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Testing extraction from

French Modal Ellipsis & **French Modal Anaphora**

Predicate ellipsis in French

- No VPE after auxiliaries

(1) *Marie a chanté mais Paul n' a pas.

Marie has sung but Paul PTCL has not
'Marie sang but Paul didn't'

- Elliptical structure after modal verbs: French Modal Ellipsis (FME)

(2) Marie le lira, mais Paul ne pourra pas Δ . (Δ = « read it ») FRENCH MODAL ELLIPSIS

Marie it=read.FUT but Paul PTCL can.FUT not
'Mary will read it but Paul can't'

- Competing structure: French Modal Anaphora (FMA)

(3) Marie le lira, mais Paul ne le pourra pas. (Δ = « read it ») FRENCH MODAL ANAPHORA

Mary it=read.FUT but Paul PTCL it=can .FUT not
'Mary will read it but Paul can't'

Extraction facts

- **FME** allows both interrogative and relative extraction, just as full sentences do
- **FMA** doesn't

(4) INTERROGATIVE EXTRACTION

- Je sais quels livres Léa peut lire et ... a. **quels livres elle ne peut pas.** **FME**
I know which books Lea can read and which books she PTCL can not
- b. ***quels livres elle ne le peut pas** **FMA**
which books she PTCL it=can not

'I know which books Lea can read and which books she can't'

(5) RELATIVE EXTRACTION

- a. Léa lit tous les livres **qu' elle peut.** **FME**
Lea reads all the books that she can
- b. *Léa lit tous les livres **qu' elle le peut** **FMA**
Lea reads all the books that she it=can

'Lea reads every book she can'

Contrast predicted if Ellipsis (vs Anaphora) has inner structure

- In **FME** the modal is followed by a full syntactic structure, from which an item is extracted before the sentence reaches PF, (6a). At PF, the elided site gets unpronounced.

(6) Je sais quels livres Léa peut lire et ...

- a. [_{CP} **quels livres** [elle **ne peut pas** [lire t_{quels livres}]] **FME**
- b. * [_{CP} quels livres [elle **ne le peut pas**]] **FMA**

?????

'I know which books Lea can read and which books she (*it) can't'

- In **FMA**, the infinitive structure is anaphorized by the clitic: the WH-phrase in (6b) has no syntactic position to move from/bind into.

- This claim relies on non-controlled grammaticality judgments
- Since the extraction data are crucial to the analysis, we gathered controlled judgments
- Pilot experiment: showed a lot of variation between items, especially depending on the status of the extracted object (DO or IO)
- Two finer-grained experiments designed to test DO and IO extraction in
 - FMA and FME contexts

Two controlled experiments

- Same procedure and design
 - On-line acceptability questionnaire (10-point scale) run with Ibex Farm (Drummond 2013),
 - 24 experimental items following a 2x3 design
 - 36 filler items / sentences presented in a randomized order
 - 21 items associated with a comprehension question / selection of the participants based on accuracy on comprehension question (75%)
- Same kind of analyses
 - Mixed effects linear models predicting z-transformed acceptability rating, with random intercepts for participants and items ('lme4' package for statistical language R)
 - All the observations are confirmed by the models

Experiment 1: Relative clauses

- 2 factors
 - The structure type: **FME**, **FMA** or complete sentence (**COMP**)
 - The relative marker: **QUE** or **AUXQUELS**
- Each item was presented with a context.
- 12 items contained an extracted DO, the other 12 an extracted IO

DO extraction

[Ludovic a promis de jouer plusieurs morceaux de musique à ses collègues, mais il n'est pas encore au point sur tous.]

Il leur jouera tous les morceaux...

- (a) [FME, QUE] qu'il pourra.
- (b) [FMA, QUE] qu'il le pourra.
- (c) [COMP, QUE] qu'il pourra leur jouer.
- (d) [FME, AUXQUELS] auxquels il pourra.
- (e) [FMA, AUXQUELS] auxquels il le pourra.
- (f) [COMP, AUXQUELS] auxquels il pourra leur jouer.

'[Ludovic promised to play several musical pieces to his colleagues, but he does not master all of them yet.] He will play them all the pieces that he will be able to.'

IO extraction

[Lionel veut modifier l'organisation de son service, mais il y a des résistances. La prochaine semaine est décisive, et il a décidé d'avancer malgré tout.]

Il imposera son avis à tous les collègues...

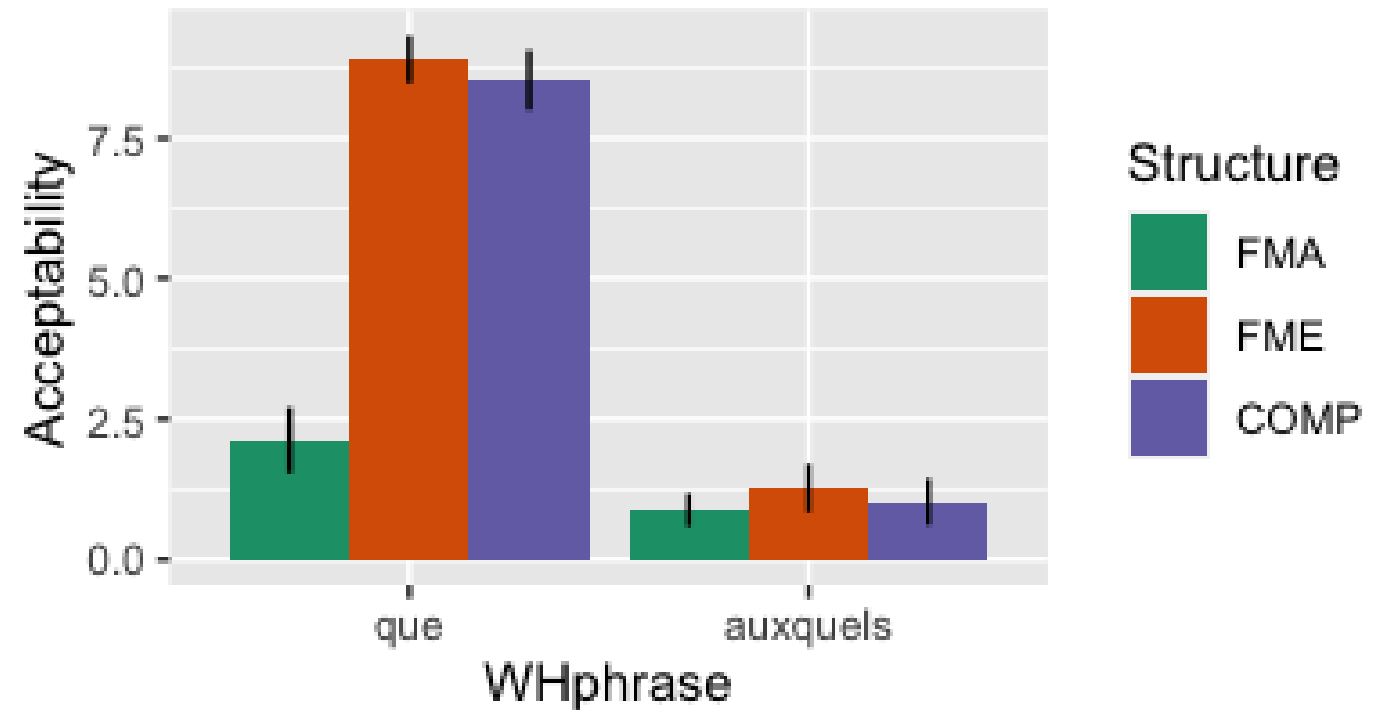
- (a) [FME, QUE] qu'il pourra.
- (b) [FMA, QUE] qu'il le pourra.
- (c) [COMP, QUE] qu'il pourra l'imposer.
- (d) [FME, AUXQUELS] auxquels il pourra.
- (e) [FMA, AUXQUELS] auxquels il le pourra.
- (f) [COMP, AUXQUELS] auxquels il pourra l'imposer.

