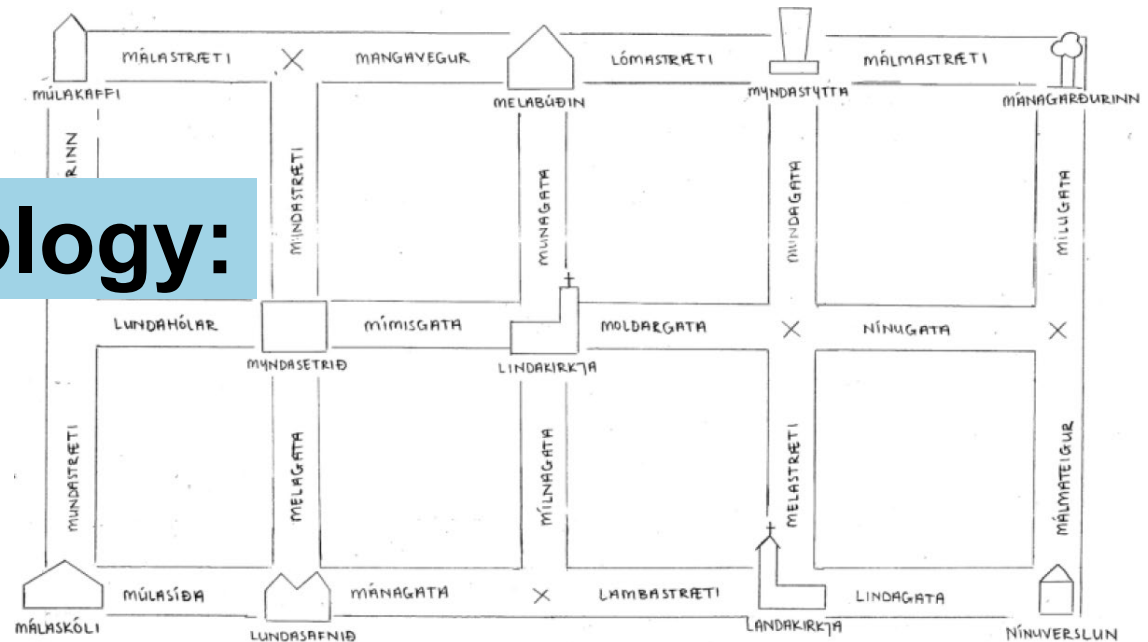


# Icelandic prosodic phonology: Previous research and available data



Nicole Dehé

Reykjavík, 9 November 2023

# Road map

I will present results and available data from my own research that will hopefully connect with the research project on "Regional variation, attitudes and real-time change"

## I. Production data for the study of intonation

- 1) Controlled production data
  - 2) Map task (semi-spontaneous speech)
- Previous results
  - Data available for (re-)analysis

## II. Production data for the study of preaspiration and word stress (CLIP project, currently running)

- 1) Word elicitation task (picture naming)
- 2) Story telling task (picture stories)
- 3) Interviews
- 4) Perception task

# I. Production data for the study of intonation

## 1. Controlled production experiments

- Intonation of declaratives
- Intonation of polar and *wh*-questions, neutral and rhetorical

## 2. Map task data

- semi-spontaneous speech; 100 speakers overall; all utterance types; different regions and age groups
- To date: declaratives, polar questions, other-initiated repair initials

# 1) Controlled production experiments

1. Testing **nuclear** and **prenuclear** accents in **declaratives** with varying focus patterns (Dehé 2009, 2010):

## Broad focus:

e002 Vegna skordýranna eru allir að segja frá **malaríu**.  
*because.of the.insects are all to speak from malaria*  
'Because of the insects everybody speaks about malaria.'

e008 Okkur finnst ávaxtasalat best með **mandarínunum**.  
*we.DAT find fruit.salad best with mandarines*  
'We like fruit salad best with mandarines.'

e006 Ferðamennirnir eru hræddir við **malaríu** og kóleru.  
*the.tourists are afraid with malaria and cholera*  
'The tourists are afraid of malaria and cholera.'

e012 Okkur finnst fiskur góður með **mandarínunum** og karrí.  
*we.DAT find fish good with mandarines and curry*  
'We like fish with mandarines and curry.'

# 1) Controlled production experiments

1. Testing **nuclear** and **prenuclear** accents in **declaratives** with varying focus patterns (Dehé 2009, 2010):

## Narrow focus:

e004 Q: Frá hverju sögðu læknirinn og hjúkrunarkonan?  
*from what spoke the.doctor and the.nurse*  
'What did the doctor and the nurse talk about?'

A: Læknirinn og hjúkrunarkonan sögðu frá **malaríu**.  
*the.doctor and the.nurse spoke from malaria*  
'The doctor and the nurse spoke about malaria.'

e010 Q: Hvers konar köku ætlar þú að koma með?  
*which kind cake intend you to come with*  
'What sort of cake are you going to bring?'

A: Ég ætla að koma með köku með **mandarínnum**.  
*I intend to come with cake with mandarines*  
'I'll bring a cake with mandarines.'

e002 Q: Eru ferðamennirnir hræddir við plágu og kóleru?  
*are the.tourists afraid with plague and cholera*  
'Are the tourists afraid of plague and cholera?'

A: Nei, ferðamennirnir eru hræddir við **malaríu** og kóleru.  
*no the.tourists are afraid with malaria and cholera*  
'No, the tourists are afraid of malaria and cholera.'

