

**Syntax
and prosody
of negative
polar questions**

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Project BiasQ: Bias in polar
questions

Workshop “Questions, Answers and Negation”

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BiasQ: Bias in Polar Questions

Original speaker bias (epistemic)

Kathleen and Jeff have just come from Chicago on the Greyhound bus to visit Bob in Ithaca.

Bob: You guys must be starving. You want to get something to eat?

Kathleen: Yeah, isn't there a vegetarian restaurant around here---Moosewood, or something like that? (from Ladd 1981:164)

The speaker thinks there is a restaurant

Bias for p , where $p = \textit{there is a vegetarian restaurant}$

Contextual evidence bias (evidential)

A: Since you guys are vegetarians, we can't go out in this town, where it's all meat and potatoes.

B: Is there no vegetarian restaurant around here?

(from Buring & Gunlogson 2000:9)

The speaker encounters evidence that there is no restaurant

Bias against p , where $p = \textit{there is a vegetarian restaurant}$

What we are not looking at (for now)

Other kinds of biases

- *Don't you like it?*
What the speaker expects/wishes to be true → *Bouletic bias*
 - *Aren't you ashamed of yourself?*
What the speaker thinks should be true according to a general rule/law
→ *Deontic bias*
- (see van Rooy & Šafářová 2003, Huddleston & Pullum 2002, Reese 2006)

Other types of questions

- *Alternative questions*
- *Declarative questions*
- *Tag questions*

Today

Question forms

- *Is Paul a vegetarian?* → Positive polar question (PosQ)
- *Really? Is Paul a vegetarian?* → really-Positive polar question (really-PosQ)
- *Isn't Paul a vegetarian?* → Negative polar question with high negation (HiNQ)
- *Is Paul not a vegetarian?* → Negative polar question with low negation (LowNQ)

Focus on negative polar questions

1. Syntax
2. Prosody

Syntax

(see Domaneschi, Romero & Braun,
submitted)

Previous literature

Original speaker bias (Ladd 1981, Romero & Han 2004)

- HiNQ mandatorily express a positive original speaker bias, LowNQ do not

Contextual evidence bias (Büring & Gunlogson 2000)

- HiNQ are incompatible with evidence for p
 - LowNQ are only compatible with evidence against p
- Looking at either original or contextual bias

Either kind of bias (van Rooy & Šafářová 2003)

- No grammatical distinction between negative polar question forms
- All require negative bias
- Can be original or contextual bias, disambiguated by pragmatic context and polarity items

Both kinds of bias

- Sudo (2013): Did not discuss LowNQs
- Roelofsen et al. (2012): Different approach, some open questions

Syntax research questions

Which pragmatic biases is the choice of polar question form sensitive to?

- Speaker bias
- Contextual bias
- Both
- **Hypothesis: Both**

What is the mapping between pragmatic condition and question form?

- *Is Paul a vegetarian?* → Positive polar question (PosQ)
- *Really? Is Paul a vegetarian?* → really-Positive polar question (really-PosQ)
- *Isn't Paul a vegetarian?* → Negative polar question with high negation (HiNQ)
- *Is Paul not a vegetarian?* → Negative polar question with low negation (LowNQ)

- **Are they all distinct polar question types preferred in different pragmatic conditions?**
- **Hypothesis: Distinct syntactic question types**

Hypotheses continued

What is the mapping between pragmatic condition and question form?

	Original bias			
Contextual evidence		p	Neutral	$\neg p$
	p			
	Neutral			
	$\neg p$			

Hypotheses continued

What is the mapping between pragmatic condition and question form?

		Original bias		
Contextual evidence		p	Neutral	$\neg p$
	p			
	Neutral	HiNQ		
	$\neg p$	HiNQ	LowNQ	

↑
HiNQ

↑
LowNQ

Ladd (1981), Han & Romero (2004)

Hypotheses continued

What is the mapping between pragmatic condition and question form?

		Original bias		
Contextual evidence Buring & Gunlogson (2000)		p	Neutral	$\neg p$
	p			
	Neutral		HiNQ	
	$\neg p$		LowNQ / HiNQ	

Hypotheses continued

What is the mapping between pragmatic condition and question form?

	Original bias			
Contextual evidence		p	Neutral	$\neg p$
	p			
	Neutral	HiNQ		
	$\neg p$	HiNQ	LowNQ	

Method

Same study conducted in English and German

- 42 participants for each language
- All students

English participants	German participants
Age 20-36 years, mean 25.0	Age 18-37 years, mean 24.7
25 female	27 female
University College London	University of Konstanz

Procedure

- Participants had to imagine ordinary conversation scenarios
- Manipulated original (=speaker) bias
- Manipulated contextual evidence
- Participants chose a polar question form and uttered it aloud

You are planning to go out for dinner after work tomorrow evening with your colleagues. You are exchanging mails to decide who will take the car. Laura writes to you:



**Don't worry,
I have the car!**

The day after, Laura enters the office and says:



Can you please give me a lift this evening?

What question would you ask to find out if she has taken the car?

Select the question that you consider more natural, then pronounce it:

- Have you taken the car?
- Really!? Have you taken the car?
- Have you not taken the car?
- Haven't you taken the car?
- Other ways of asking if she has taken the car