‘[Lionel wants to change the way his department is organized, but there is resistance. The next week is crucial, and he intends to push his point.] He will impose his opinion on all the colleagues that he will be able to.’

Results for DO

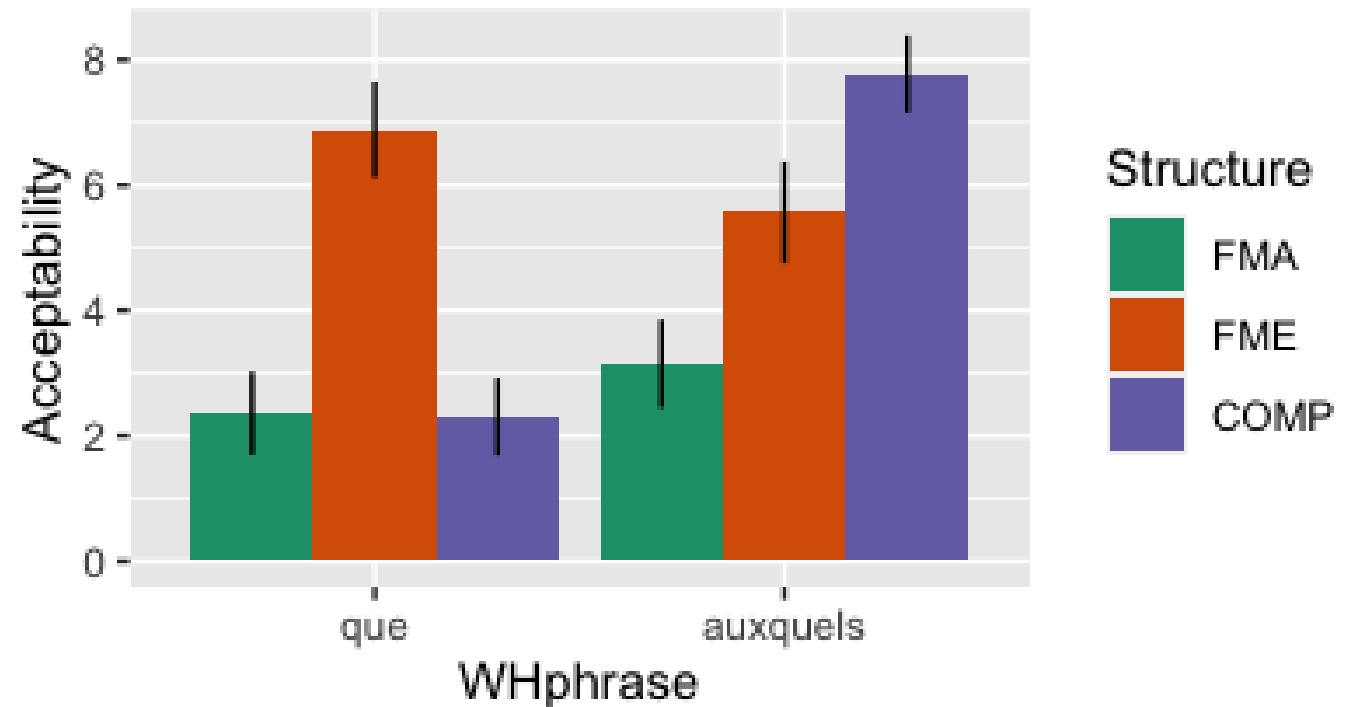
- 45 participants
- Ungrammatical sentences with *auxquels* WH-Phrase: mean = 1.06
- For *que* relatives, significant contrast between unacceptable FMA structures and acceptable FME and complete sentences

=> DO extraction is allowed out of FME and complete sentences, not out of FMA



Results for IO

- Acceptability of *auxquels* relatives is graduated: complete > FME > FMA
- ⇒ IO extraction is allowed out of FME and complete sentences, not out of FMA, but the pattern is less clear-cut
- For *que* relatives, significant contrast between acceptable FME structure and unacceptable FMA and complete sentences
- ⇒ Contrast not predicted by PF-deletion analysis



Experiment 2: Interrogative clauses

- 2 factors
 - The structure type: **FME**, **FMA** or complete sentence (**COMP**)
 - The WH-phrase: determiner **QUELS** or pronoun **LESQUELS**
- Each item was presented with a context.
- 8 items contained an extracted DO, the other 16 an extracted IO

Experiment 2: Interrogative clauses

[Ludovic a promis de jouer plusieurs morceaux de musique à ses collègues, mais il n'est pas encore au point sur tous.] Il sait déjà très bien...