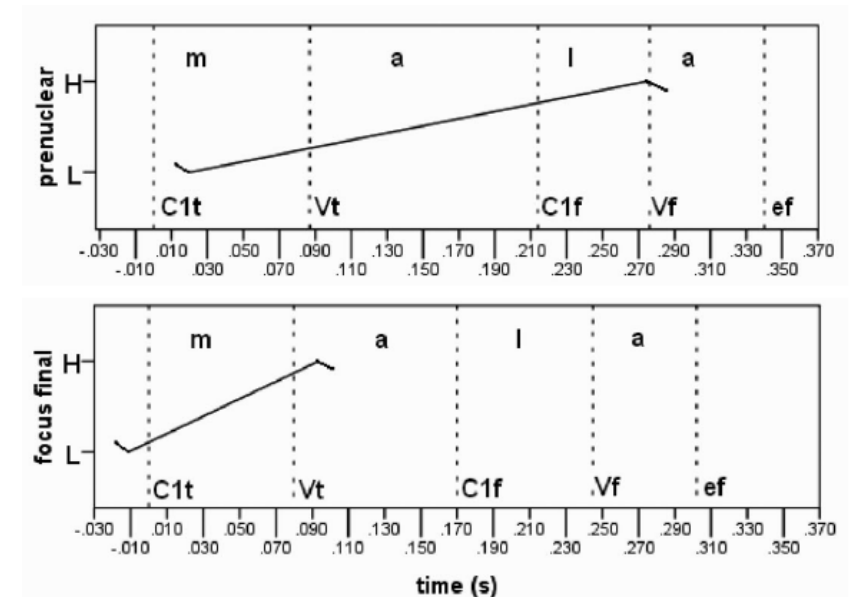
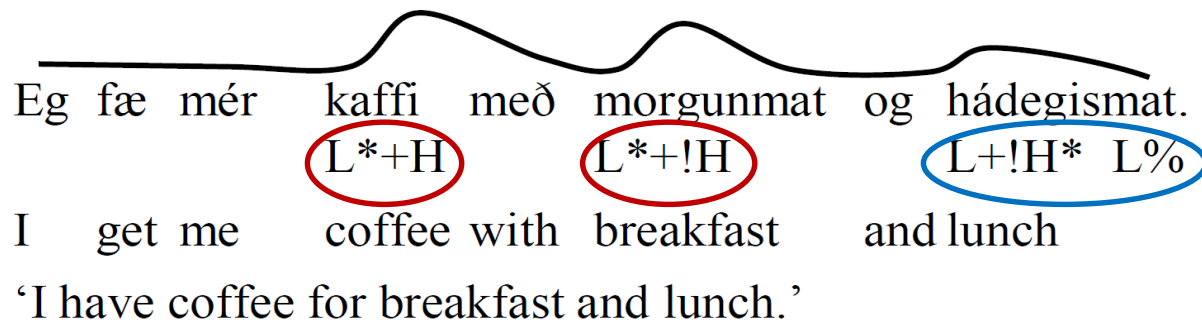
e008 Q: Finnst ykkur fiskur góður með tómatum og karri?  
*find you.DAT.PL fish good with tomatoes and curry*  
'Do you like fish with tomatoes and curry?'

A: Nei, okkur finnst fiskur góður með **mandarínnum** og karri.  
*no we.DAT find fish good with mandarines and curry*  
'No, we like fish with mandarines and curry.'

# 1) Controlled production experiments (declaratives)

## Results (based on 31 speakers overall)

- Icelandic declaratives are typically realized with a **nuclear (L+)H\*** pitch accent, followed by a final fall to a **low boundary tone (L%)**.
- If the nuclear tune is preceded by **prenuclear prominence**, the typical accent is a late rise (L\*+H), that is, a low accented syllable followed by a rise.
- The Intonational Phrase is the domain of downstep (!); thus, later peaks are typically lower compared to earlier ones.



# 1) Controlled production experiments (questions)

2. Testing **question intonation**: nuclear contours in polar questions and *wh*-questions (information-seeking ISQ and rhetorical RQ); Dehé & Braun (2020)

polar

Context for ISQ	Context for RQ
At a party, you offer cake, which contains limes. You would like to know which of your guests eat this fruit and whether they would like to try the cake. You say to your guests:	Your aunt offers limes to her guests. However, it is well known that this fruit is too sour to eat. You say to your aunt:
Target Q: <i>Borðar einhver límónur?</i> 'Does anybody eat limes?'	
Table 1. Contexts and target polar interrogatives. Contexts translated from Icelandic.	
Context for ISQ	Context for RQ
At a party, you offer cake, which contains limes. You would like to know which of your guests eat this fruit and whether they would like to try the cake. You say to your guests:	Your aunt offers limes to her guests. However, it is well known that this fruit is too sour to eat. You say to your aunt:
Target Q: <i>Hver borðar límónur?</i> 'Who eats limes?'	
Table 2. Contexts and target <i>wh</i> -interrogatives. Contexts translated from Icelandic.	

wh

## Results:

- Questions (both polar and *wh*) end in L%.
- The three utterance types (declaratives, polar Q, *wh*-Q) differ in nuclear accent types.

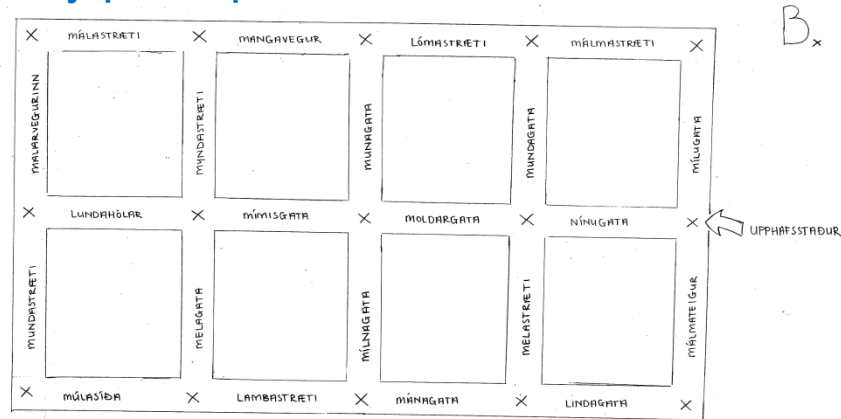
accent category	nuclear accent	polar questions		<i>wh</i> -questions	
		ISQ (N=155)	RQ (N=154)	ISQ (N=162)	RQ (N=161)
monotonal (high)	H*	2 (1.3%)	1 (0.6%)	42 (25.9%)	8 (5.0%)
	!H*	0	7 (4.5%)	19 (11.7%)	2 (1.2%)
	^H*	1 (0.6%)	0	40 (24.7%)	3 (1.9%)
sum		3 (1.9%)	8 (5.2%)	101 (62.3%)	13 (8.1%)
late rise	L*+H	69 (44.5%)	21 (13.6%)	4 (2.5%)	6 (3.7%)
	L*+^H	18 (11.5%)	23 (14.9%)	1 (0.6%)	5 (3.1%)
sum		87 (55.8%)	44 (28.6%)	5 (3.1%)	11 (6.8%)
early rise	L+H*	45 (29.0%)	47 (30.5%)	19 (11.7%)	87 (54.0%)
	L+!H*	0	5 (3.2%)	3 (1.9%)	17 (10.6%)
	L+^H*	20 (12.8%)	50 (32.5%)	34 (21.0%)	33 (20.5%)
sum		65 (41.7%)	102 (66.2%)	56 (34.6%)	137 (85.1%)

Table 9. Distribution of nuclear pitch accents across question and illocution types.

