Towards a cartography of *wh*-in situ across languages

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1. Background and objectives.   Faure & Palasis (2021) argue that in a 'mixed' language like French, *ex situ* and *in situ wh*-questions, while both involving a *wh*-dependency, do not target the same position. Specifically, they propose that *wh*-ex situ is associated to a lower head they label Exclusivity. An interesting corollary of their analysis is that these two dependencies might interact differently with Topic, that sits in between the two in the cartography of the left periphery first established by Rizzi (1997). The aim of this talk is to present some experimental findings corroborating this analysis in French and to extend the observation to a language like Mandarin Chinese, where *wh*-in situ is the only strategy for questions and fronting is a marked strategy associated with contrastive focus (Cheung 2008).

2. Experiments: design and procedure.   We ran two parallel experiments in French and Chinese assessing acceptability ratings and response accuracy to questions with a 2x2x2 design in 24 items: *in situ (a-b, e-f)/fronted (c-d, g-h)*, *subject (a, c, e, and g)/object (b, d, f, and h)*, and 'who'/'which' (*qui/quel* in French, and *shui/nage* in Mandarin Chinese), involving 62 French speakers and 34 Mandarin Chinese speakers, respectively. They were recruited on RISC (Relais d'Information sur les Sciences de la Cognition) and social media. Items were accompanied by 28 fillers including 4 ungrammatical ones. In both experiments, participants were required to read *wh*-questions, rate them on a 1-7 Likert scale, and then answer them by choosing the correct character from a picture (Fig1).

3. Results.   The descriptive results of each experiment are given in figures 2-5. We analyzed data using linear mixed-effects models and cumulative link models in R-studio. Results in Chinese (see Fig 4-5) were consistent with those in French (see Fig 2-3): in the *in situ* condition object questions were answered more correctly and rated higher than subject questions (object advantage), while in the fronted condition subject questions yielded more correct answers and higher ratings than object questions (subject advantage). While a subject advantage is a well-known phenomenon associated to A-bar dependencies (as an effect of relativized minimality: Villata et al. 2016), the object advantage emerging in covert *wh*-dependencies might seem *prima facie* surprising.

4. Discussion.   If however in situ questions target a higher position than *ex situ* questions, as argued by Faure & Palasis (2021), this contrast can be explained as a function of the well-known observation that nested dependencies are easier to process than crossing dependencies (stemming from Fodor 1978), a possible consequence of a grammatical constraint such as the Path Containment Condition (Pesetsky 1982): subject *in situ* questions and object fronted questions crucially involve crossing dependencies with topicalization (as in a, d, e, and h), while object *in situ* questions and subject fronted questions involve nested dependencies with topicalization (as in b, c, f, and g). This explains the subject advantage in fronted questions, and the object advantage in in situ questions.

5. Conclusion.   What initially appears to be a strong and unexpected difference between the processing of *wh*-in situ questions and fronted questions in French and Mandarin Chinese ultimately serves as robust empirical confirmation that *wh*-in situ questions target a position higher than fronted questions. Topicalization in Chinese *wh*-in situ questions interacts with the covert dependency in the same way as it does in French. This suggests that *wh*-in situ in French and Mandarin Chinese share important cartographic features.

References

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Fig 1: Picture illustrating the 'following' event in examples

Examples: French experiment

a. Subject in situ with topicalization

[Q [Top Le cheval blanc], [qui/quel   garçon le suit]?
         the horse white   who/which boy   it follows
‘The white horse, who/which boy is following it?’

c. Subject ex situ (fronted) with topicalization

[Top Le cheval blanc], c'est qui/quel   garçon qui [e] le suit?
       the horse white   it's who/which boy   that   it follows
‘The white horse, it's who/which boy that is following it?’

b. Object in situ with topicalization

[Q [Top Le cheval blanc], [il suit   qui/quel   garçon]?
         the horse white   it follows who/which boy
‘The white horse, who/which boy is it following?’

d. Object ex situ (fronted) with topicalization

[Top Le cheval blanc], c'est qui/quel   garçon qu'il suit [e]?
       the horse white   it's who/which boy   that it follows
‘The white horse, it's who/which boy that it is following?’

Examples: Chinese experiment

e. Subject in situ with topicalization

[Q [Top Bai   ma   a], shui/nage nanhai zai   genzhe ta] ?
       White horse TOP who/which boy   PROG follow it
‘The white horse, who/which boy is following it?’

g. Subject ex situ (fronted) with topicalization

[Top Bai   ma   a], shi shui/nage nanhai [e] zai   genzhe ta?
       White horse TOP it's who/which boy   PROG follow it
‘The white horse, it's who/which boy that is following it?’

f. Object in situ with topicalization

[Q [Top Bai   ma   a], ta zai   genzhe shui/nage nanhai] ?
       White horse TOP it PROG follow who/which boy
‘The white horse, who/which boy is it following?’

h. Object ex situ (fronted) with topicalization

[Top Bai   ma   a], shi shui/nage nanhai, ta zai   genzhe [e]?
       White horse TOP it's who/which boy   it PROG follow
‘The white horse, it's who/which boy that it is following?’
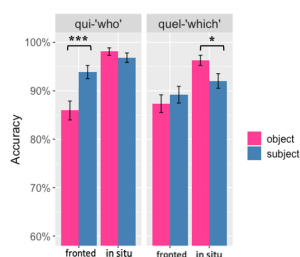
fronted in situ

French Experiment

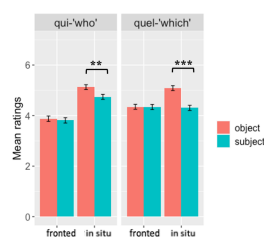Fig 2 Mean response accuracy of *qui/quel('who/which')* questions

Fig 3 Mean ratings of *qui/quel ('who/which')* questions
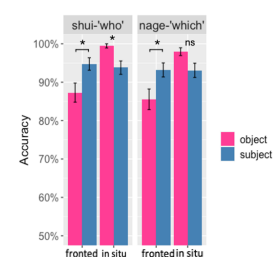
Chinese Experiment

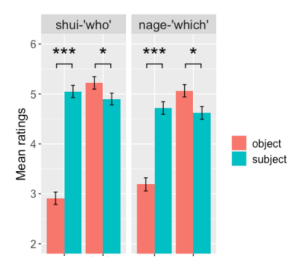Fig 4 Mean response accuracy of *shui/nage ('who/which')* questions

Fig 5 Mean ratings of *shui/nage ('who/which')* questions