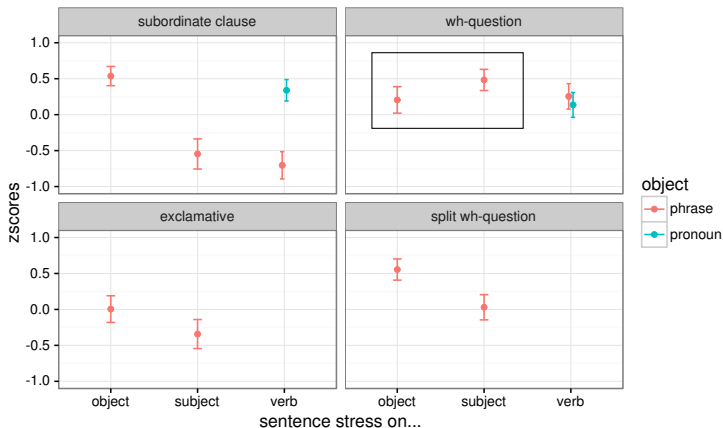
Sentence stress preferably falls on the **object** in **subordinate clauses** when the object is a full phrase.

Experiment: results



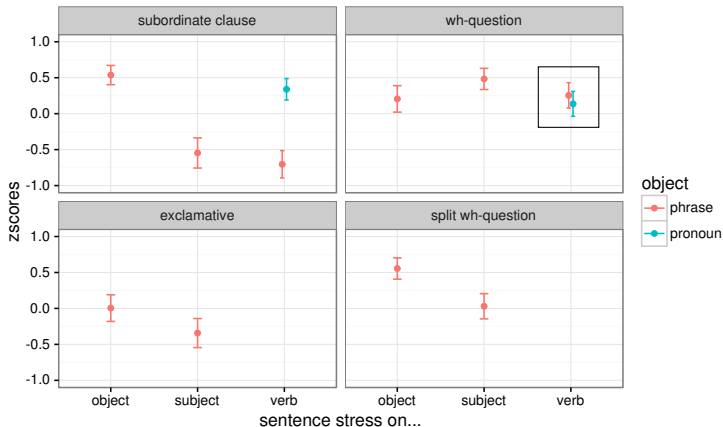
Object type matters in subordinate clauses: when the object is a **pronoun**, sentence stress on the **verb** is preferred.

Experiment: results



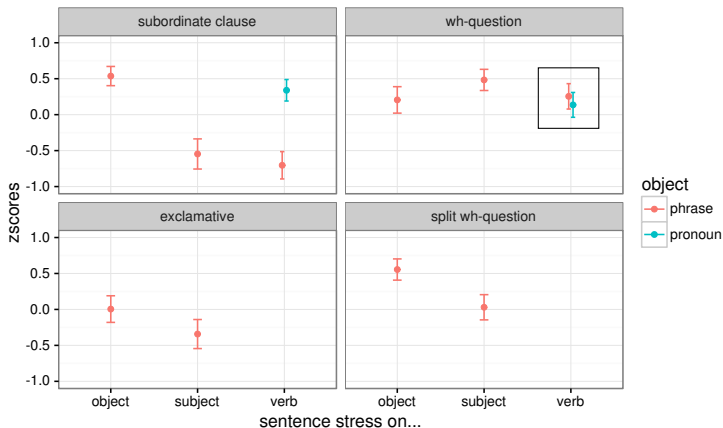
In **wh-questions** sentence stress preferably falls on the **subject**. This points towards **surface-oriented application of HI**: the rightmost XP on the surface is most prominent.

Experiment: results



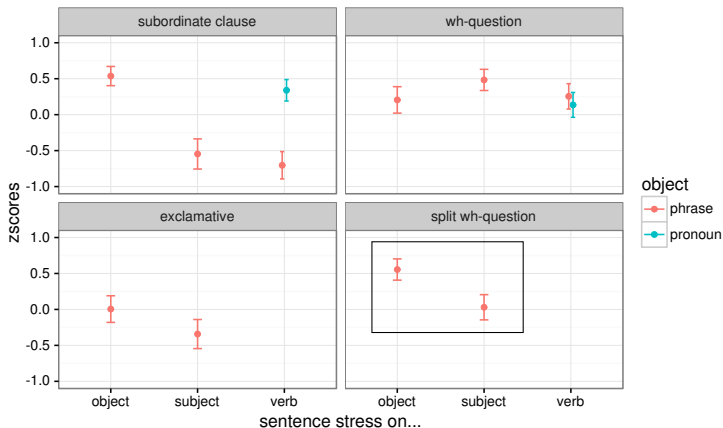
The difference between **object phrases** and **pronouns** is **absent** in wh-questions, pointing also towards a **surface-oriented application of Stress-XP**.

Experiment: results



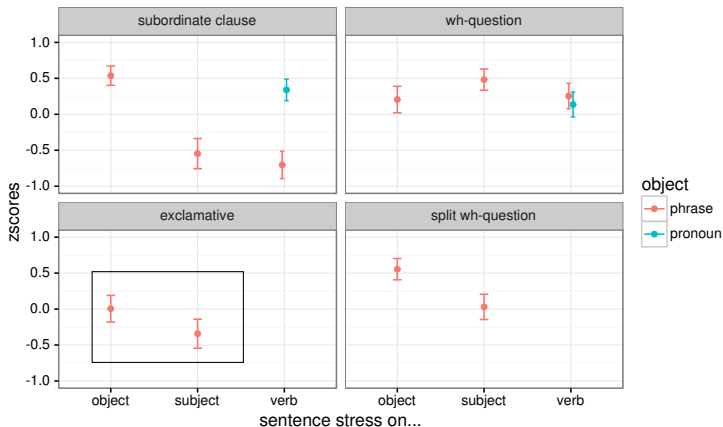
However, **sentence stress on the verb is not optimal** as would be expected under completely surface-oriented mapping.

Experiment: results



The preference for **object** stress in **split questions** is expected, as the in-situ part of the object is rightmost also underlyingly.

Experiment: results



Exclamatives show a different pattern than wh-questions, plausibly due to **meaning**: they express emphasis on the fronted element, which is linked to higher prominence.

Summary

Summary of the findings:

- **HI** seems to apply in a **surface-oriented** manner in wh-questions.
- **Exclamatives** show the reverse pattern. Possible explanation: prosody-meaning mapping.
- For **Stress-XP**, there is some evidence for surface-oriented mapping (no effect of object type in questions) but also against it (sentence stress on the verb is not optimal).

Open issues

Main open issue: it is difficult to enforce an all-new context for questions—wh-questions involve **presuppositions**, which could lead to **accommodation** of further context. This might also be the reason for less pronounced acceptability differences in questions. Directions for further research:

- Try to limit accommodation by providing more **explicit contexts**, leaving less room for interpreting constituents as given/focused.

Open issues

Further open question: Is the difference between **wh-questions** and **exclamatives** really due to the fact that the fronted wh-element in exclamatives is linked to an emphatic interpretation? Possible follow-up:

- Try to enforce an emphatic interpretation of the subject/object in wh-questions/exclamatives via the context.
- See if the difference fully vanishes or (a part of it) remains.

Thank you for your attention!

References

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