17 speakers, all from Reykjavík

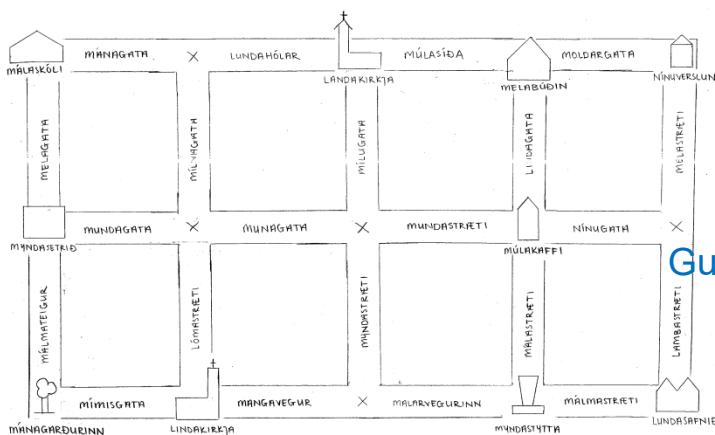
# 2) The Icelandic map task (2013/2014; 100 speakers)

Maps used by participant A:



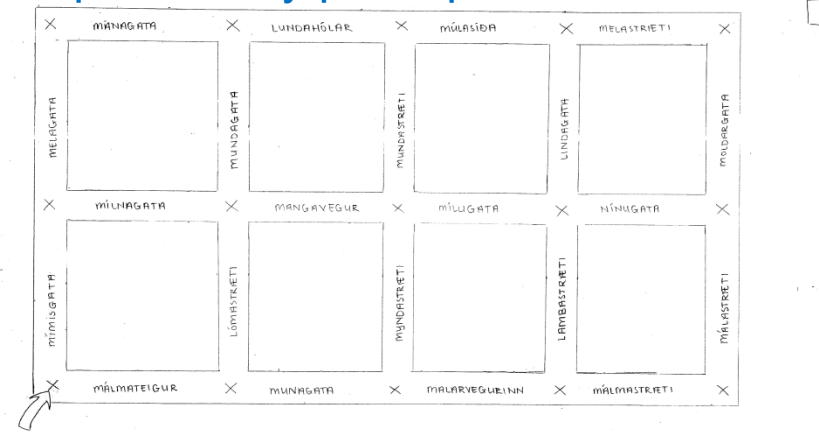
Tourist map

- |                  |                 |
|------------------|-----------------|
| 1. LUNDAFAFNIB   | 6. MELABÜÐIN    |
| 2. MÚLAKAFFI     | 7. MUNDASTRÆTI  |
| 3. LINDAKIRKJA   | 8. MÁLASKÖLI    |
| 4. MÁNAGARÐURINN | 9. MUNDASTYTTA  |
| 5. LANDAKIRKJA   | 10. NÍNUVERSLUN |



Guide map

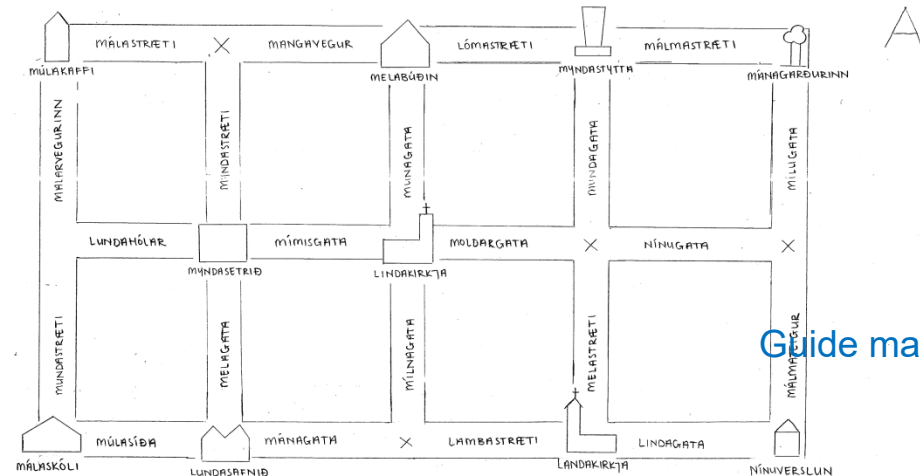
Maps used by participant B:



UPPHAFSSTAÐUR

Tourist map

- |                |                   |
|----------------|-------------------|
| 1. LANDAKIRKJA | 6. NÍNUVERSLUN    |
| 2. MÁLASKÖLI   | 7. MUNDASTYTTA    |
| 3. MUNDASTRÆTI | 8. MÚLAKAFFI      |
| 4. MELABÜÐIN   | 9. LINDAKIRKJA    |
| 5. LUNDAFAFNIB | 10. MÁNAGARÐURINN |