Method

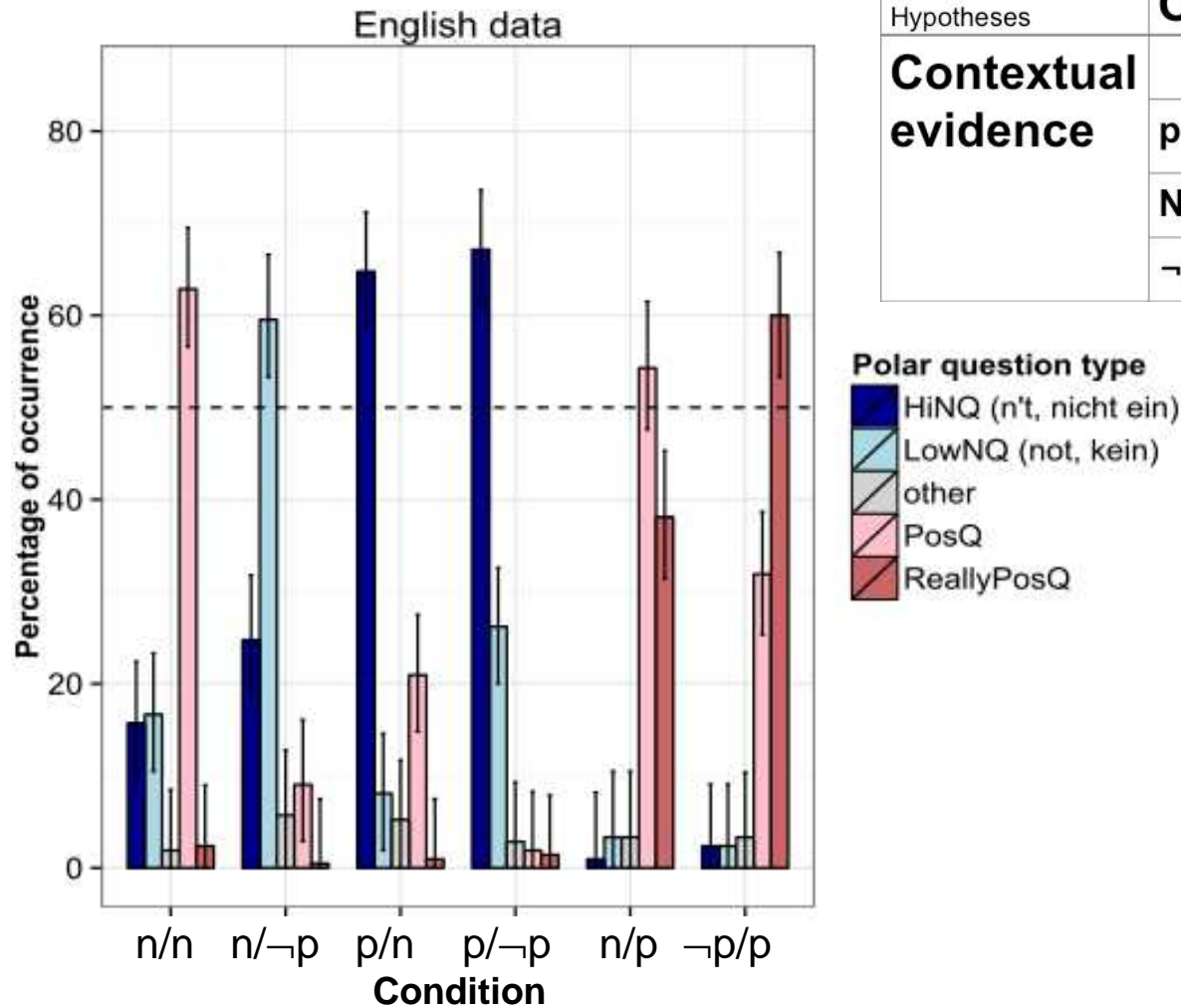
Materials

- 30 scenarios + 16 filler scenarios
- 6 bias conditions
- 6 lists
- Bias conditions distributed with Latin square design

Hypotheses	Original bias			
Contextual evidence		p	Neutral	$\neg p$
	p		PosQ	Really-PosQ
	Neutral	HiNQ	PosQ	
	$\neg p$	HiNQ	LowNQ	

Results: English

(Domaneschi, Romero & Braun, submitted)



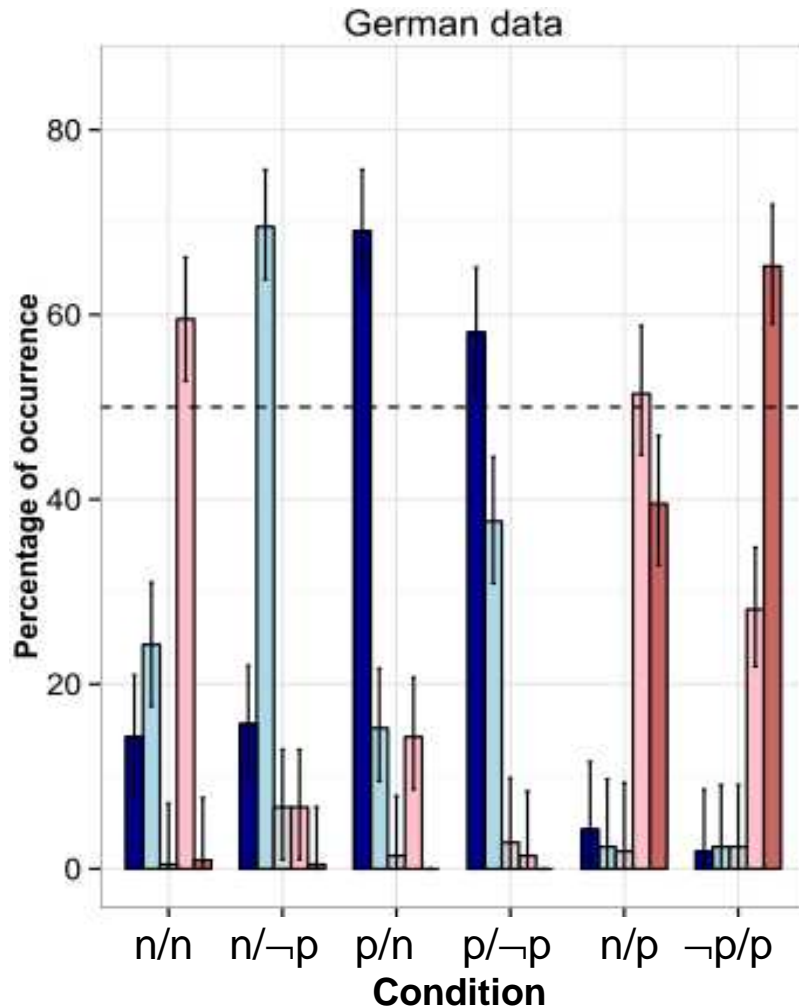
Hypotheses	Original bias			
	p	Neutral	~p	
Contextual evidence	p		PosQ	Really-PosQ
	Neutral	HiNQ	PosQ	
	~p	HiNQ	LowNQ	

Separate by-participant and by-item one-sample t-tests

Most frequent choice constitutes majority in all conditions except n/p

Results: German

(Domaneschi, Romero & Braun, submitted)



Hypotheses	Original bias			
		p	Neutral	~p
Contextual evidence	p		PosQ	Really-PosQ
	Neutral	HiNQ	PosQ	
	~p	HiNQ	LowNQ	

Polar question type

- HiNQ (n't, nicht ein)
- LowNQ (not, kein)
- other
- PosQ
- ReallyPosQ

- Separate by-participant and by-item one-sample t-tests
- Most frequent choice constitutes majority in all conditions except n/p

Evaluation

Which pragmatic biases is the choice of polar question form sensitive to?

- Speaker bias
- Contextual bias
- Both
- **Hypothesis: Both**



What is the mapping between pragmatic condition and question form?

- *Is Paul a vegetarian?* → Positive polar question
- *Really? Is Paul a vegetarian?* → really-Positive polar question
- *Isn't Paul a vegetarian?* → Negative polar question with high negation
- *Is Paul not a vegetarian?* → Negative polar question with low negation



- **Are they all distinct polar question types preferred in different pragmatic conditions?**
- **Hypothesis: Distinct syntactic question types**

Prosody

Previous literature

Prosody plays a role in marking pragmatics of questions

Information-seeking vs. confirmation-seeking questions

(~ neutral vs. positive speaker bias)

- Produced with different boundary tones in (Saxonian) German (Kügler 2003)
- Cued by pitch scaling in Catalan (Vanrell, Mascaró, Torres-Tamarit & Prieto 2013)
- Produced with different accent patterns, in addition to lexico-syntactic markers, in Sardinian (Vanrell, Ballone, Schirru & Prieto 2014)

Commitment and agreement

- Catalan listeners judge different nuclear contours to be appropriate depending on level of speaker commitment and agreement between speaker and addressee (Borràs-Comes & Prieto 2015)

Another reason to look at prosody

Ladd's ambiguity

- HiNQ can be used to check p or \neg p
 - *Isn't Paul a vegetarian, too?* → checking p
 - *Isn't Paul a vegetarian, either?* → checking \neg p

Verum focus

- Romero & Han (2004) suggest this is a scope ambiguity between negation and epistemic operator VERUM (cf. Höhle 1992)
- VERUM is used to assert that the speaker is certain that p should be added to the common ground

VERUM can be spelled out...