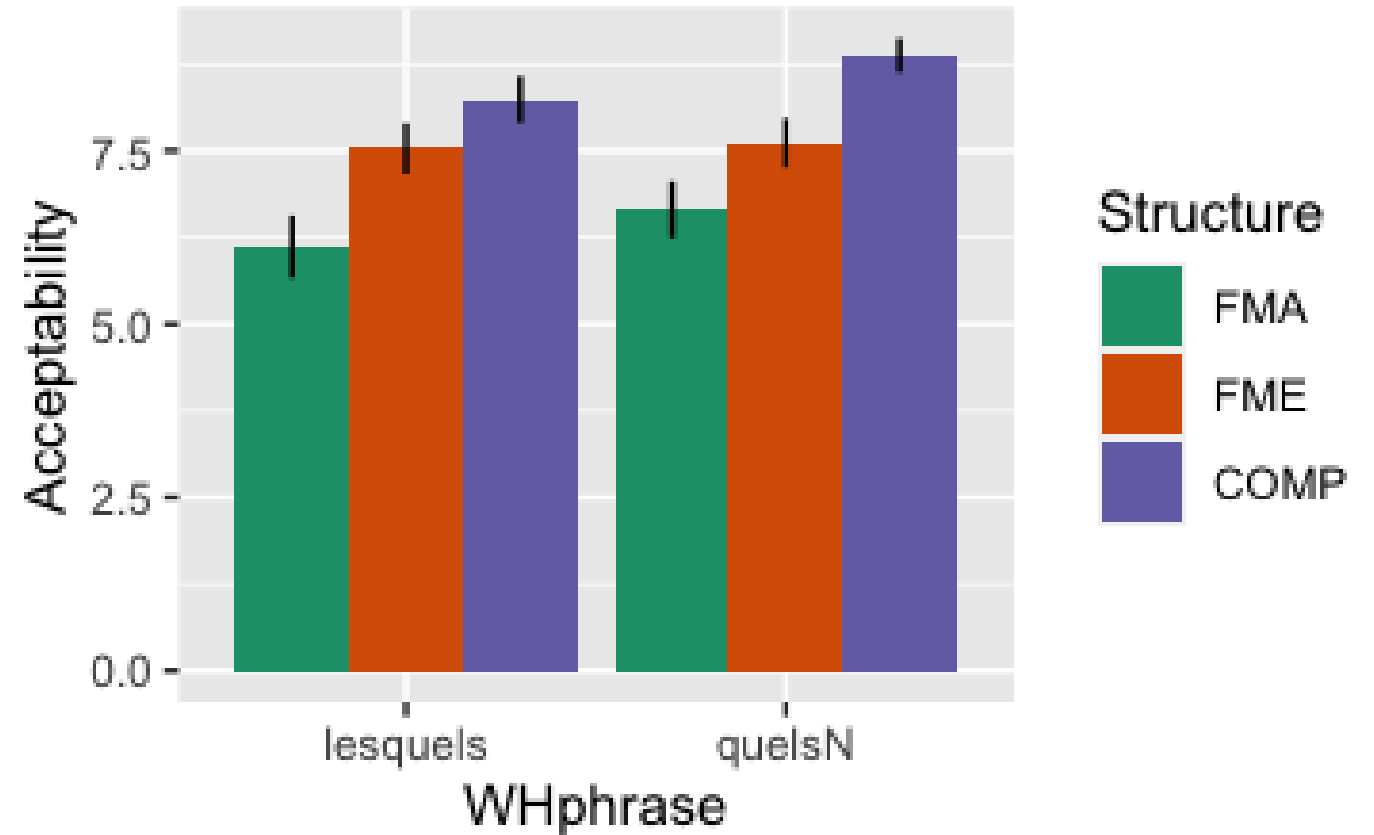
- (a) [FME, PRO] lesquels il pourra leur jouer et lesquels il ne pourra pas.
- (b) [FMA, PRO] lesquels il pourra leur jouer et lesquels il ne le pourra pas.
- (c) [COMP, PRO] lesquels il pourra leur jouer et lesquels il ne pourra pas leur jouer.
- (d) [FME, DET] quels morceaux il pourra leur jouer et quels morceaux il ne pourra pas.
- (e) [FMA, DET] quels morceaux il pourra leur jouer et quels morceaux il ne le pourra pas.
- (f) [COMP, DET] quels morceaux il pourra leur jouer et quels morceaux il ne pourra pas leur jouer.

‘[Ludovic promised to play several musical pieces to his colleagues, but he does not master all of them yet.] He knows exactly which ones / which pieces he will be able to play to them and which ones / which pieces he won’t.’

Experiment 2: Interrogative clauses

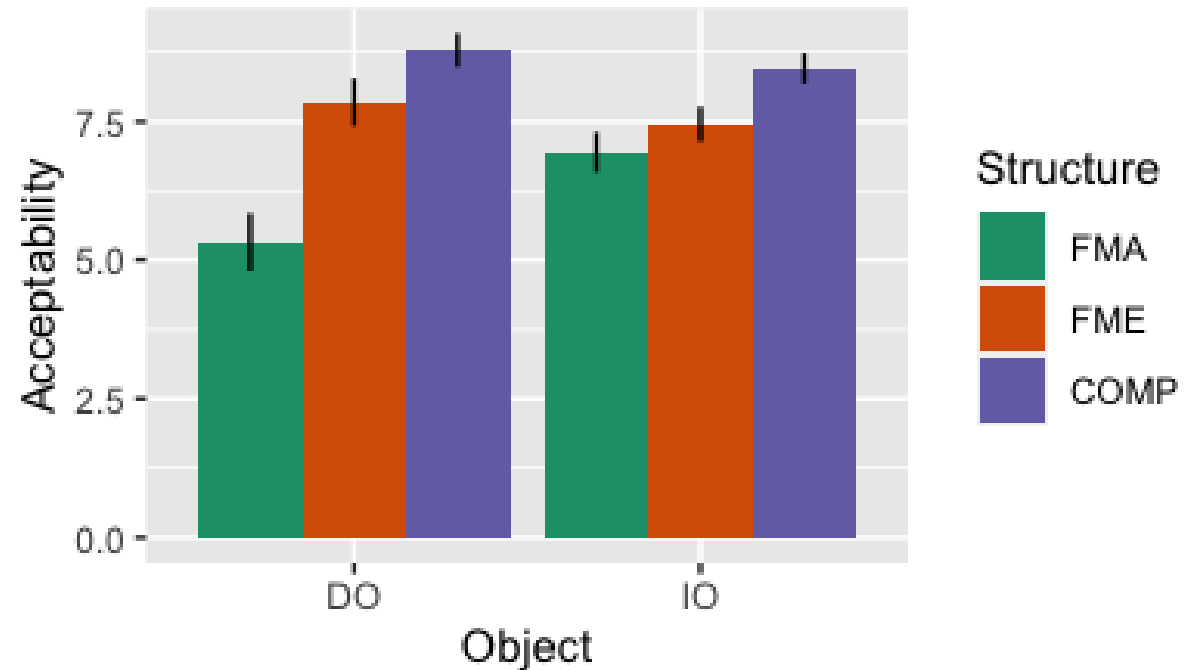
Results

- 58 participants
- Ungrammatical fillers mean = 1.46
- General preference for *quels* determiner, but no interaction with structure type, nor type of extracted object



Results

- Similar pattern for DO and IO extraction, gradation: complete > FME > FMA
 - IO extraction is acceptable for all structure types (means over 7)
 - The DO-FMA condition has the lower rating, but it is higher than ungrammatical items (5.3 vs. 1.5)
- ⇒ Extraction is allowed out of FMA (for IO, and marginally for DO): this is contrary to the PF-deletion analysis



RELATIVE CLAUSES

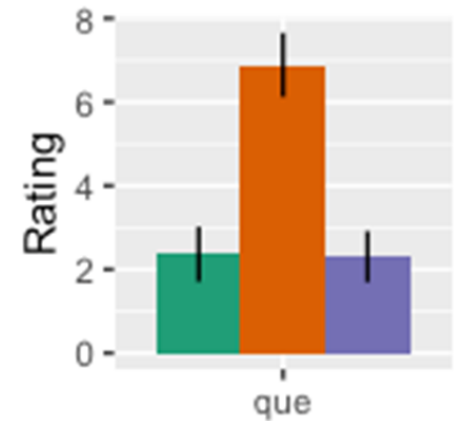
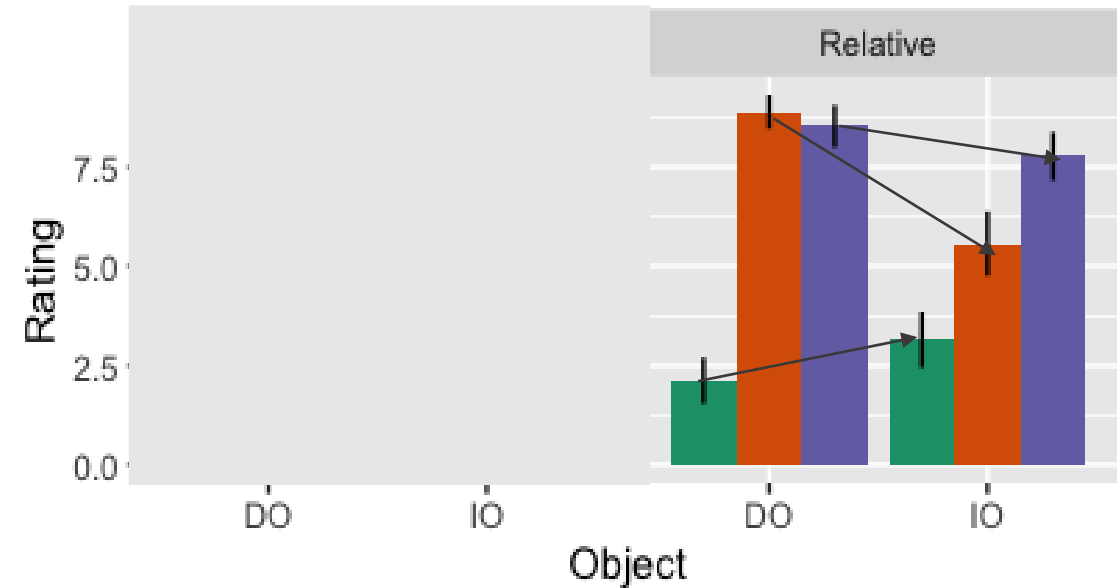
DO contexts with *que* & IO contexts with *auxquels* support the theoretical claim