Guide map

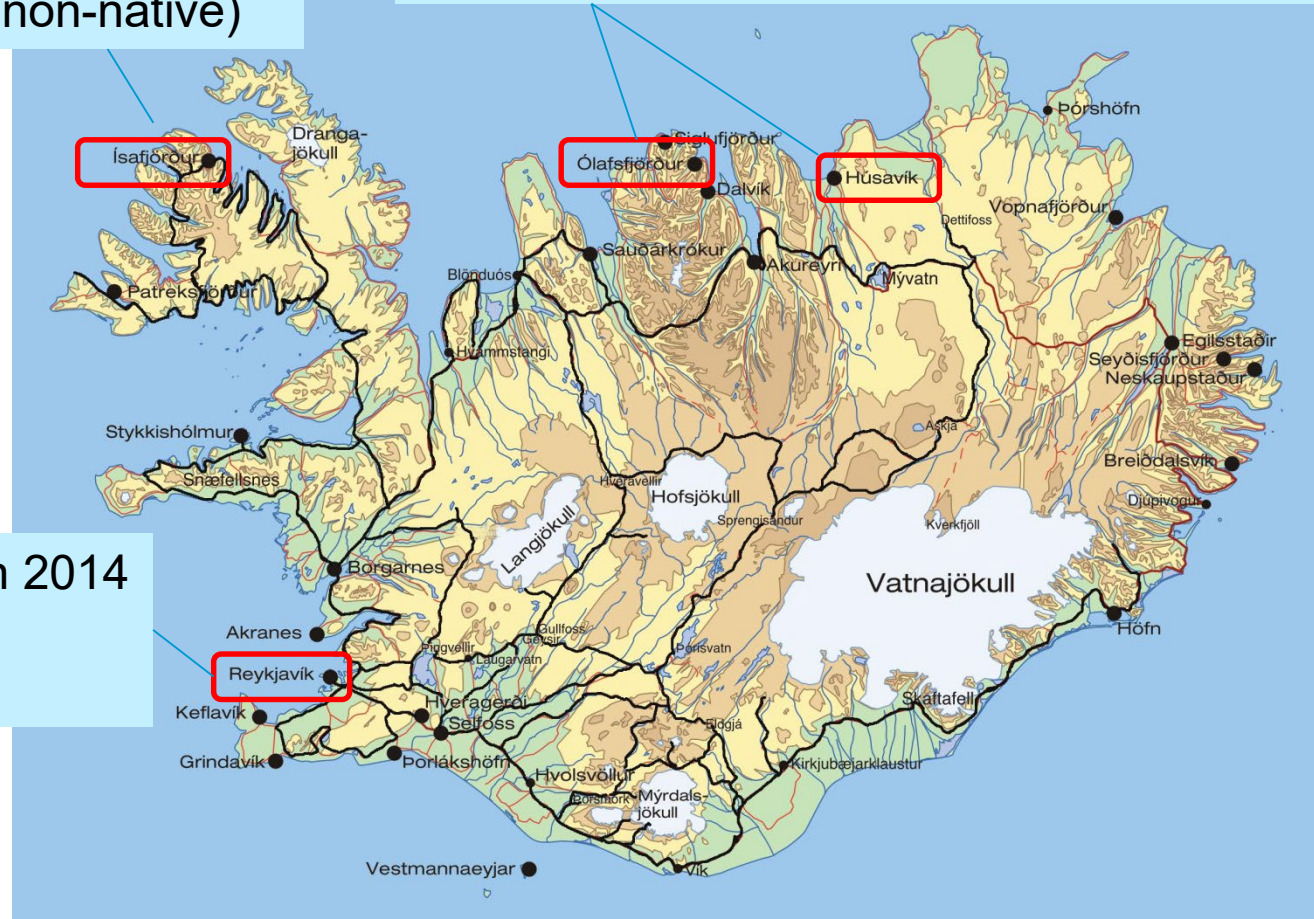


# Map task, Iceland 2013/14

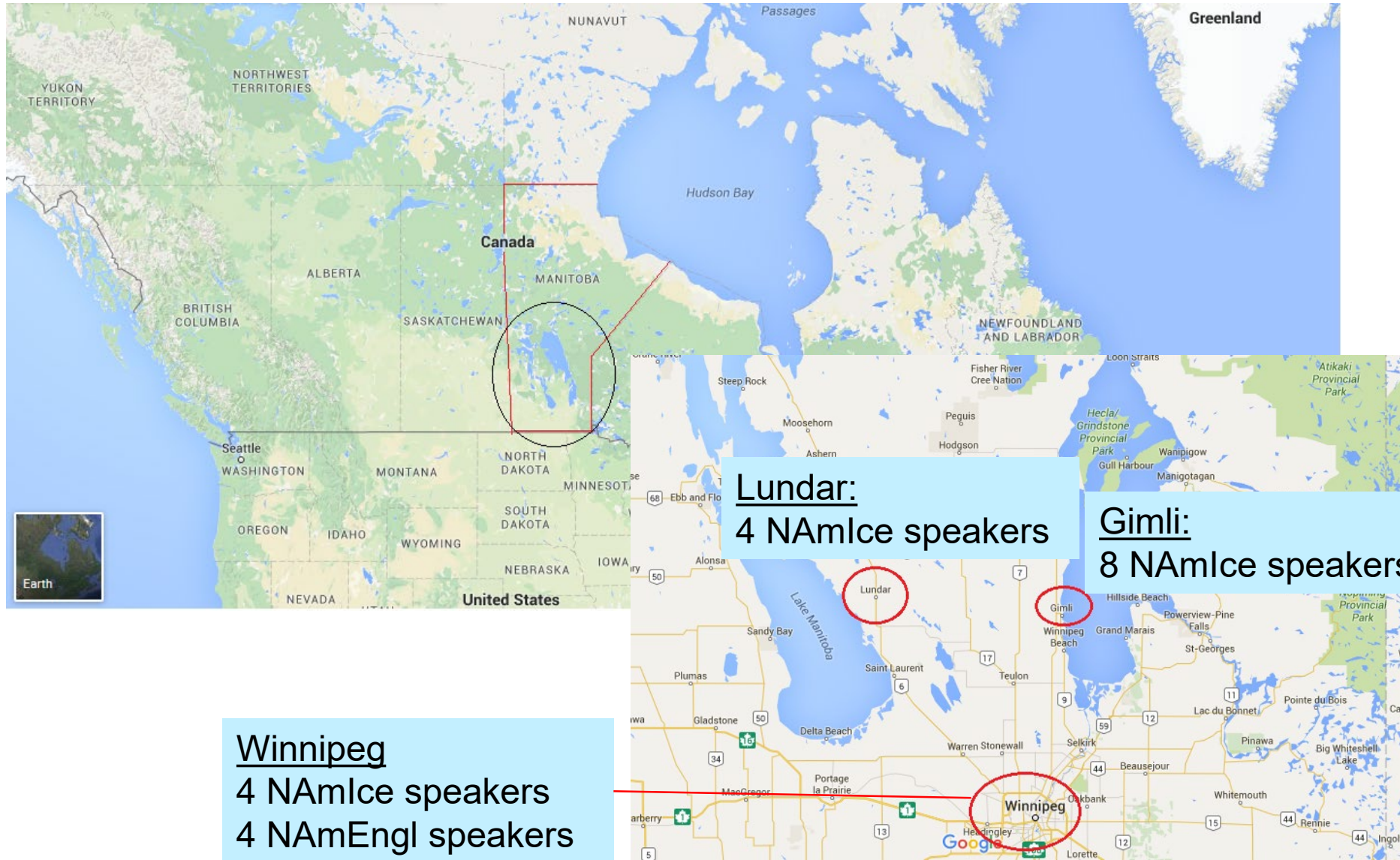
Ísafjörður & Flateyri, 9-13 Dec 2013  
22 speakers in Ísafjörður  
4 speakers in Flateyri (2 non-native)

Ólafsfjörður & Húsavík, 10-13 June 2014  
14 speakers in Ólafsfjörður  
20 speakers in Húsavík

