

Prosody and Language Contact: An Experimental Investigation of Interrogative Strategies in Navarro-Labourdin Basque

Maia Duguine & Aritz Irurtzun



Basque interrogative strategies

Interrogatives in Basque: the standard characterization

(cf. Ortiz de Urbina (1989); Irurtzun (2016))

Basque is a *bona fide* wh-movement language.

'Standard' *wh*-questions: *wh*-V adjacency

- (1) Peiok ura edan du.
Peio water drink AUX
Peio drank water

- (2) Nork edan du ura?
who drink AUX water
Who drank water?

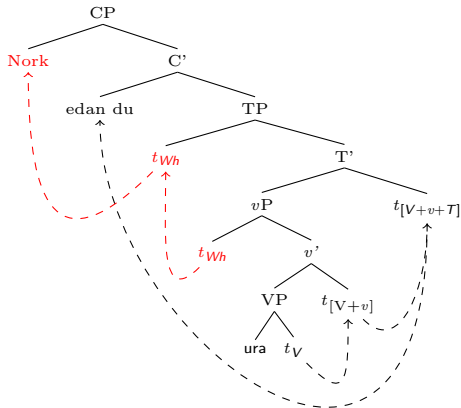
- (3) Zer esan du Jonek [edan duela Peiok]?
what say AUX Jon drink AUX.C Peio
What did Jon say that Peio drank?

- (4) *Nork esan du Jonek [ura edan duela]?
who say AUX Jon water drink AUX.C
Who did Jon say that drank water?

The syntax of 'standard' *wh*-questions

(cf. Ortiz de Urbina (1989); Irurtzun (2016))

Nork edan du ura? *Who drank the water?*



A syntactic innovation in Labourdin Basque

A new strategy has emerged in the Labourdin variety, in which there is no *wh*-movement or verb movement (Duguine and Irurtzun, 2014).

Wh-question strategies in Labourdin Basque (LB)

- (5) Nork edan du ura? [“Standard” Strategy]
who drink AUX water
Who drank the water?
- (6) Nork ura edan du? [Specific to LB youth]
who water drink AUX
Who drank the water?

Duguine & Irurtzun's (2014) analysis

The new strategy involves *wh-in-situ*.

The properties of a *wh-in-situ* language

It shows the same patterns that French *wh-in-situ* shows (cf. Bošković (1998); Mathieu (1999); Cheng and Rooryck (2000)):

- It is not presuppositional.
- It is not contrastive.
- It is restricted to root clauses.
- It shows intervention effects.

A multifactorial explanation

The emergence of the *wh-in-situ* strategy is due to the conjunction of three factors:

- The availability of ambiguous triggers in the Primary Linguistic Data.
- The change in the sociolinguistic profile of the speakers of Labourdin Basque.
- A cognitive bias favoring movementless derivations.

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Interface approaches to *wh-in-situ*

Interface approaches to wh-in-situ



Linguistic Inquiry
Monograph Fifty-Six

Uttering Trees

Norvin Richards

CHAPTER 8

The wh parameter and radical
externalization

ÉRIC MATHIEU

Syntax 3:1, April 2000, 1–19

LICENSING WH-IN-SITU

Lisa Lai-Shen Cheng and Johan Rooryck

Cheng & Rooryck (2000)

The idea

In French, *in-situ* and polarity (yes/no) questions are based on the same basic licensing mechanism by a Q-morpheme.

- Both are realised with a rising intonation.

Similarities between *wh-in-situ* and polarity questions

- They are associated with a strongly presuppositional context.

(7) A. Qu' est-ce que Marie a acheté?
what est-ce que Marie has bought
What did Marie buy?

B. Rien.
nothing

(8) A. Marie a acheté quoi?
Marie has bought what
What did Marie buy?

B. ??Rien.
nothing

(9) a. Are you cooking tonight?
b. You are cooking tonight?

→ (9b) is not a neutral question, unlike (9a): it presupposes a positive "yes" answer.

Cheng & Rooryck's (2000) analysis

- These similarities indicate that the two constructions are based on the same licensing mechanism.
- **Proposal:** French has a Q-morpheme which is underspecified as to whether it has a [wh]-feature or a [yes/no] feature and which is thus compatible both with wh- and polarity constructions.
- At PF this morpheme is realized with a rising contour.