- With *really*: *Is Paul really a vegetarian?* / *Really, is Paul a vegetarian?*
- With a (nuclear) accent on the auxiliary or main verb: *Paul IS a vegetarian.* (Höhle 1992)
- With a (nuclear) accent on the negation: *Paul is NOT a vegetarian.* (Romero & Han 2004)

Research questions & hypotheses

How do biases and syntactic question form influence the prosodic realisation of negative polar questions?

Hyp1: Syntax and prosody are independent.

Hyp2: Non-canonical syntax and prosody form a unit.

Hyp3: Syntax and prosody complement one another.

Research questions & hypotheses

How do biases and syntactic question form influence the prosodic realisation of negative polar questions?

Hyp1: Syntax and prosody are independent.

- Syntax marks biases
- Prosody marks e.g.
 - Degree of speaker commitment
 - VERUM

Hypothesis: Negation is accented more often when there is a contradiction between original and contextual bias (cf. Romero & Han 2004 on VERUM marking)

Research questions & hypotheses

How do biases and syntactic question form influence the prosodic realisation of negative polar questions?

Hyp2: Non-canonical syntax and prosody form a unit.

Research questions & hypotheses

Hyp3: Syntax and prosody complement one another.

- Prosody disambiguates
 - English: Checked proposition in HiNQ

		Original bias		
Contextual evidence		p	Neutral	¬p
	p			
	Neutral	HiNQ		
	¬p	HiNQ	LowNQ	

checking p

checking ¬p (cf. Romero & Han 2004)

German: **HiNQ**

LowNQ (cf. Büring & Gunlogson 2002)

Research questions & hypotheses

Hyp3: Syntax and prosody complement one another.

- Prosody disambiguates
 - English: Checked proposition in HiNQ
 - German: Original bias in LowNQ

	Original bias			
Contextual evidence		p	Neutral	¬p
	p			
	Neutral	HiNQ		
	¬p	HiNQ/Low NQ	LowNQ	

Prosodic analysis

German data

Negative polar questions

- LowNQ (*kein*)
- HiNQ (*nicht ein*)

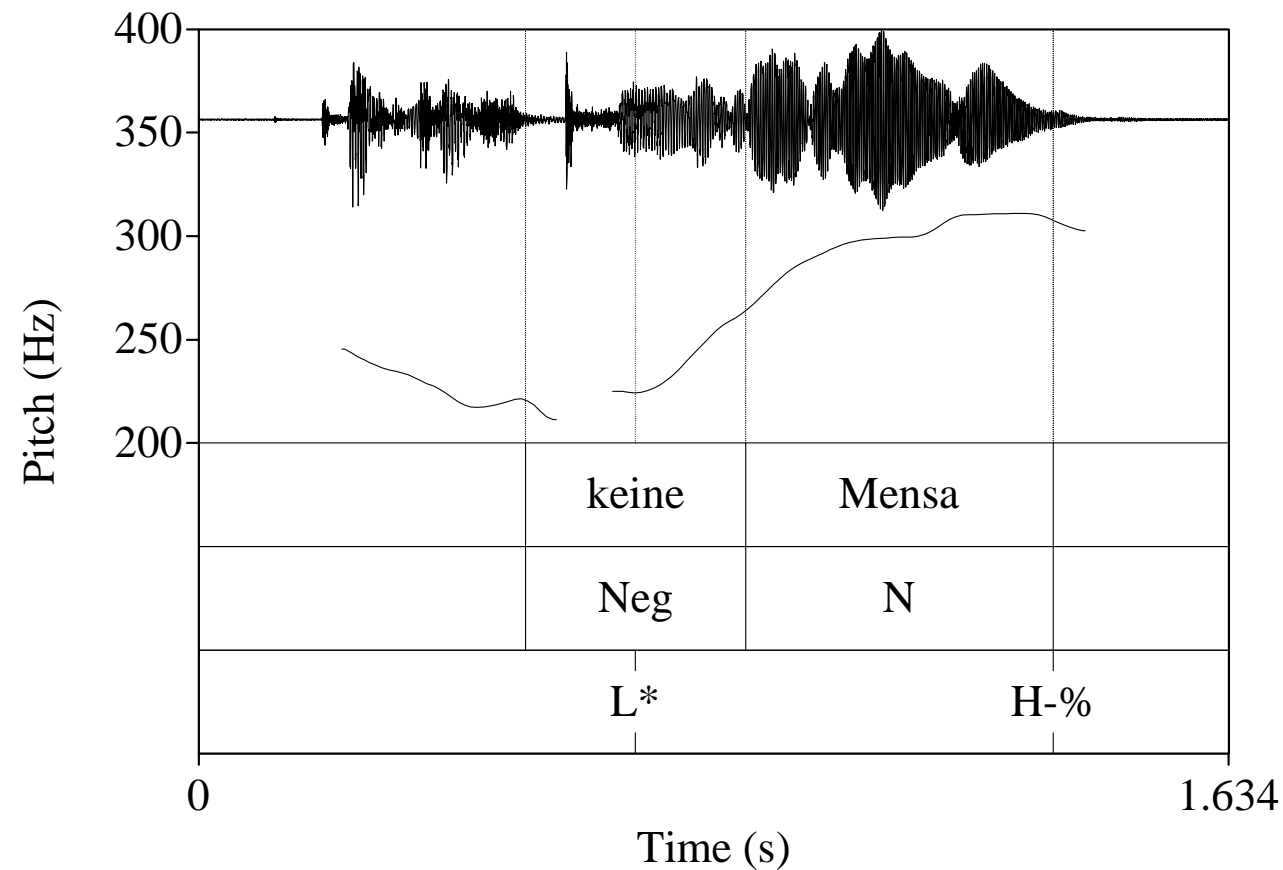
Annotation

- GToBI labels of negation and following noun
- Classification into 5 types + other