- FME & COMP pattern the same
They are both acceptable (means resp. 8.9 and 8.53) with DO
They are both degraded with IO
- FMA shows a reverse pattern
It gets very low ratings for DO (mean 2.12)
It is improved, though still very degraded, for IOs

IO contexts with *que* challenge the claim
judged acceptable only for FME

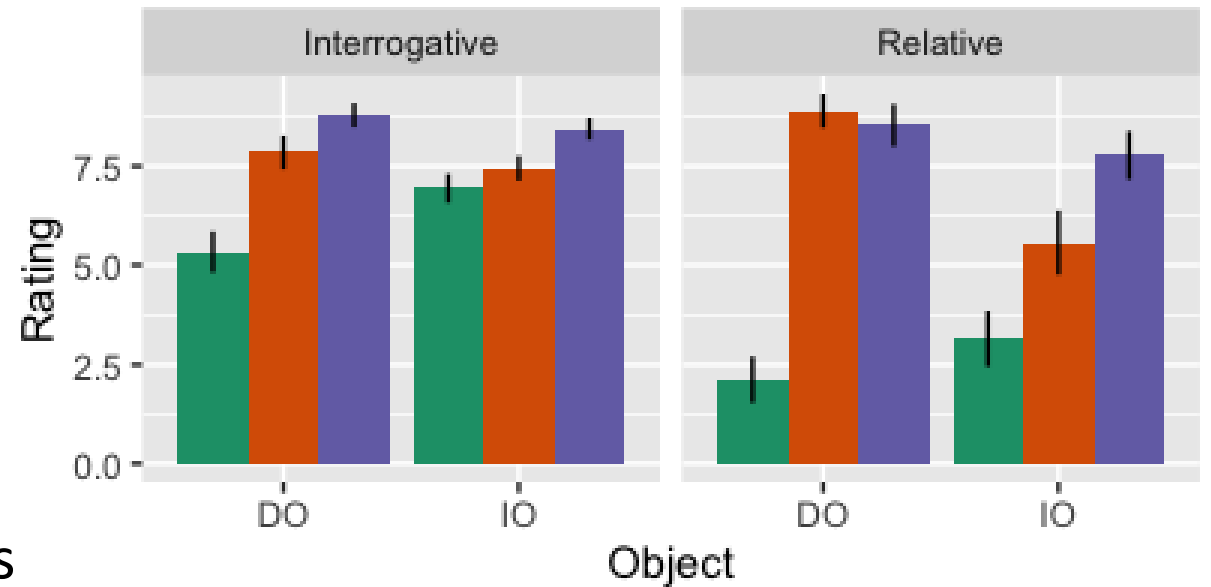
INTERROGATIVE CLAUSES

FMA is judged much higher than in relatives: not expected
Same DO-IO inversed pattern for FMA



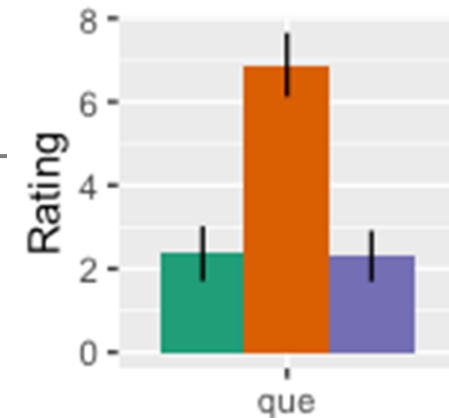
The data are **partly coherent** with the analysis

- Extraction is always OK out of **FME**.
- Relative extraction from **FMA** is rated very low.
- **FMA** always gets the lowest judgements



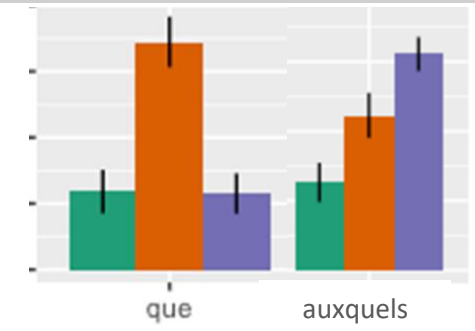
Questions

1. What happens with [IO, QUE] relatives ?
2. What happens with FMA:
 - why is there an asymmetry between direct and indirect objects?
 - why is there an asymmetry between interrogative and relative clauses?



Discussion 1 : Why is FME accepted in [IO, que] relatives?

Donati & Cecchetto (2010): Head internal relatives
Head-Raising + relabelling (X + YP → XP)
Two kinds of relatives : WH-Relatives and Complementizer-Relatives



WH-RELATIVES behave as predicted (FMA 'BAD'/ FME & COMP OK)

(7) J'ai parlé à tous **les hommes auxquels j'ai pu parler** WH-movement + extra head movement step (irrelevant here)

COMPLEMENTIZER-RELATIVES (FMA & COMP 'BAD'/ FME OK)

(8) *J'ai parlé à tous **les hommes** **que j'ai pu parler**
[_{DP} les [_{CP>NP} (**hommes**) que [_{TP} j'ai pu parler [_{PP} à [_{DP} ∅_{det} (**hommes**)]]]]] 'Relabelling mvt'
the men that I.could talk to men

COMP: Prep-stranding violation
FME: veils the offending Preposition

Discussion 2: Why is IO extraction always better than DO extraction with FMA ?