The experiment

Questionnaire in Labourdin Basque

Two main restrictions:

- Mainly composed by sonorant segments in order to allow for a proper measurement of F0 values.
- The syllables to be compared are as similar as possible, avoiding microprosodic “noise” (/no/-/ni/ for the first element (ergative subject or dative indirect object), /li/ on the direct object, and /ra/ on the lexical verb).

Questionnaire in Labourdin Basque

Three conditions:

- (10) a. Nok liliak eraman ditu? [wh in situ]
 who.ERG flowers take AUX
 Who took the flowers?
- b. Nok eraman ditu liliak? [wh-movement]
 who.ERG take AUX flowers
 Who took the flowers?
- c. Nik liliak eraman ditut? [polar-Q]
 I.ERG flowers take AUX
 Did I take the flowers?

Questionnaire in Labourdin Basque

Three conditions:

- (11) a. **Nok** liliak eramam ditu? [wh in situ]
who.ERG flowers take AUX
Who took the flowers?
- b. **Nok** eramam ditu liliak? [wh-movement]
who.ERG take AUX flowers
Who took the flowers?
- c. **Nik** liliak eramam ditut? [polar-Q]
I.ERG flowers take AUX
Did I take the flowers?

Questionnaire in Labourdin Basque

Three conditions:

- (12) a. **Nori** **uliak** **erakutsi** dazkozu? [wh in situ]
who.DAT flies show AUX
Who did you show the flies to?
- b. **Nori** **erakutsi** dazkozu **uliak**? [wh-movement]
who.DAT show AUX flies
Who did you show the flies to?
- c. **Joni** **uliak** **erakutsi** dazkozu? [polar-Q]
Jon.DAT flies show AUX
Did you show the flies to Jon?

Questionnaire in Labourdin Basque

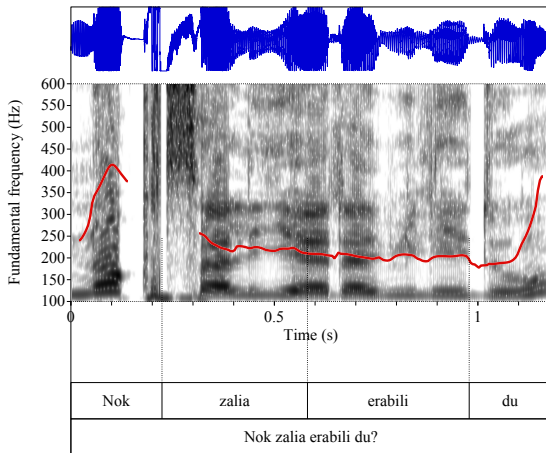
Three conditions:

- (13) a. **Nok** zal**ia** er**abili** du? [wh in situ]
who.ERG ladle use AUX
Who used the ladle?
- b. **Nok** er**abili** du zal**ia**? [wh-movement]
who.ERG use AUX ladle
Who used the ladle?
- c. **Nik** zal**ia** er**abili** dut? [polar-Q]
I.ERG ladle use AUX
Did I use the ladle?

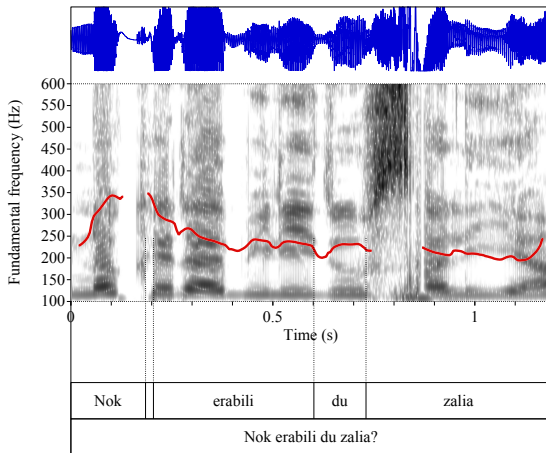
Measurements

Duration, and intensity and F0 maxima, minima and means in each of the accented syllables and F0 maxima of the last two syllables. A total of 1404 measurements in the study.

