Interrogative Sentences in French Syntax & Prosody

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Brief overview

➢ Who we are: the WHISF research group;
➢ In situ wh-elements in French: the need for solid, empirically-validated data;
➢ Our work so far: Interesting accounts, corpus analysis, predictions:
   ➔ Boskovic (2000): purely syntactic account;
   ➔ Cheng & Rooryck (2000): testable hypotheses on the correlation between syntax and prosody in French;
   ➔ Déprez & alii (2013): production test that partly confirms C&R's ideas;
   ➔ Preliminary results of our corpus analysis: a different direction?
➢ Future work:
   ➔ Study of new corpora + finer prosodic analyses of oral French;
   ➔ Deeper study of Trevigiano, a North-Eastern Italian dialect.
Introduction to French interrogatives

French allows for several *question formation strategies*:

- **Wh- questions**
  - in situ: “Tu as vu qui?”
  - ex situ: “Qui tu as vu?”
  - est-ce que: “Qui est-ce que tu as vu?”
  - inversion: “Qui as-tu vu?”
  - cleft: “C’est qui que tu as vu?”

- **Yes-no questions**
  - inversion: “Es-tu parti?”
  - est-ce que: “Est-ce que tu es parti?”
  - bare: “Tu es parti?”
Bošković (2000): Sometimes in [Spec;CP], sometimes in situ

Matrix questions: FR allows both the ex situ and the in situ strategies:

(1) a. *Qui tu as vu?  
   b. *Tu as vu qui?

Embedded questions: insituness is ruled out:

(2) *Pierre a demandé tu as vu qui

➔ Boskovic explains these phenomena using Chomsky's (1995)'s account, which allows for lexical insertion of phonologically null elements at LF:

French has a strong [+wh] feature. The CP is not present in overt syntax, the null C is merged at LF (legitimate move: the insertion takes place at the top of the tree):

(3) a. SS: [IP Tu as vu qui?]  
   b. LF: [CP Qui C [IP tu as vu?]]
In embedded clauses the delayed insertion of the CP layer is not possible: illegitimate instance of Merge, it would not expand the tree! Checking of the strong [+wh] feature: done in overt syntax, before the higher structure is built!

(4) SS: *Pierre a demandé [CP qui C [IP tu as vu]]*

As for the FR in situ/ex situ alternation in matrix clauses, Boskovic suggests we should exempt Merge from Procrastinate - then the phonologically null C can be merged overtly (*Qui tu as vu?*) or covertly (*Tu as vu qui?*)!

This approach is elegant but problematic:

- Problems with the data: non-standard French allows for negated in situ questions, insituness in embedded contexts etc. (Mathieu (1999), Baunaz (2011), among others);

- How to account for a CLD + in situ structure (5)?

(5) *Ton cousin Eric, tu l'as vu quand?*
C&R propose an interesting correlation between the syntax and prosody of French interrogatives.

Yes/no questions and wh-questions with an *in situ* wh-element are both assigned a *sentence-final rising contour* - associated to what they call the **Q-morpheme** (*yes-no intonation morpheme*).

Such morpheme checks the Q-feature in $C^o$ when the wh-element sits in situ. In ex situ questions, the checking is done via the movement of the wh-element.

The value of the Q-morpheme is not specified in overt syntax. It can take three values:

- [Q: qu] (wh-question);
- [Q: yes/no] (yes/no question);
- [Q:] when it is underspecified.
Cheng&Rooryck (2000)

Wh-in situ interrogatives are associated with [Q:] 

➔ when the value of C° is underspecified, the intonational morpheme is given a default value ([yes/no]) in LF. Such default value corresponds to a sentence-final rising intonation.

This approach predicts the following:

➢ yes/no questions should have a rising contour;
➢ the same contour should be found in wh-in situ questions;
➢ wh-ex situ questions, should show a different prosody: a final fall.

➔ These predictions will be tested empirically in the corpus of oral French we chose for our work.
Déprez et al. (2013):  
*The interaction of syntax, prosody, and discourse in French wh-in-situ questions*

Some of C&R's generalizations have been claimed to be false:

- it is for example possible to answer a wh-in situ question by means of negative answer, and insituiness is licensed in many more contexts than those claimed by C&R (Adli 2004, Baunaz 2011, Zubizarreta 2001, among others);
- wh-in situ questions are not systematically associated to a sentence-final rising contour (Adli 2004, Hamlaoui 2008, Zubizarreta 2001, etc.).

Déprez & al. tested the prosodic predictions of C&R's account (controlled production test, 12 native speakers of French). **Predictions:**

- Y/n questions with/without *est-ce que* should show a final rise;
- Declaratives should not;
- Ex-situ questions should have a falling contour.
Déprez et al. (2013)

The results:

➢ Two distinct groups of speakers were found: most participants assigned a sentence-final rise to wh-in situ questions, yet a minority of speakers did not;

➢ The rise associated with wh-in situ appeared systematically more compressed than the rise in y/n questions:

   ➔ Both types of questions should be licensed by the same morpheme – why two different realizations of the same phonological event?