FMA : presents a twofold asymmetry

Extraction is always rated higher

(1) for IOs

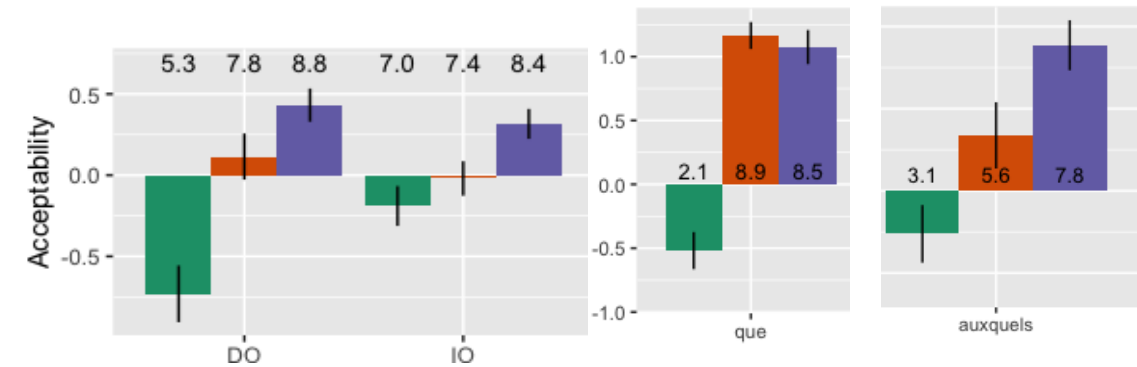
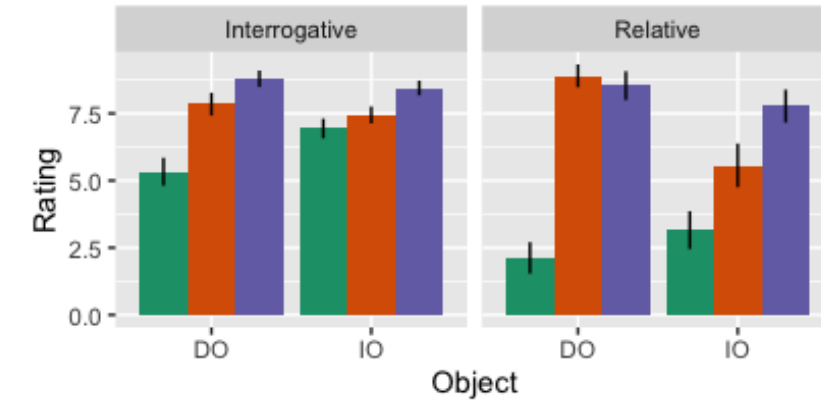
(2) from interrogative clauses

- These asymmetries are not predicted by our framework

Proposal:

PF-deletion vs **Anaphora**

+ processing effect



Discussion 2. IO extraction is always rated better than DO extraction with FMA

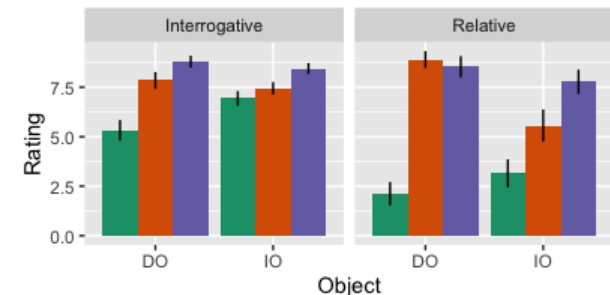
- VPE: flawed antecedent recycling (Frazier 2013, Arregui et al. 2006, Frazier & Du 2019)
- FMA: (flawed)argument structure accommodation

- (10) a. Elle sait auxquels elle peut désobéir et auxquels ^{??} elle ne **le** peut pas. IO-EXTRACTION
- b. Elle sait lesquels elle peut aider et lesquels ^{??} elle ne **le** peut pas. DO-EXTRACTION

the WH-item is selected by the missing infinitive - «désobéir à x», «aider x»
pouvoir selects only the DO clitic **le**

→ Subjects may accommodate the argument structure of *pouvoir* to attach the extra pending WH-P

French: V (NP), V (PP), **V (NP, PP)**, V (PP, PP), ***V (NP, NP)** → (10a) less degraded than (10b)



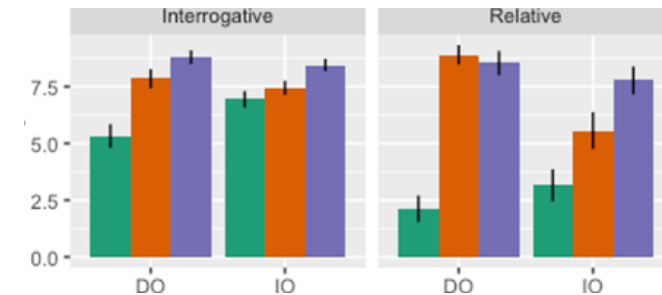
Discussion 3. Interrogative extraction fares better than relative extraction with FMA

Accommodation also explains the interrogative/relative asymmetry.

(11) a. Elle sait (auxquels elle peut désobéir) et (auxquels elle ne le peut pas). WH-EXTRACTION

b. Elle désobéira à tous les ordres auxquels elle le pourra. RELATIVE EXTRACTION

- Experiment 2: the anaphorical conjunct in (11a) is redundant
→ Bias towards accommodation
- No such bias in (11b)
- Loosely controlled pilot study: 2 items (/18) without redundancy
rated lower than the other cases of interrogative DO extraction (resp. 1.14 and 2.71 vs 3.48, $N=16$).



- The theoretical analysis of FME may be right :

Abstracting from the relativization strategy, FME always parallels complete sentences

- However, it seems challenged by the judgements on FMA

➔ Proposal: the modal undergoes Argument Structure accommodation in FMA

How to test the proposal ?

→ Collect data on on-line processing

Re-run Experiment 1 & 2 with speeded grammatical judgements

→ Test the semantic redundancy hypothesis (redundancy favors accommodation)

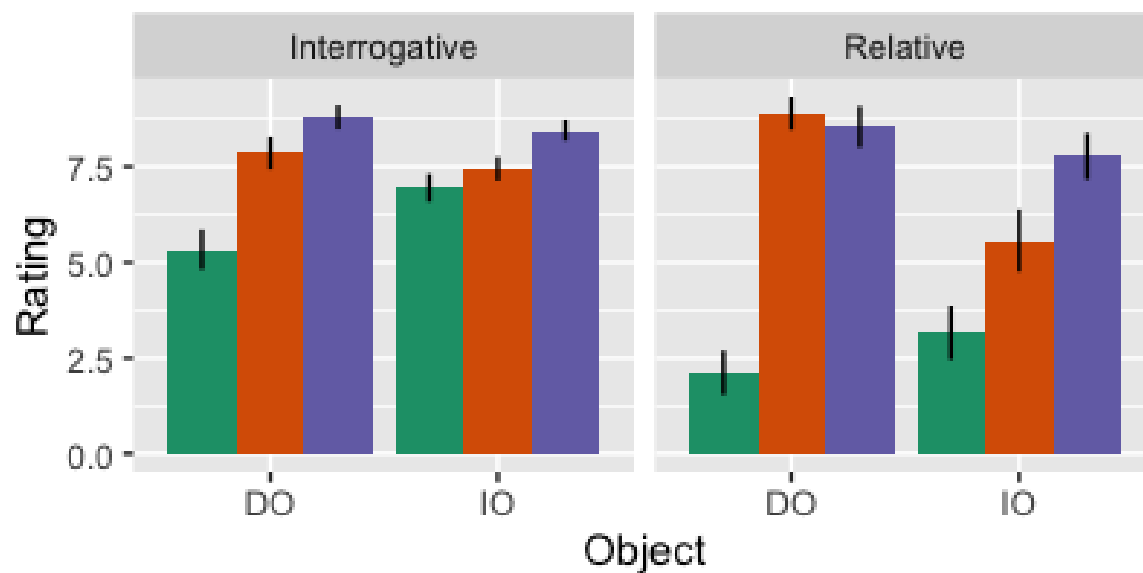
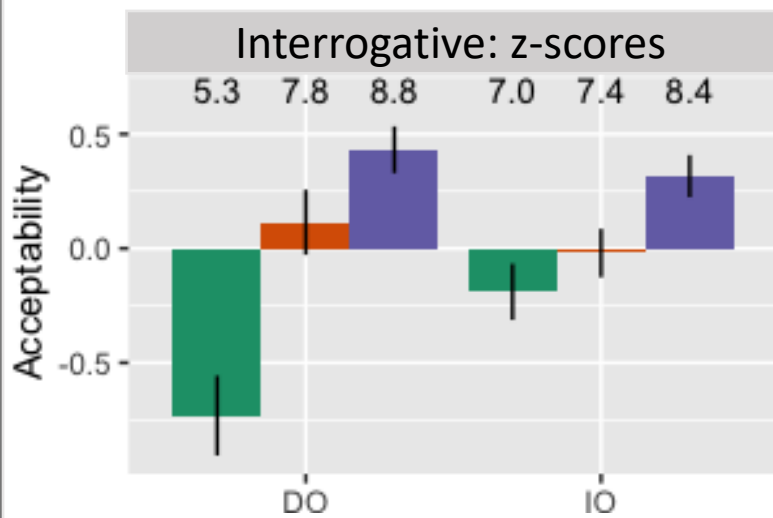
- Run a variant of Exp2 replacing WH-PHRASE by REDUNDANCY