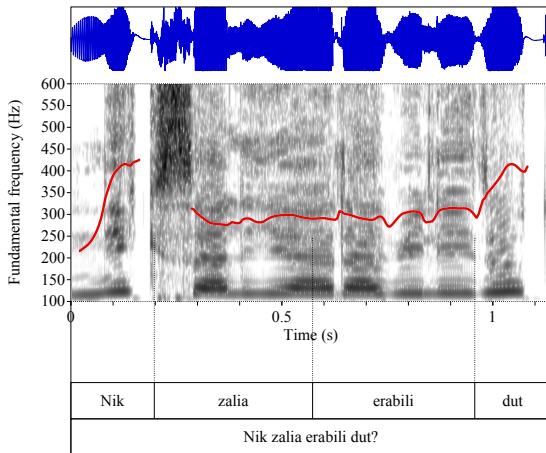
Results: *wh* in situ

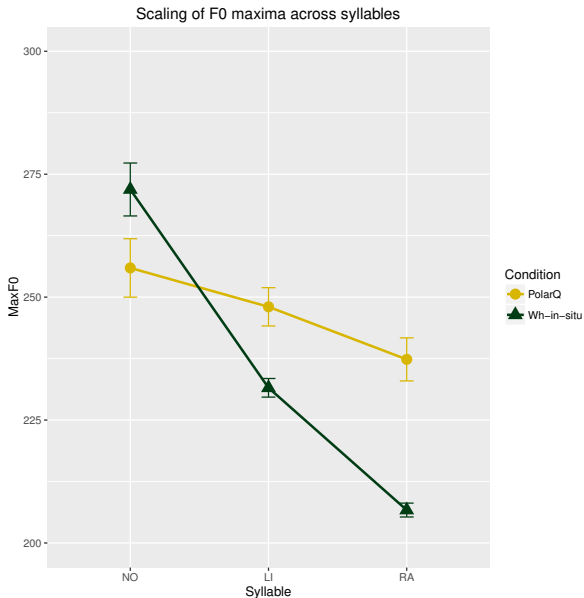


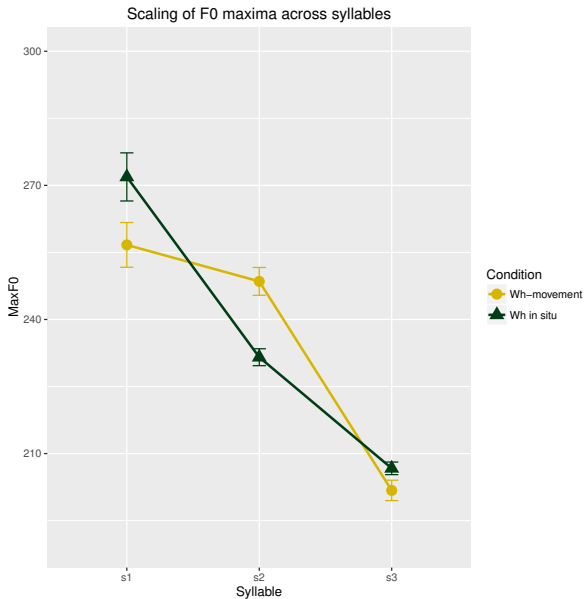
Results: *wh*-movement



Results: polar questions







Preliminary conclusions

Sharp differences across conditions

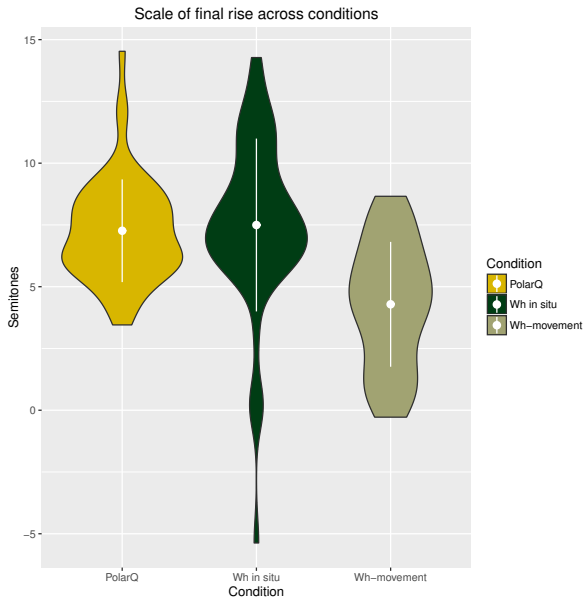
- Wh-in-situ: High pitch on the wh-word, low F0 until a sharp final rise.
- Wh-movement: High pitch on the wh-word (relatively smaller), a more stepwise F0 downtrend to σ_2 and then sharp fall to σ_3 , and a smaller final rise.
- Polar-Q: High pitch on the wh-word (\approx wh-movement), a small and stepwise F0 downtrend in σ_2 and σ_3 , and a sharp final rise.