Reykjavík, Nov 2013-Jan 2014  
and May/June 2014  
24 speakers



# Map task, Manitoba/Canada, August 2014 (20 speakers)



# Icelandic map task for the study of intonation

## Results for:

- Declaratives
- Polar questions
- Other-initiated repair expressions

# Map task data (intonation): Declaratives

## Map task results for nuclear pitch accents in declaratives (all followed by L%)

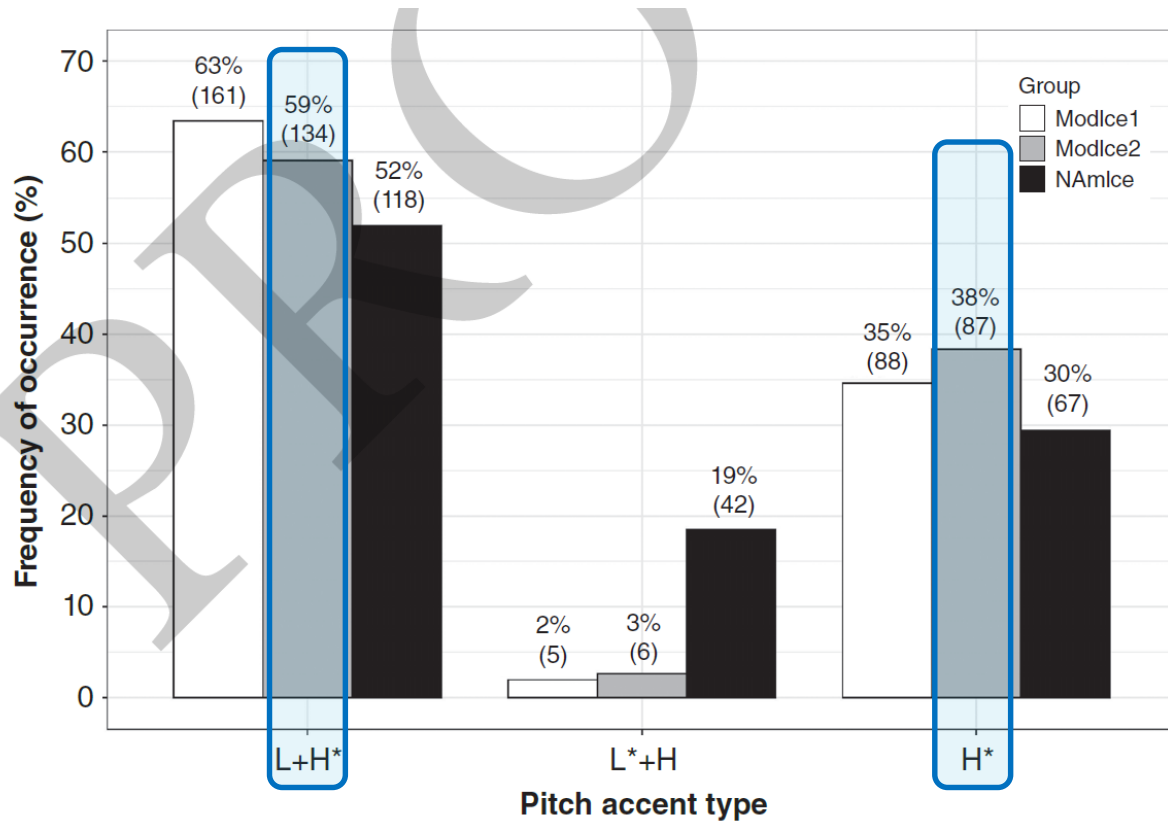


Figure 12.1 Distribution of Icelandic nuclear pitch accent types in declaratives per group in percentages and token counts.

### ModIce1 (Modern Icelandic, Iceland):

12 speakers (5 male, 7 female), age: 64-84 from Húsavík, Ólafsfjörður and Ísafjörður

### ModIce2 (Modern Icelandic, Iceland):

10 speakers (5 male, 5 female), age: 19-34 from Húsavík, Ólafsfjörður and Ísafjörður

### NAmIce (North American heritage Icelandic):

12 speakers (6 male, 6 female), age 64-89 from Manitoba

- same age group as ModIce2 in the map task
- But: different task and different speaker origin

Dehé & Rommel (to appear)

# Map task data (intonation): polar questions

Dehé (2018), Dehé & Rommel (to appear)

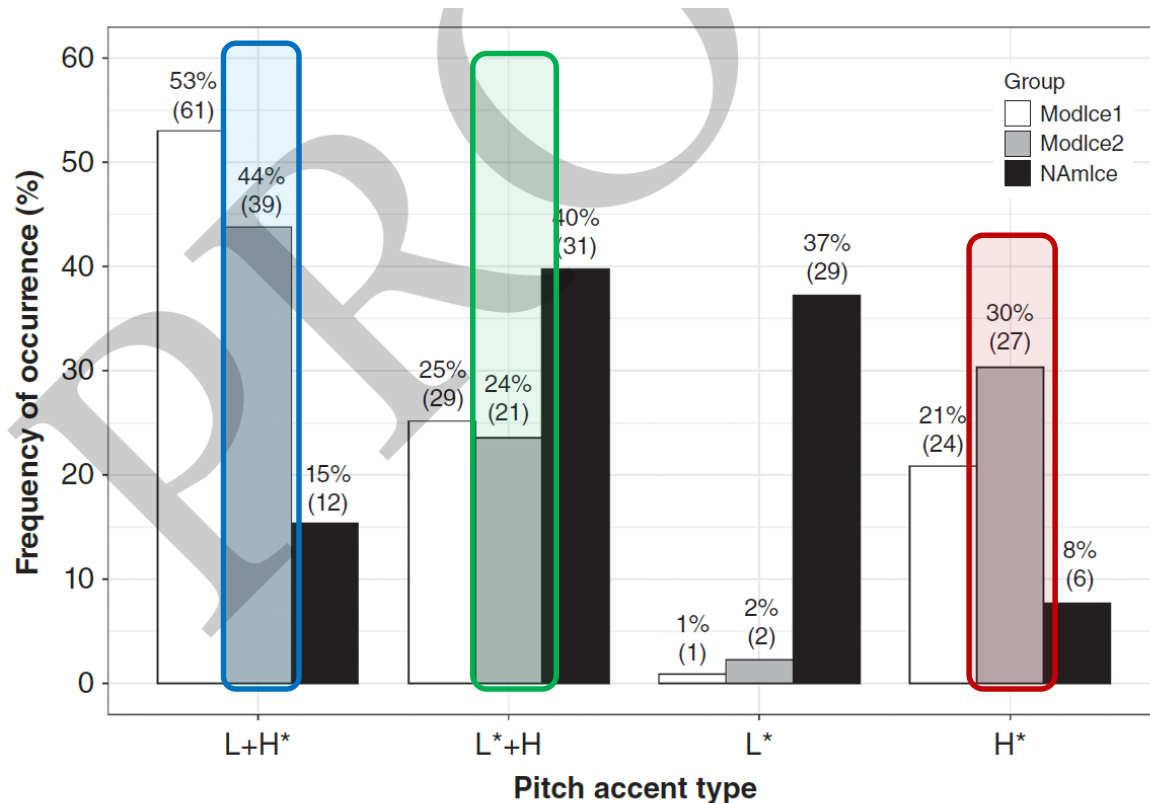


Figure 12.3 Distribution of Icelandic nuclear pitch accent types in polar questions per group in percentages and token counts.