Negation – Annotation

Intonation types

Type 1: Neg L*, N _, H-%



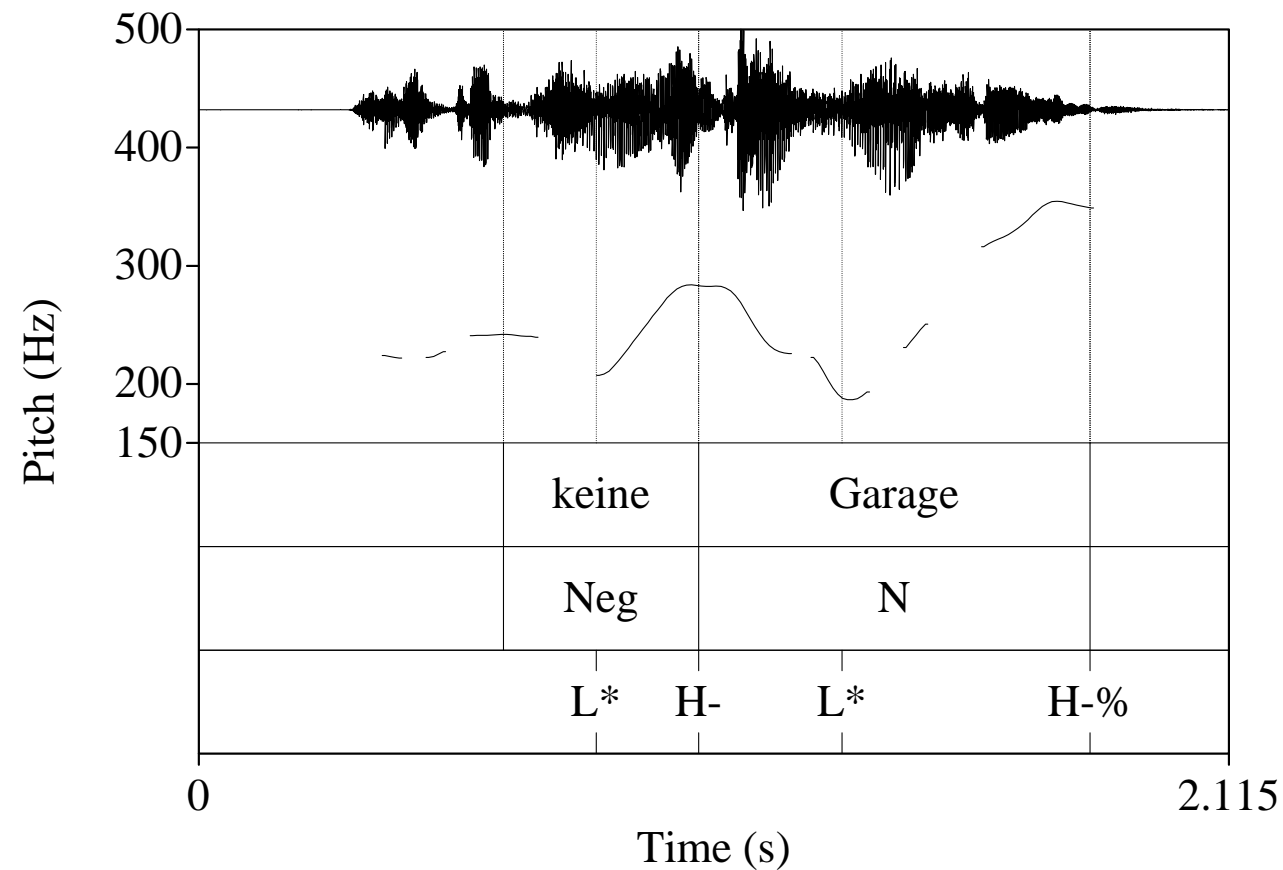
'Is there no university cafeteria?'



Negation – Annotation

Intonation types

Type 2: Neg L*H-, N L*, H-%



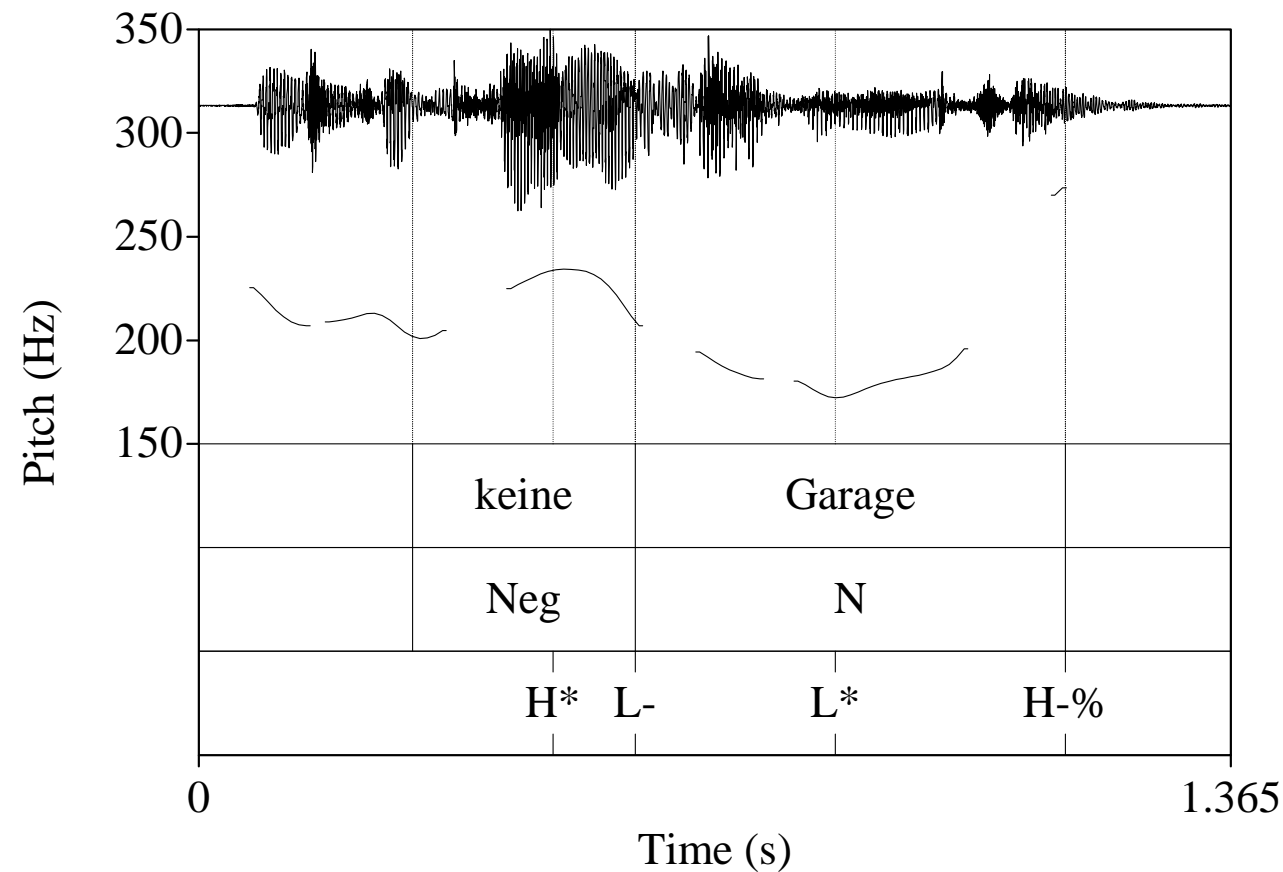
'Do you not have a garage?'