The region preceding the final rise already indicates a polar question (as in French (*cf.* Gryllia et al. (2016))).

The final rise

We measured F0 maxima in the penultimate and final syllables and calculated the difference in Hertz and in the logarithmic scale of semitones.

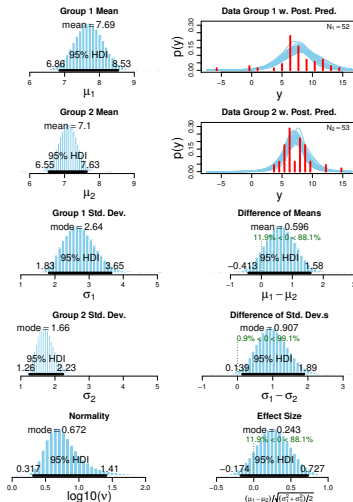
	<i>wh in situ</i>	<i>wh</i> -movement	Polar Q
Hertz	117.17 (SD=55.81)	58.11 (SD=37.02)	122.45 (SD=40.27)
Semitones	7.50 (SD=3.50)	4.29 (SD=2.53)	7.32 (SD=2.06)



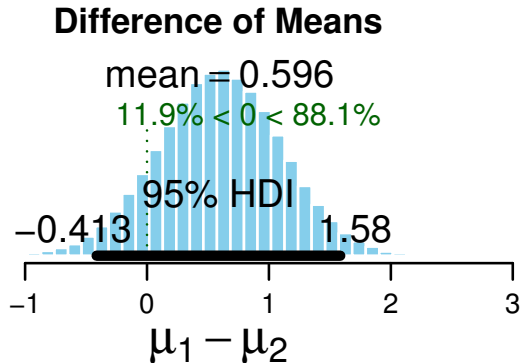
Bayesian comparison of conditions: Wh in situ vs. Polar Q

- Bayesian MCMC model (*cf.* Kruschke (2013, 2015)).
- 5 parameters: μ_1 , μ_2 , σ_1 , σ_2 , ν
- 100,000 possible parameters.

Bayesian comparison of conditions: Wh in situ vs. Polar Q



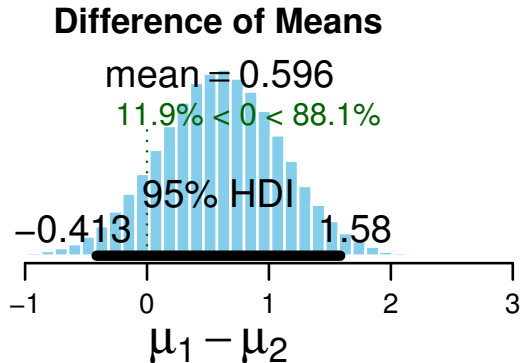
Bayesian comparison of conditions: Wh in situ vs. Polar Q



Psychoacoustics of the perceptible difference

- A change in 1.5 semitones is at the very lowest bound of the human perceptibility threshold for pitch (*cf.* Rietveld and Gussenhoven (1985)).
- “only differences of more than 3 semitones play a part in communicative situations” (’t Hart (1981)).
- ± 1.5 as a conservative region of practical equivalence (the ROPE, *cf.* Kruschke (2015)), we see that a substantial part of the highest density interval (HDI) for mean values would fall inside of the ROPE, with a tiny fraction falling outside it.

Bayesian comparison of conditions: Wh in situ vs. Polar Q



Conclusions

- Sharp intonational differences (in F0) across conditions.
- Strong similarities in the final rise of polar questions and wh-in-situ questions.

General conclusions

- Cheng and Rooryck's (2000) (syntactocentric) proposal may be directly applied to Basque.
 - ↳ Transfer from French.

どうもありがとうございます

...and comments welcome!

References I

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