Compare:

Dehé & Braun (2020)

polar questions		
accent category	nuclear accent	ISQ (N=155)
monotonal (high)	H*	2 (1.3%)
	!H*	0
	^H*	1 (0.6%)
sum		3 (1.9%)
late rise	L*+H	69 (44.5%)
	L*+^H	18 (11.5%)
sum		87 (55.8%)
early rise	L+H*	45 (29.0%)
	L+!H*	0
	L+^H*	20 (12.8%)
sum		65 (41.7%)

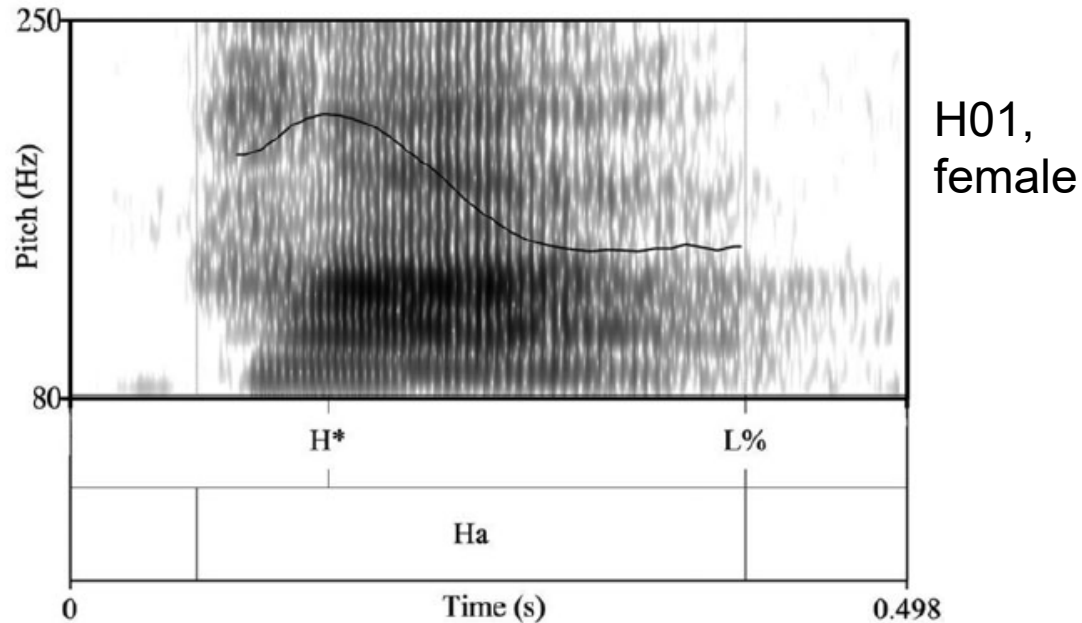
- same age group as Modlce2 in the map task
- But: **different** task and different speaker origin

# Map task data (intonation): other-initiated repair initials

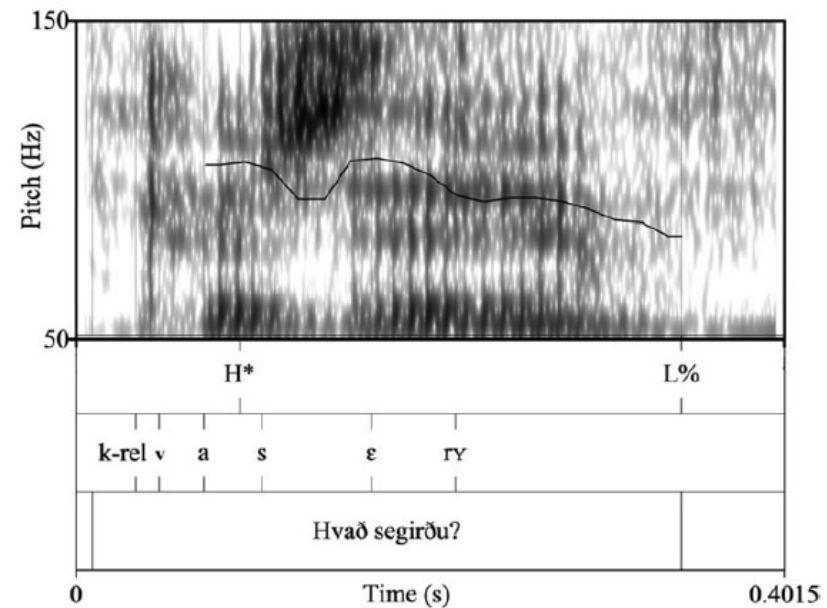
*Ha* (73 tokens)

*Hvað segirðu* (101 tokens)

- All items were realized in their own Intonational Phrase (IP) with an H\* pitch accent (the peak being reached early in the vowel of *Ha* and *Hvað*, respectively) and subsequent fall to L%.
- This study included all speakers across all regions and age groups.



H01,  
female



R18,  
male

Dehé (2015)

# Icelandic intonation, available production data, not yet done

- **Controlled production experiments**
  - One controlled production experiment (2011) that has not been analysed at all. It was taken to three places in Iceland specifically to study regional variation in intonation:

# Icelandic intonation, available production data, not yet done

- Controlled production experiment (2011) designed to study regional variation in intonation (declaratives):