Negation – Annotation

Intonation types

Type 3: Neg H* L-, N L*, H-%



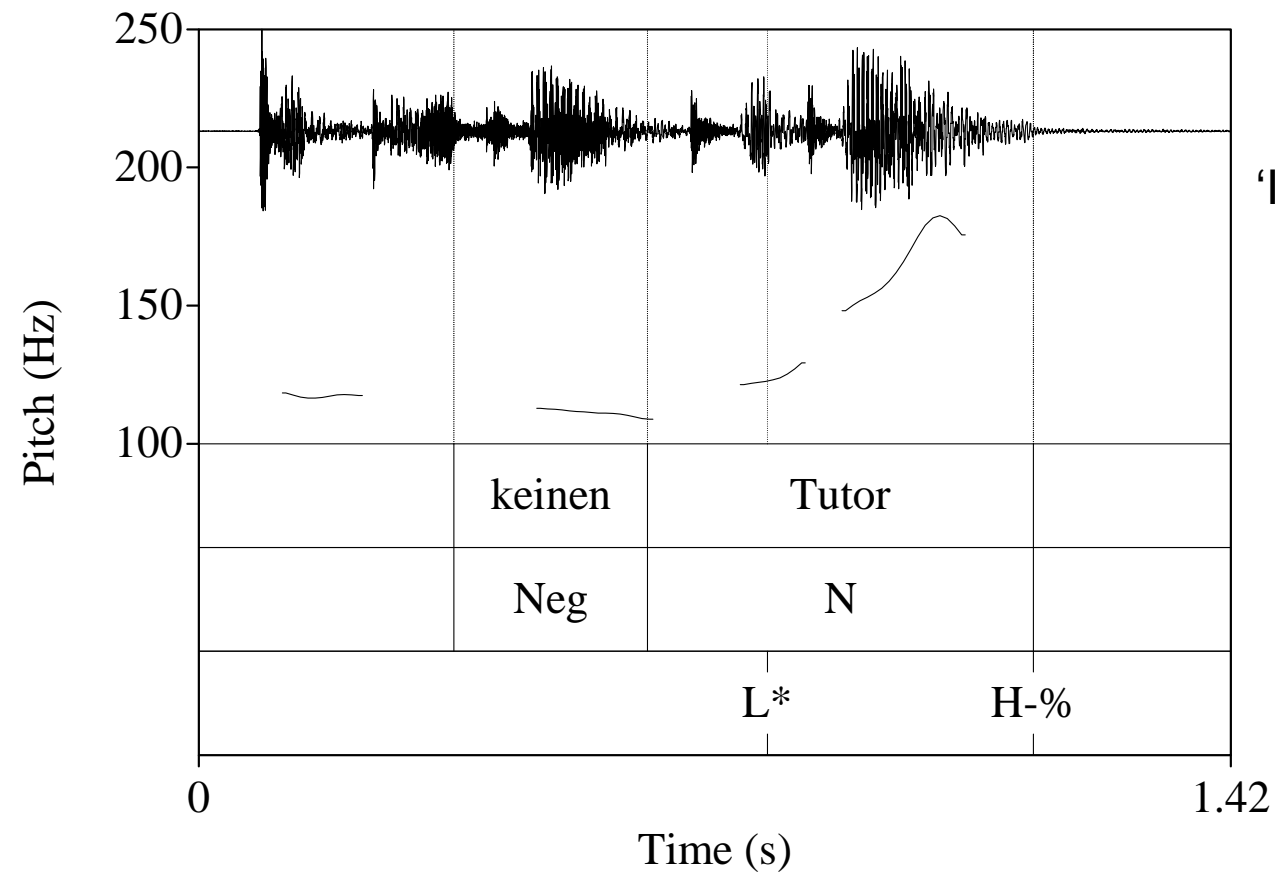

'Do you not have a garage?'



Negation – Annotation

Intonation types

Type 4: Neg $_$, N L*, H-%



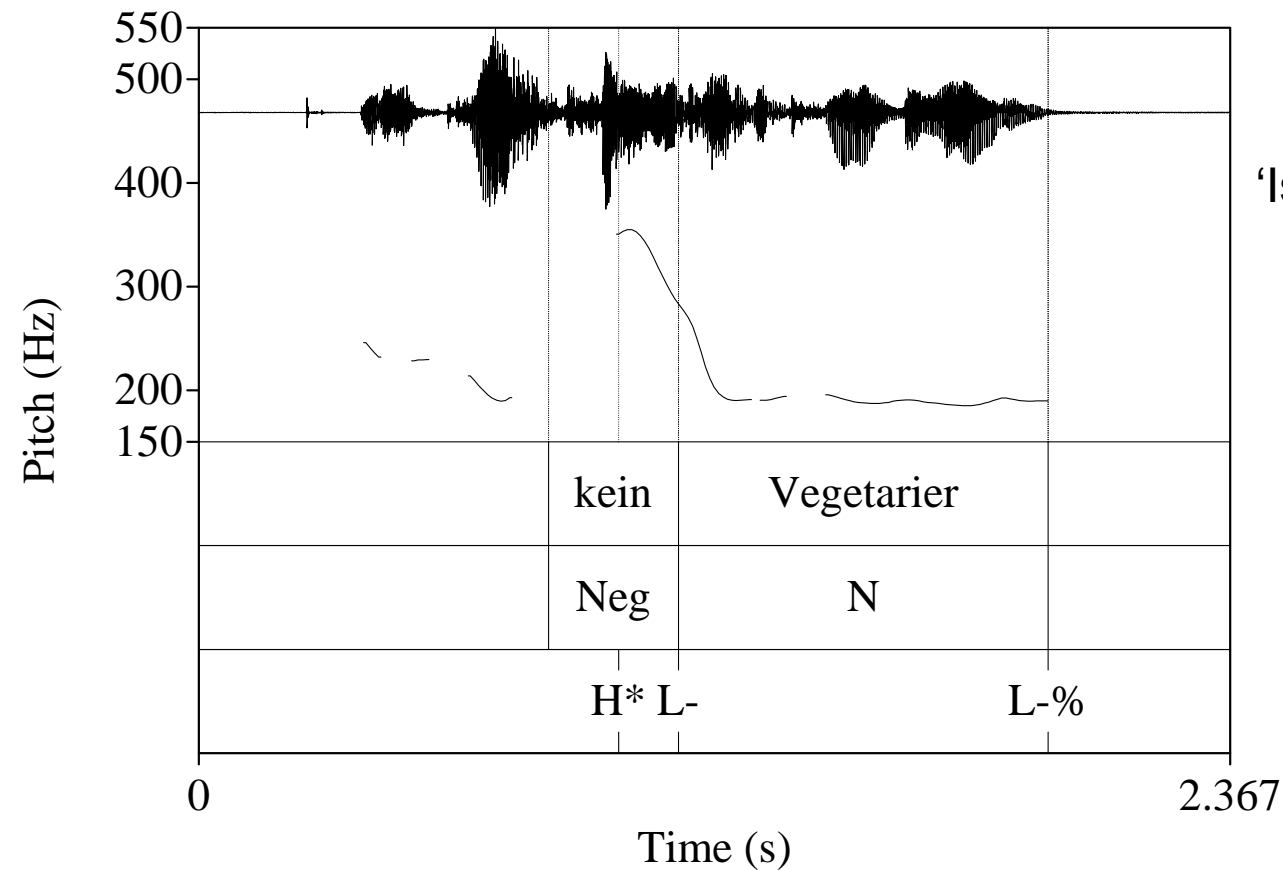

'Is there no tutor?'