➢ Interestingly, the sentences lacking a sentence-final rise showed an “elevated” high pitch accent on the in situ wh-word.

Déprez&al.'s results are, in a way, slightly problematic for C&R's account but, on the whole, they provide supporting evidence.
Corpus study

Goal of this study: to verify C&R’s hypotheses on the basis of data from a spoken corpus, rather than read speech (as in Déprez et al. (2013)).

➔ Questions from a French spoken corpus (ESLO2 interview section, ESHKOL-TARAVELLA et al. (2011));

➔ Manual syntactic annotation was done, especially to distinguish ex-situ from in-situ questions;

➔ Sentences were automatically segmented in Praat by the EasyAlign plugin (Goldman, 2011) to align text and sound. Pitch contours were generated by Praat and manually checked.

Predictions, following C&R’s theoretical assumptions:

➢ in-situ and yes-no questions show a final rise, hence high pitch on last vowel (V0);

➢ declaratives and ex-situ questions do not (low pitch on V0);

➢ the presence of “est-ce que” should not influence the final intonation.
Methodology

1123 annotated sentences were selected for the study:

➔ 443 declaratives (39%);
➔ 342 yes-no questions (30%);
➔ 189 wh-in-situ questions (17%);
➔ 155 wh-ex-situ questions (14%);
➔ Limited amount with “est-ce que” (120 sentences total), none with ScI inversion.

We calculated the mean F0 values (semitones, re 100) on:

➢ the last accented vowel (V0);
➢ and the penultimate one (V1), for each type of sentences.
Methodology (2)

We used multi-level mixed effects regressions models with Helmert coding for contrasts to understand:

➢ the relationship between pitch height on the last vowel and the type of sentences;
➢ the relationship between the F0 height difference of V0 and V1 and the types of sentences;

We included as fixed effects the type of sentences, sex of the speaker and number of syllables with by-subject random intercepts and slopes.
Results: F0 on the last V

➔ Among wh- sentences, no significant difference w.r.t. F0 values on V0 between in situ and ex situ wh-questions: p>0.05;

➔ F0 values on declarative sentences were not significatively different from those on wh-questions: p>0.05;

➔ Yes-no questions showed significantly higher F0 value on V0 than wh-questions and declaratives altogether: β = 0.67, p<0.001
Results: F0 V0 – F0 V1

Stronger results when it comes to the difference between V0 and V1.

➔ No significant difference between ex situ and in situ wh-questions for the difference between mean F0 values on V0 and V1: p>0.05;

➔ Declarative sentences patterned with wh-questions: p>0.05;

➔ Yes-no questions showed a significant increase of F0 on the last two vowels w.r.t. the other types of sentences: \( \beta = 0.31, p<0.001 \)
Discussion

These results seem to contradict C&R’s hypotheses and Déprez&al.'s findings:

➢ We did not observe a contrast between in situ and ex situ questions. Wh- questions patterned with declarative sentences, showing:
  ➢ similar mean F0 values on the last vowel;
  ➢ similar differences between mean F0 values on V0 and V1;
➢ Yes-no questions differ from the other types of questions: a final rising contour is more apparent than for wh- questions;
➢ We did not create different groups for subjects, as it was done by Déprez&al. to explain some differences between subjects regarding the presence of a final rising contour.
Further research

To verify our findings and see if they really challenge C&R’s theoretical assumptions, we need to do a few more things:

➢ to analyse more annotated sentences, especially to understand the influence of “est-ce que” on final intonation;
➢ to manually ToBI transcribe the final contours;
➢ to verify under which conditions declarative sentences can have a final rise (a possibility being continuation intonation);
➢ to get the values of F0 on wh-elements for in situ and ex situ questions. If the wh-element associates with a prominent pitch accent, does it have an impact on the final contour of the sentence (as proposed by Déprez&al. (2013))?
Thank you for your attention!

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References


Appendix (1)
Influence of “est-ce que”

Presence /absence of ‘est-ce que’ in yes-no and wh-ex-situ questions
Appendix (2)
Yes-no questions and “est-ce que”

We tried to understand the great variation found in yes-no questions. It appeared that the “est-ce que” marker might play a role for this type of questions.

We remarked that the presence or absence of the marker “est-ce que” influenced F0 values on the last vowel. Yes-no questions with this marker display lower F0 values on V0 than those without the marker, which is not predicted by CR’s analysis.

However, the presence or absence of “est-ce que” did not have any effect on the pitch height of the last vowel in wh-ex-situ questions.

Wh-ex-situ questions (with or without “est-ce que”) patterned with yes-no questions with “est-ce que”. Yes-no questions with no marker show a higher mean F0 value on V0.