(12) Paul essaie d'évaluer quels articles il peut lire et quels articles il ne peut pas.
Paul tries to assess which papers he can read and which papers he can not

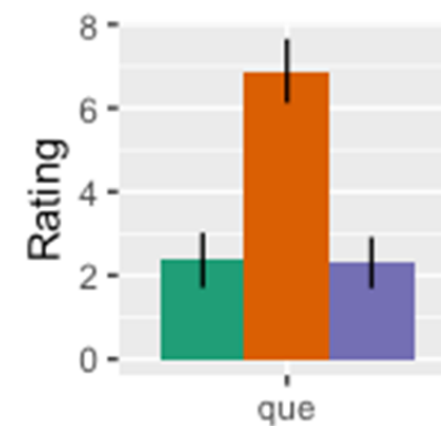
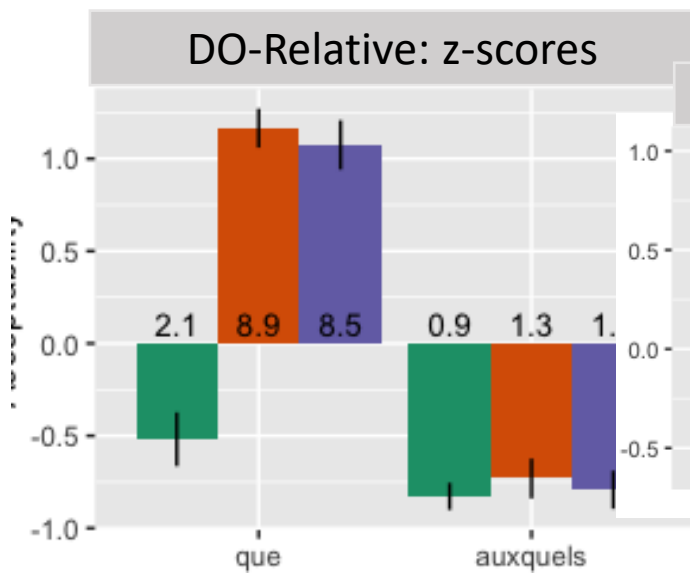
(13) Paul essaie d'évaluer quels articles il doit lire et quels articles il ne peut pas.
Paul tries to assess which papers he must read and which papers he can not

- Test free relatives: WH-extraction, no redundancy

(14) Paul embrasse qui il (le) peut / parle à qui il (le) peut
Paul kisses whom he (it) can / talks to whom he (it) can



Thanks!



- Arregui, Ana, Charles Jr Clifton, Lyn Frazier & Keir Moulton. 2006. Processing Elided Verb Phrases with Flawed Antecedents: the Recycling Hypothesis. *Journal of Memory and Language* 55(2). 232-246. doi:doi:10.1016/j.jml.2006.02.005.
- Authier, Jean-Marc. 2011. A movement analysis of French Modal Ellipsis. *Probus* 23. 175–216.
- Bates, Douglas, Martin Mächler, Ben Bolker & Steve Walker. 2015. Fitting linear mixed-effects models using lme4. *Journal of Statistical Software, Articles* 67(1). 1–48. doi:10.18637/jss.v067.i01. <https://www.jstatsoft.org/v067/i01>.
- Busquets, Joan & Pascal Denis. 2001. L'ellipse modale en français: le cas de devoir et pouvoir. *Cahiers de grammaire* 26. 55–74.
- van Craenenbroeck, Jeroen & Tanja Timmermann (eds.). 2019. *The Oxford Handbook of Ellipsis*. Oxford: Oxford University Press.
- Dagnac, Anne. 2008. L'ellipse modale en français : arguments pour une ellipse du TP. In J. Durand, B. Habert & B. Laks (eds.), *Actes du congrès mondial de linguistique française*, Paris: Institut de Linguistique Française.
- Dagnac, Anne. 2010. Modal Ellipsis in French, Spanish and Italian: evidence for a TP-deletion analysis. In K. Arregi, Z. Fagyal, S. Montrul & A. Tremblay (eds.), *Romance Linguistics 2008. Interactions in Romance*, 157–170. Philadelphia: John Benjamins.
- Donati, Caterina & Carlo Cecchetto. 2011. Relabeling heads: A unified account for relativization structures. *Linguistic Inquiry* 42(4). 519–560. doi:10.1162/LING a 00060.
- Drummond. 2013. *Ibex farm*. Version 0.3.
- Frazier, Lyn. 2013. A recycling approach to processing ellipsis. In L. L.-S. Cheng & N. Corver (eds.), *Diagnosing syntax*, Oxford: OUP.
- Frazier, Lyn & John Du. 2019. Repair or accommodation? Split antecedent ellipsis and the limits of repair. *Glossa: a journal of general linguistics* 4. 728. doi:DOI:<http://doi.org/10.5334/gjgl.728>.
- Godard, Danièle. 2021. La structure des subordinées relatives. In A. Abeillé & D. Godard (eds.), *La grande grammaire du français*, Actes Sud.
- Leivada, Evelina & Marit Westergaard. 2020. Acceptable Ungrammatical Sentences, Unacceptable Grammatical Sentences, and the Role of the Cognitive Parser. *Frontiers in Psychology* 11. 364. doi:10.3389/fpsyg.2020.00364.
- Miller, Philip H. 1997. Auxiliary verbs in Old and Middle French: a diachronic study of substitutive 'faire' and a comparison with the Modern English auxiliaries, in Kemande, Hans van and Vincent, Nigel (eds), *Parameters of morphosyntactic change*, Cambridge: Cambridge University Press: 119–133.
- R Development Core Team. 2011. *R: A language and environment for statistical Computing*. R Foundation for Statistical Computing Vienne, Autriche. <http://www.R-project.org/>.