Negation – Annotation

Intonation types

Type 5: Neg H*L-, N _, L-%



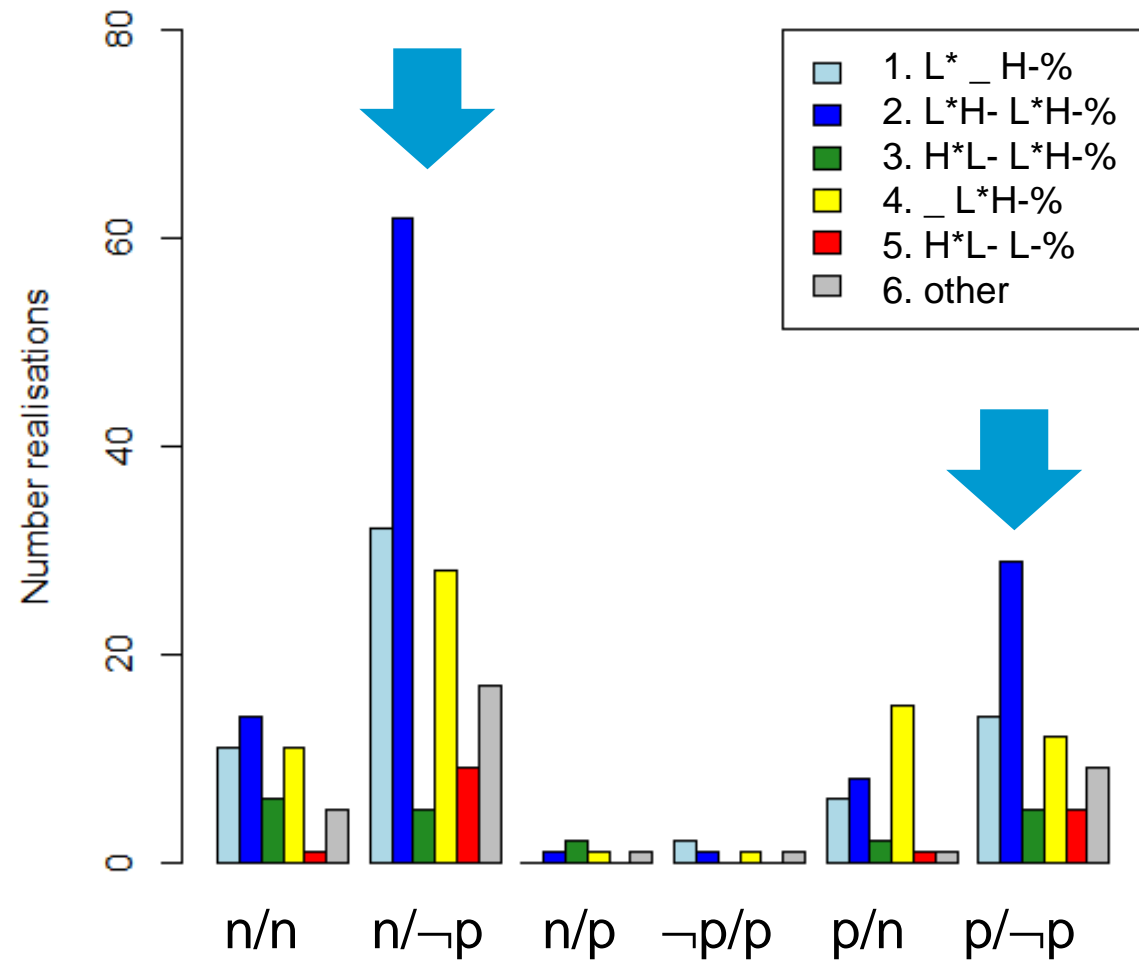
'Is Paul not a vegetarier?'



Results

LowNQ (*kein*)

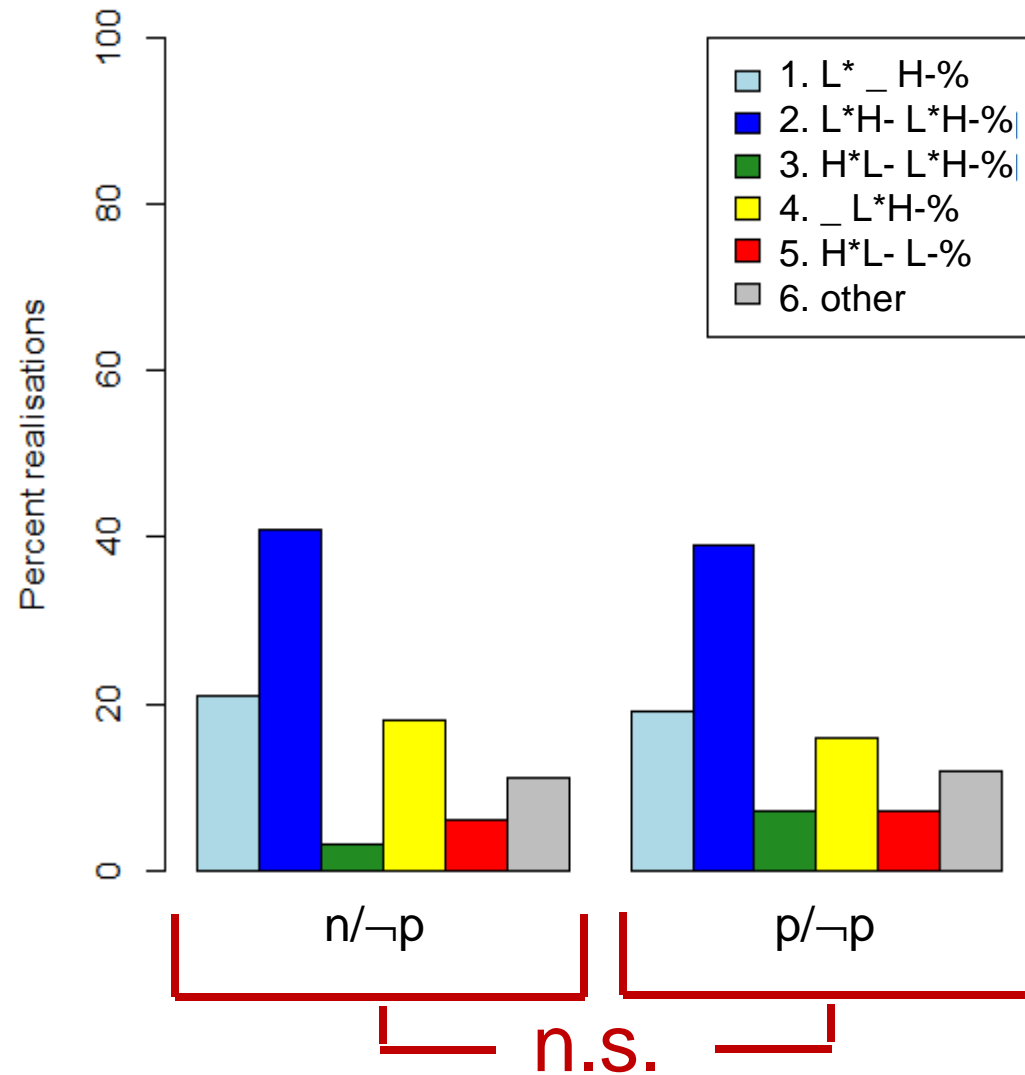
- Different intonation contours
- Most frequent:
L* H- L* H-%
kein N



Results

LowNQ (*kein*)