	Context/Condition	Target sentence
<b>e13x</b> lamadýr Jónasdóttir	Kristín og vinir hennar eru á leið í Húsdýragarðinn. Þau eru að tala um hvaða dýr þau ætli að skoða. <i>Kristin and her friends are going to the zoo. They are talking about which animals they would like to see.</i>	
<b>e131</b>	(wide focus: target word(s) with prenuclear accent)	Hulda <b>Jónasdóttir</b> hlakkar til að sjá <b>lamadýra</b> og gíraffa.
<b>e132</b>	Hlakkar Hulda Jónasdóttir til að sjá mörgæsir og gíraffa? (narrow focus, nuclear accent in medial position)	Nei, Hulda Jónasdóttir hlakkar til að sjá <b>lamadýr</b> og gíraffa.
<b>e133</b>	Hlakkar Hulda Gunnarsdóttir til að sjá lamadýr og gíraffa? (narrow focus, nuclear accent in initial position)	Nei, Hulda <b>Jónasdóttir</b> hlakkar til að sjá lamadýr og gíraffa.
<b>e134</b>	(double contrast: initial and final)	Hulda Gunnarsdóttir hlakkar til að sjá flóðhesta.
<b>e135</b>	(wide focus: target word with nuclear accent in final position)	Hulda Jónasdóttir hlakkar til að sjá gíraffa og <b>lamadýr</b> .
<b>e15x</b> landfræði Margeirsdóttir	Krakkarnir eru komnir aftur í skólann eftir sumarfrí. Sum þeirra eru óánægð en önnur geta ekki beðið þess að halda áfram í sumum fögnum. Til dæmis: <i>The kids are back to school after the summer break. Some of them are not very happy, but other kids can't wait to get back to some of the subjects, e.g.:</i>	
<b>e151</b>	(wide focus: target word(s) with prenuclear accent)	Lilja Margeirsdóttir hlakkar til að læra landafræði og stærðfræði.
<b>e152</b>	Hlakkar Lilja Margeirsdóttir til líffræði og stærðfræði? (narrow focus, nuclear accent in medial position)	Nei, Lilja Margeirsdóttir hlakkar til að læra <b>landafræði</b> og stærðfræði.
<b>e153</b>	Hlakkar Lilja Magnúsdóttir til landafræði og stærðfræði? (narrow focus, nuclear accent in initial position)	Nei, Lilja <b>Margeirsdóttir</b> hlakkar til að læra landafræði og stærðfræði.
<b>e154</b>	(double contrast: initial and final)	Lilja Magnúsdóttir hlakkar ekki til að byrja í skólanum.
<b>e155</b>	(wide focus: target word with nuclear accent in final position)	Lilja Margeirsdóttir hlakkar til að læra stærðfræði og <b>landafræði</b> .

Reykjavík (17 speakers)  
Akureyri (18 speakers)  
Húsavík (7 speakers)

2 syll conditions (open vs. closed) x 3 blocks



# Icelandic intonation, available production data, not yet done

- **Controlled production experiments**
  - production experiment (2011) designed to study regional variation in intonation:
    - Reykjavík (17 speakers), Akureyri (18 speakers) and Húsavík (7 speakers)
  - Remaining data from Dehé & Braun (2020):
    - 32 participants, all from Reykjavík;
    - Of those, only 21 speakers (age 20-32) analysed; remaining speakers are older (up to 65 years of age)
- **Map task data**
  - Compare productions from different regions systematically
    - Right now, they are either combined in one study (repair initials), or selected according to origin (polar questions, declaratives); note that for the latter two, speakers from Reykjavík were not included.
- **Generally:** Include intonational parameters other than pitch accents and edge tones, such as register or pitch span/range.

## II. Production data for the study of preaspiration and word stress (CLIP project)

**CLIP:** Cross-linguistic influence in phonology: the case of heritage Icelandic  
Funding period; 1 Jun 2021 - 31 May 2024

Principal Investigators: Nicole Dehé (Konstanz), Christiane Ulbrich (Cologne)

Current research staff: Meike Rommel (Konstanz), Jörn Krantz (Cologne)



**Two phenomena (Modern Icelandic, heritage Icelandic, learner Icelandic):**

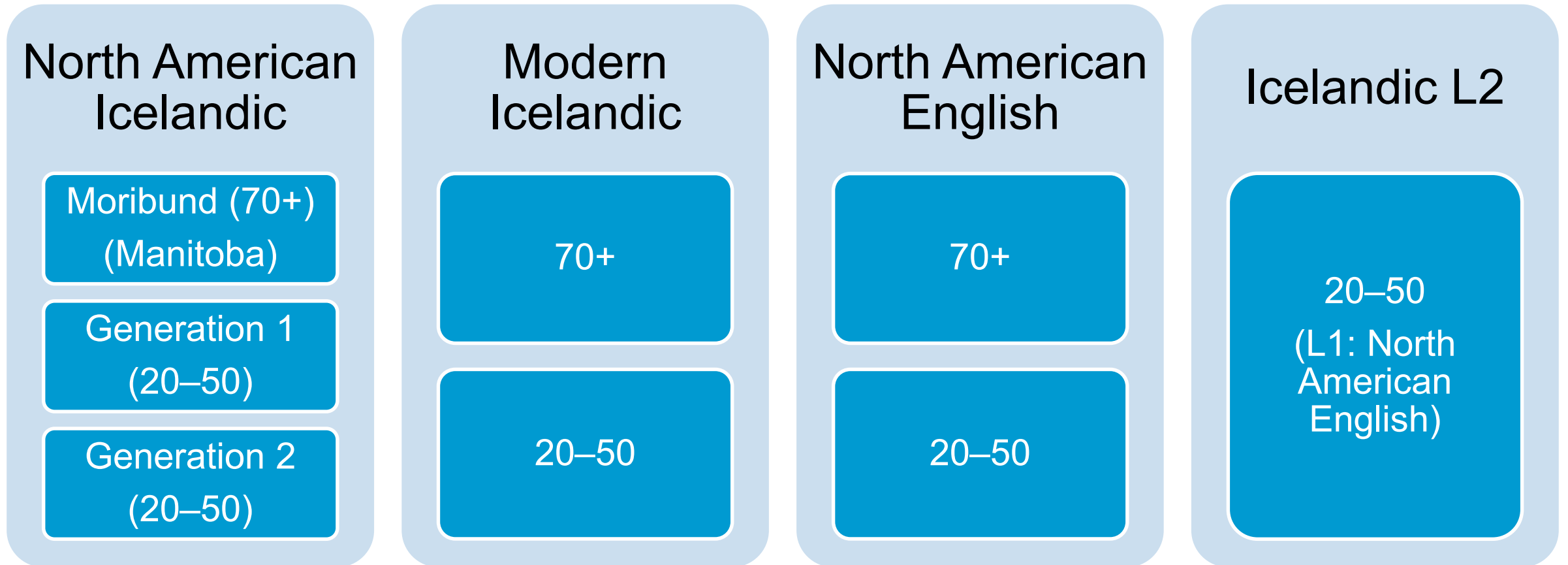
Preaspiration

Word stress

Several **speaker groups** (age – learners – heritage speakers – Icelandic – English)



# Speaker groups



## II. Preaspiration

Preaspiration: Three-way opposition (from Ámason 2011: 222)

- a. hattar ['hahtaɾ] 'hats'
- b. haddar ['hatːaɾ] 'hair, hairdo (Pl.)'
- c. hatar ['haːtaɾ] 'hates'

Preaspiration, logical possibilities of syllabification

- a. Vh.CV hattar ['hah.taɾ]
- b. VhC.V hattar ['haht.aɾ]
- c. V.hCV hattar ['ha.htaɾ]
- d. VhC.CV hattar ['haht.taɾ]

- Do **NAmlce** speakers and **L2 learners** of Icelandic produce preaspiration? How?
- Do different **age groups** produce preaspiration in different ways?
  - Modern Icelandic
  - North American Icelandic
- Are there differences between HL speakers and L2 learners of Icelandic?
- Do NAmlce speakers produce preaspiration when speaking NAmEngl?
- And: What are the implications for the phonological (phonotactic) analysis of preaspiration?