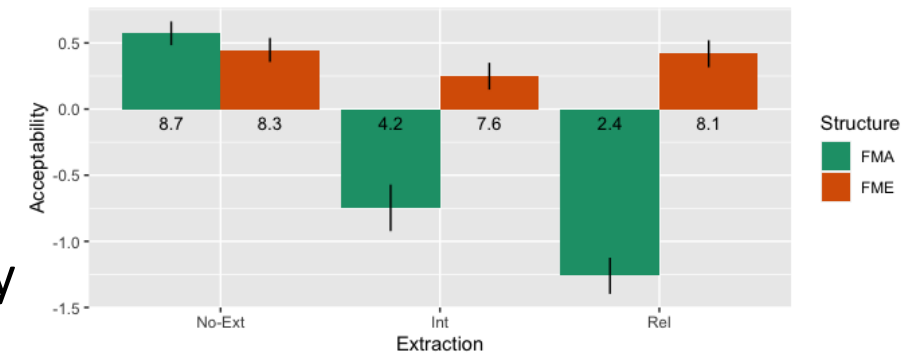
Restes

Outline of the talk

1. French modal ellipsis vs French modal anaphora
2. Our study : two controlled judgement tasks
 - A. Experiment 1: Relative clauses
 - B. Experiment 2: Interrogative clauses
3. Discussion
 - A. What happens with [IO, QUE] relatives ?
 - B. IO vs DO extraction: what happens with FMA?
 - C. Extraction from interrogatives: what happens with FMA ?
4. Further investigations

Our study

- This claim relies on non-controlled grammaticality judgments
- Since the extraction data are crucial to the analysis, we gathered controlled judgments
- Pilot experiment:
 - In context without extraction, both FMA and FME are judged grammatical
 - Results in line with Busquets & Denis (2001) and Dagnac (2008): FMA is highly degraded in extraction context, contrary to FME
 - But, the items were loosely controlled and there was a lot of variation between items, especially depending on the status of the extracted object (DO or IO).
- Two finer-grained experiments designed to overcome the limitations of the pilot study



Discussion : *What happens with [IO, que] relatives ?*

Two kinds of relatives in French: WH-Relatives and Complementizer-Relatives

Donati & Cecchetto (2010): Head-Raising + relabelling (X + YP → XP)

WH-RELATIVES (FMA 'BAD' / FME & COMP OK)

(7) J'ai parlé à tous **les hommes auxquels j'ai pu parler**

[_{DP} les [_{CP} à **lesquels hommes** C [_{TP} j'ai pu parler [_{PP} à [_{DP} ~~lesquels hommes~~]]]]

The to.which men I.have can.PTCP talk to which men

WH-mouvement

[_{DP} les [_{NP} **hommes** [_{CP} à lesquels ~~hommes~~ [_{TP} j'ai pu parler [_{PP} à [_{DP} **lesquels hommes**]]]]]] 'Relabelling mvt'

The men to.which I.have can.PTCP talk to which men

COMPLEMENTIZER-RELATIVES (FMA & COMP 'BAD' / FME OK)

(8) *J'ai parlé à tous **les hommes que j'ai pu parler**

[_{DP} les [_{CP>NP} (**hommes**) que [_{TP} j'ai pu parler [_{PP} à [_{DP} ∅_{det} (**hommes**)]]]]]]

the men that I.have can.PTCP talk to men

'Relabelling mvt'

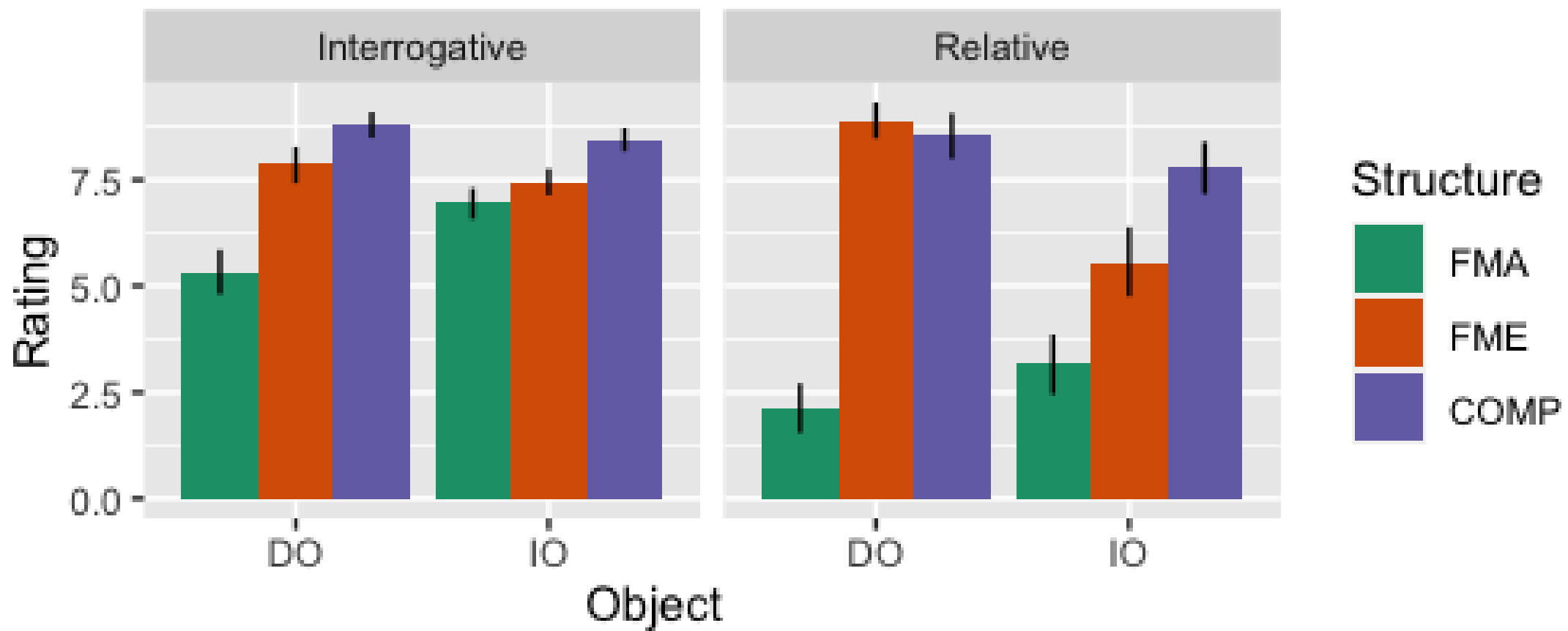
COMP: Prep-stranding violation (ok in Non standard French only)

FME: veils the offensive Preposition

Not explained: subjects rate FME C-relatives (mean 6.89 vs 5.57) higher than WH-relatives: simpler movement vs repair ?