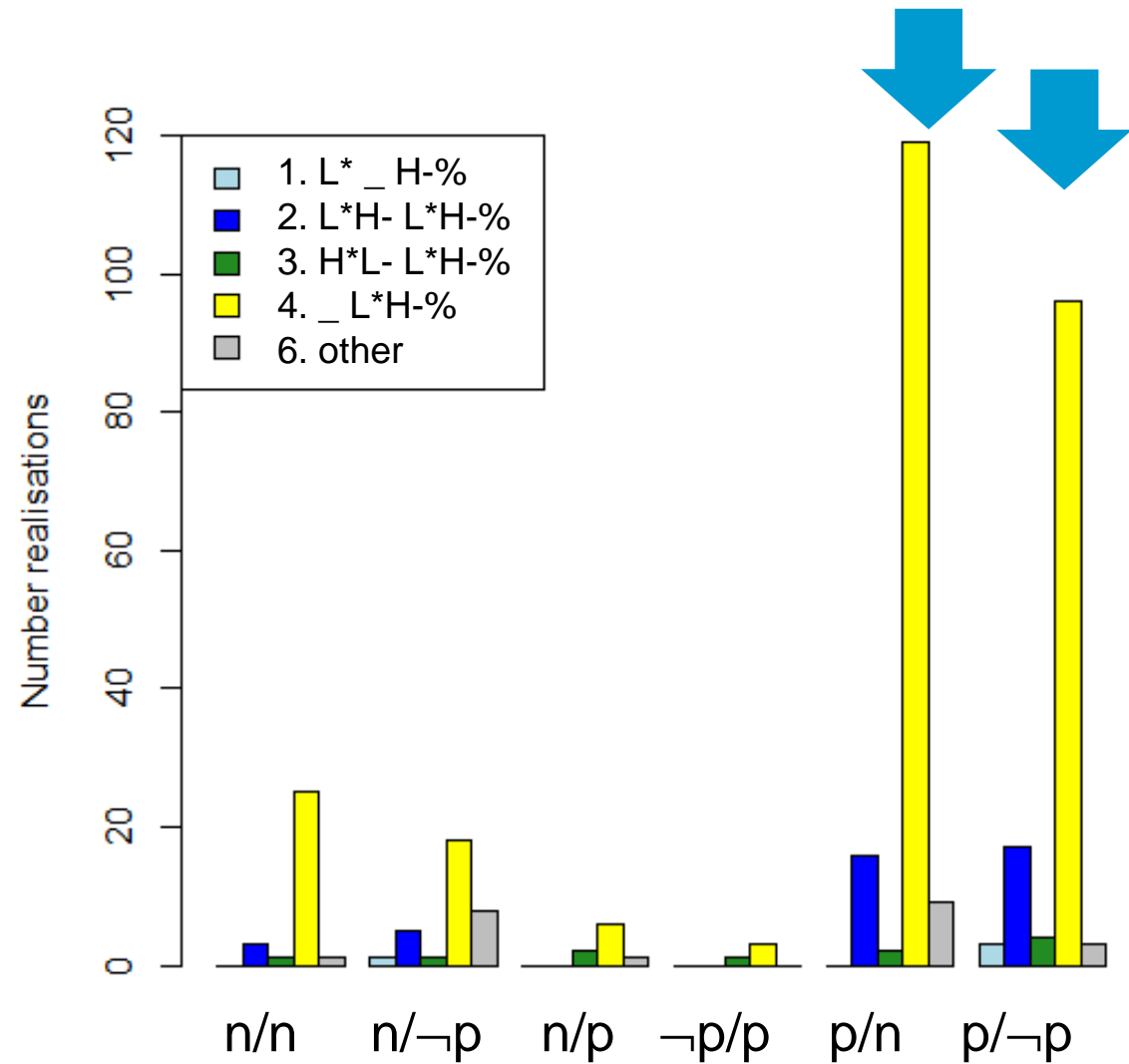
- Different intonation contours
- Most frequent:
L* H- L* H-%
kein N
- No difference between conditions n/¬p and p/¬p (paired by-subject and by-item t-tests)



Results

HiNQ (*nicht*)

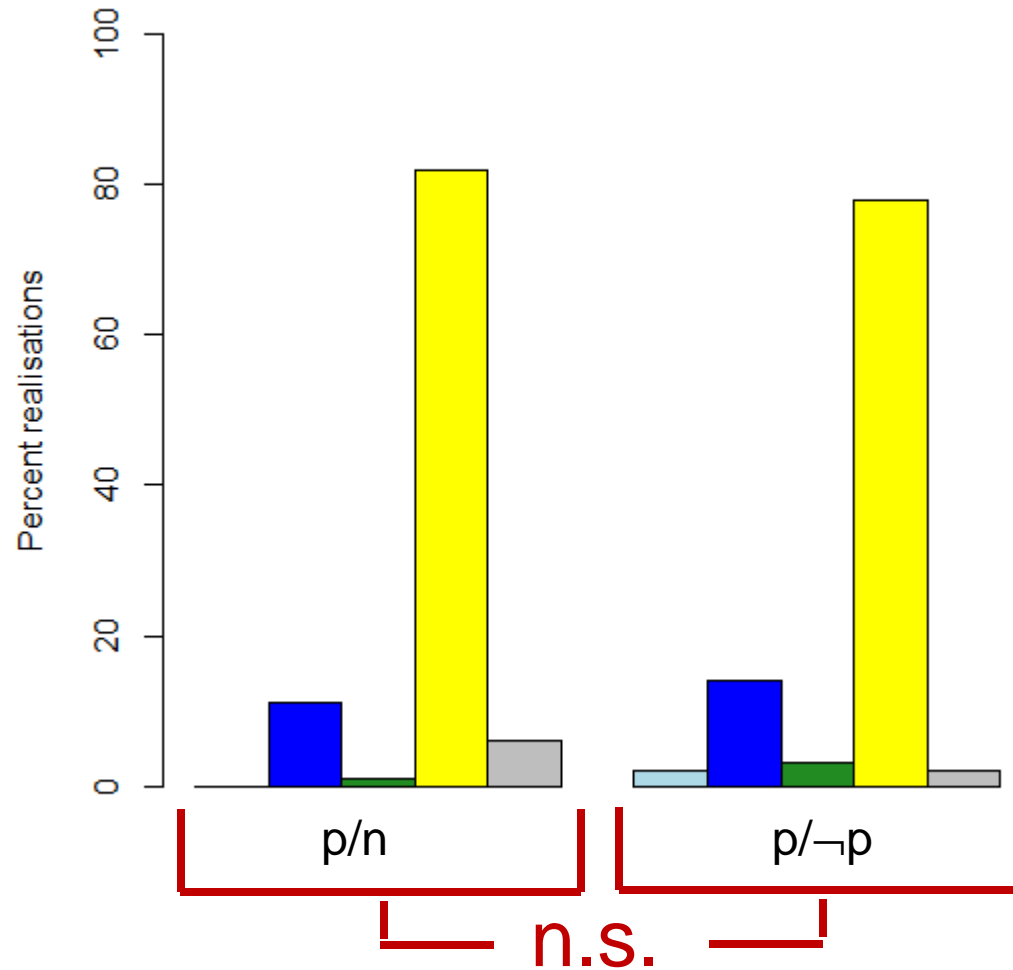
- Strong preference for:
L* H-%
nicht N



Results

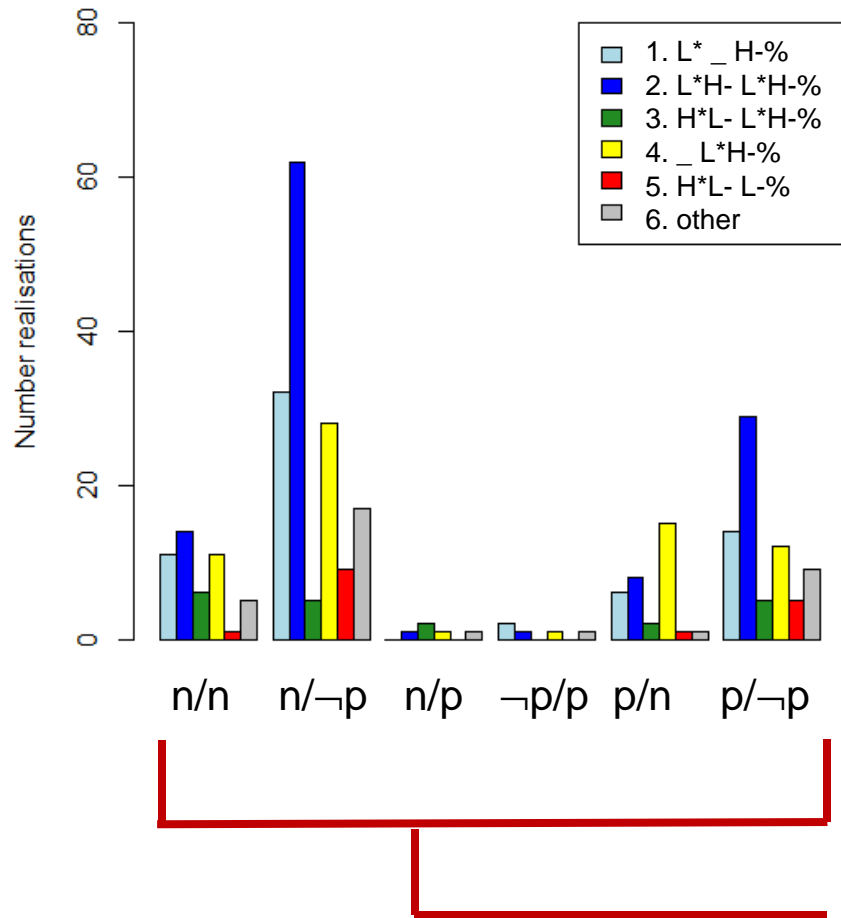
HiNQ (*nicht*)