## II. Word stress

- Word stress in Icelandic is initial
  - Is this the same for all speaker groups or is there, for example, influence from English in the heritage or learner groups?
- (How) is secondary stress implemented in Icelandic?
  - Is there variation depending on
    - The morphological status of the respective syllable (stem, derivation, inflection)
    - The position of the syllable in the word
    - The origin of the speaker (native, heritage, learner) or their age

# Experiments

- **Production experiments (materials controlled for number of syllables, morphological make-up, position of plosive, vowel quality)**
  1. word elicitation task (picture naming)
  2. story telling task (picture stories)
  3. Interviews
  
- **Perception experiment (only for preaspiration)**
  4. AXB discrimination task (X original, A/B manipulations)

# Experiments

- **Production experiments**

1. word elicitation task

2. story telling task

3. Interviews

- **Perception experiment**

4. AXB discrimination task

- Presentation of pictures
- questions (presented as audio files), e.g.:
  - *Hvað er þetta?* „What is this?“
  - *Hvað sérðu á myndinni?* „What do you see in the picture?“
  - *Hvað er hún/hann að gera?* „What is (s)he doing?“
- Stimuli:
  - nouns/verbs
  - singular/plural
  - nominative/accusative
  - definite/indefinite

# Experiments

- **Production experiments**

1. word elicitation task

2. **story telling task**

3. interviews

- **Perception experiment**

4. AXB discrimination task

- Stimuli from experiment 1 (participants are primed for specific words)
- pictures presented on slides
- task: participant tells story based on these pictures



# Example picture story: dentist

- Short introduction:

In the following story the main character is at home doing some kind of role play. Fully immersed in his imaginative world, he hits the very real furniture. This leads to a whole other journey than planned by the character.

- Word list:

- crocodile hunter
- coffee table
- gráta (engl. *cry*)
- head
- telephone number
- hjúkrunarkona (engl. *nurse*)
- ísmoli (engl. *ice cube*)
- cheek
- púði (engl. *pillow*)
- tooth fairy

# Experiments in process

To be recorded in  
Gimli, Manitoba:  
Nov/Dec 2023

Recorded:  
Summer 2023;  
analysis in process

To be recorded in Gimli, Manitoba and  
Vancouver, BC  
Nov/Dec 2023; first half of 2024

## North American Icelandic

Moribund (70+)  
(Manitoba)

Generation 1  
(20–50)

Generation 2  
(20–50)

## Modern Icelandic

70+

20–50

## North American English

70+

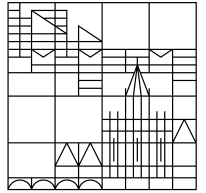
20–50

## Icelandic L2

20–50  
(L1: North  
American  
English)

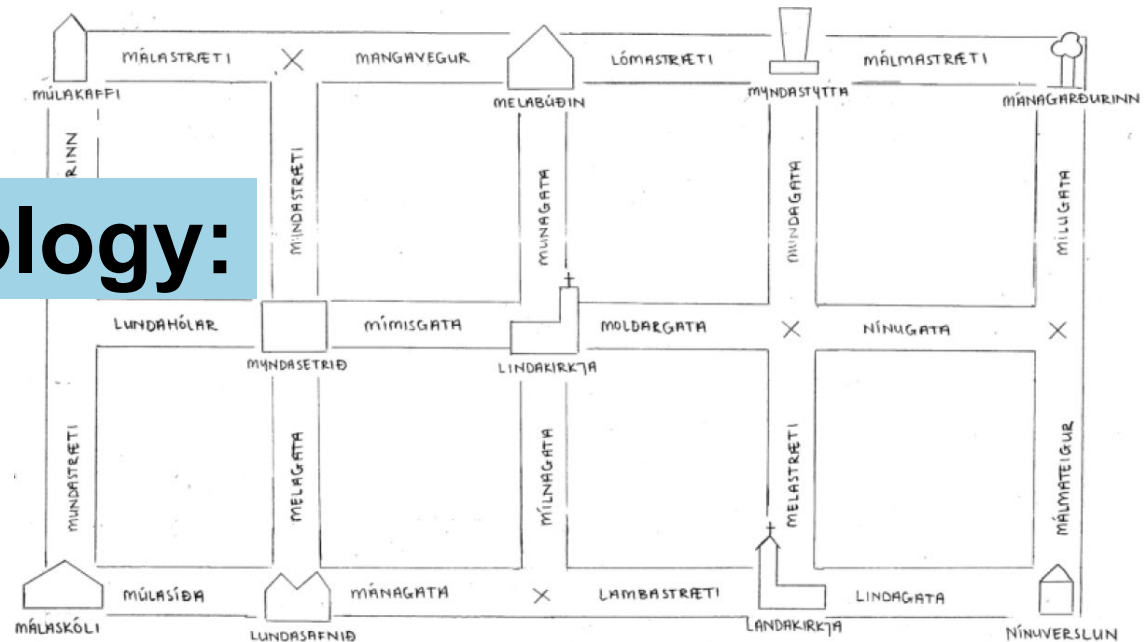
# Summary

- Data available for ...
    - ... the study of intonation (controlled production experiments, semi-spontaneous map task data)
- Coming soon:
- ... the study of preaspiration
  - ... the study of word stress
- Some of the data has yet to be analyzed, or may perhaps be re-analyzed with a focus on parameters relevant to the project on "Regional variation, attitudes and real-time change"
  - Data can be used to make a contribution, in particular, to "regional variation" and "change" (not so much to "attitudes")



**Thank you!**

**Icelandic prosodic phonology:  
Previous research and  
available data**



**Nicole Dehé**

Reykjavík, 9 November 2023

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