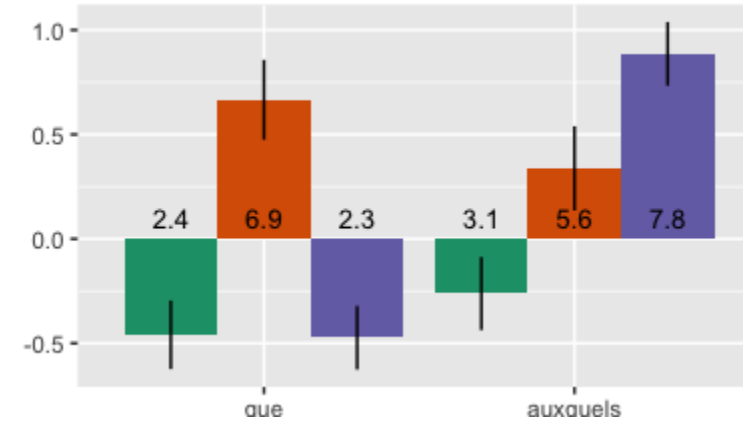
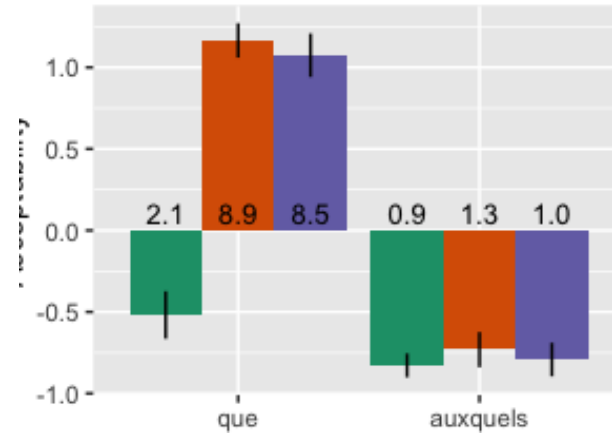
(28) Anne n' est pas encore très sûre de ce qu' elle ne pourra
Anne PTCL is not yet quite sure of DEM that she PTCL can.FUT
pas jouer, mais au moins, elle sait ce qu' elle pourra.
not play but at least she knows DEM that she can.FUT
'Anne isn't quite sure yet of what she can't play, but at least she knows
what she can.'

(29) Elle se demande quelles plantes elle doit arracher et quelles
she REFL wonders which plants she must uproot and which
plantes elle ne pourra pas
plants she PTCL can.FUT not
'She wonders which plants she must uproot and which plants she won't
be able to.'

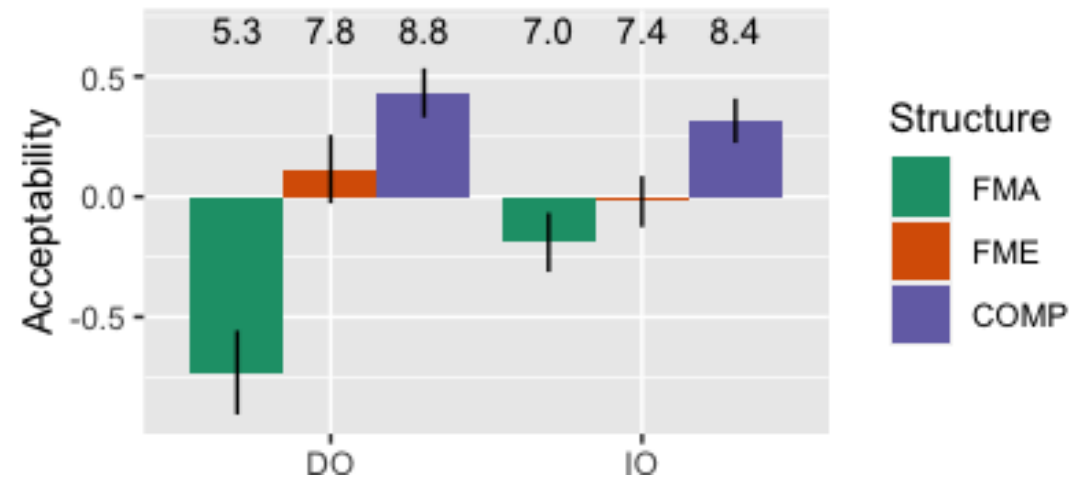


Overview of the results

Experiment 1 (Relatives)



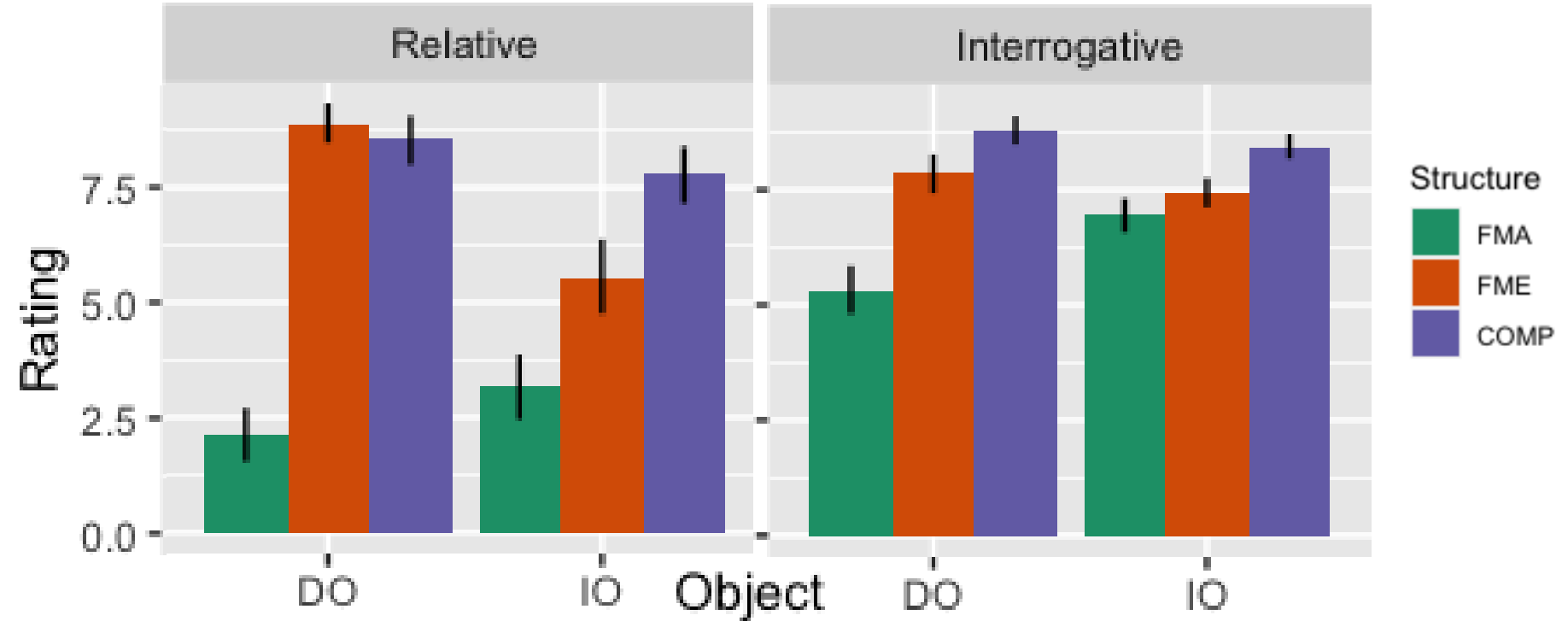
Experiment 2 (WH-questions)



Overview of the results

Interrogative (full results)
Relative (DO - *que* and IO
-auxquels)

Mean rating



Z-score