- Strong preference for:
L* H%
nicht N
- No difference between conditions p/n and p/¬p (paired by-subject and by-item t-tests)

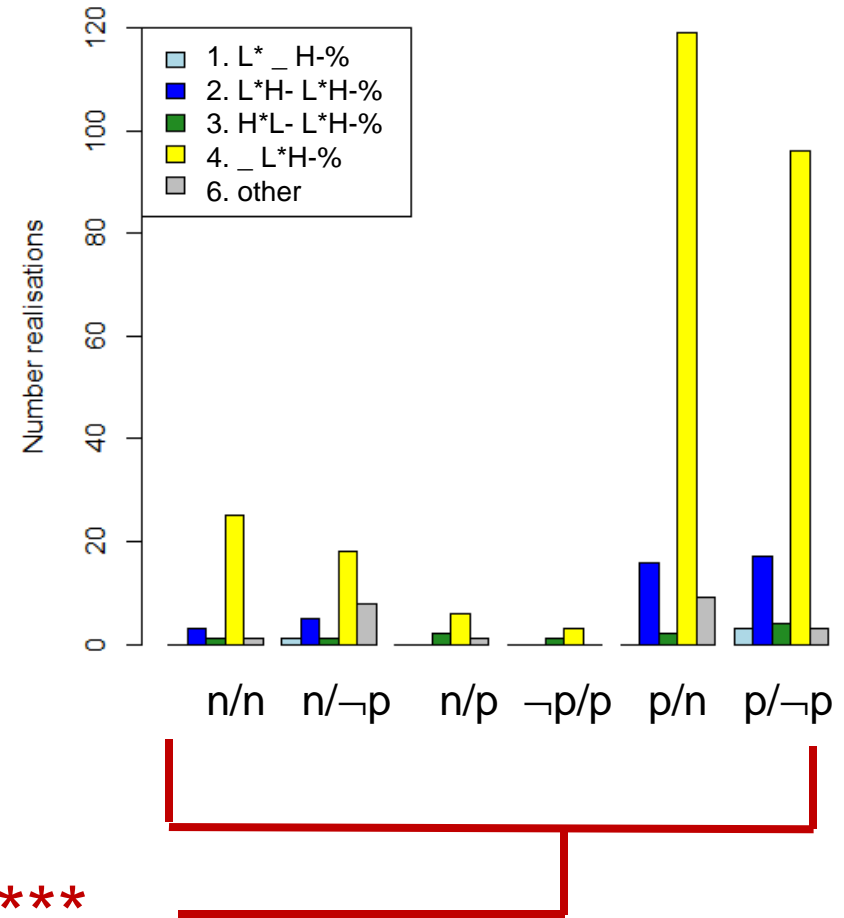


Results

LowNQ (*kein*)



HiNQ (*nicht*)



Evaluation

How do biases and syntactic question form influence the prosodic realisation of negative polar questions?

- Prosodic realisation differs between question forms (HiNQ vs. LowNQ)
- No difference between bias conditions
- But question type is influenced by bias condition

Hypothesis: Negation is accented more often when there is a contradiction between original and contextual bias (cf. Romero & Han 2004 on VERUM marking)



Evaluation

How do biases and syntactic question form influence the prosodic realisation of negative polar questions?

Hyp1: Syntax and prosody are independent.

- Syntax marks biases
- Prosody marks e.g.
 - Degree of speaker commitment ?
 - Verum



Hyp2: Non-canonical syntax and prosody form a unit.



Hyp3: Syntax and prosody complement one another.

- Prosody disambiguates
 - English: Checked proposition in HiNQ
 - German: Original bias in LowNQ



What's next

Planned study: Ladd's ambiguity

Possible factors not addressed in previous study:

- Information-seeking vs. confirmation-seeking questions (Vanrell, Mascaró, Torres-Tamarit & Prieto 2013, Kügler 2003)
- (Degree of) incredulity, speaker commitment (Ward & Hirschberg 1985, Borràs-Comes & Prieto 2015)
- Which proposition are you checking? (Ladd 1981, Romero & Han 2004)
 - p vs. $\neg p$
 - Speaker's vs. addressee's belief

Planned study: Ladd's ambiguity

Factors manipulated

1. Checking p vs. $\neg p$
2. Checking speaker's vs. addressee's belief
3. Degree of speaker commitment to p

Manipulated in unison to create 2 conditions:

Condition 1	Condition 2
Checking p	Checking $\neg p$
Checking S's belief	Checking A's belief
S is committed to p	S is less committed to p

Conducted first in German, then in English

Example item

The university is appointing a new professor of language acquisition didactics, and the commission has already invited the reviews.

Condition 1

Checking p , Checking S's belief, S committed to p

In the past, some of the reviews have always come from teachers when didactics positions were filled. So you are sure that commission is taking a teacher's opinion into account this time, as well.

You are talking about the new appointment with a fellow student, who is new at the university.

Your fellow student says: "Damn! These reviewers know nothing about what is really needed for teaching at schools!"

You are surprised to hear this, but you still think you are right. However, to make sure, you want to check your assumption that the commission is considering people with experience at schools. You ask:

Condition 2

Checking $\neg p$, Checking A's belief, S less committed

In the past, some of the reviews have usually come from teachers when didactics positions were filled. You think that the commission is taking a teacher's opinion into account this time, as well.

You are talking about the new appointment with a fellow student, who is knowledgeable with respect to university administration.

Your fellow student says: "Damn! These reviewers know nothing about what is really needed for teaching at schools!"

You are surprised to hear this, but you think that she may be right. However, to make sure, you want to check her assumption that the commission is passing over people with experience at schools. You ask:

Aren't they considering a teacher's opinion?

Planned study: Hypotheses

Condition 1	Condition 2
Checking p	Checking $\neg p$
Checking S's belief	Checking A's belief
S is committed to p	S is less committed to p

German:

Condition 1 → HiNQ

Condition 2 → LowNQ

English:

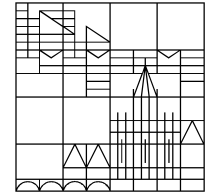
Condition 1 → HiNQ

Condition 2 → HiNQ

} Possibly with different prosody



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