Incomplete Acquisition and Language Attrition in Different Settings

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Structure and purpose of the talk

Structure:
1. Heritage language research: Some issues
2. The project “(Icelandic) Heritage Language, Linguistic Change and Cultural Identity”
3. Some results:
   - Plural formation
   - V2/V3
   - Case
   - Processing of syntactically complex sentences
4. Summary

Purpose:
To give examples of things we can learn about language by doing “theoretically informed” research on heritage languages.
Heritage language research

**Heritage language** – a commonly accepted description:
- The language someone learns at home as a child but which is a minority language in the society. It is thus often an indigenous language or a language of immigrant groups.

A typical **heritage language speaker**:
- A typical heritage language speaker is more competent in the majority language than the heritage language and feels more comfortable communicating in that language.

The **social status** of heritage languages can obviously vary widely as does the **linguistic competence** of heritage language speakers.
Heritage language research, 2

Research on heritage languages may shed light on linguistic issues like the following:

- **language acquisition**, e.g. by comparison of the acquisition of heritage languages and typical acquisition in a monolingual setting: what is easily acquired and what is not ...
- **language attrition**, i.e. to what extent speakers of heritage languages lose their proficiency in the language and how this is similar to or different from other kinds of “language loss” (through illness, old age ...)
- **language transfer**, i.e. what kinds of interference do we find between the heritage language and the dominant language?
- **relationship between competence/performance, production/processing**, the ability to make use of linguistic cues ...

See e.g. Bennamoun et al. (2010).
The project

• (Icelandic) *Heritage Language, Linguistic Change and Cultural Identity*. PIs Höskuldur Thráinsson and Birna Arnbjörnsdóttir, Univ. of Iceland
• Support: The Icelandic Research Fund (IRF) and the University of Iceland Research Fund
• Field work conducted 2013 and 2014 in:
  – **Manitoba, Canada**: Winnipeg, Gimli, Riverton, Arborg, Lundar, Brandon, Portage la Prairie
  – **Saskatchewan, Canada**: Regina, Wynyard, Foam Lake
  – **North Dakota, US**: Fargo, Mountain
  – **Alberta, Canada**: Edmonton
  – **British Columbia, Canada**: Vancouver, Nanaimo
  – **Washington, US**: Point Roberts, Blaine, Seattle

• Subjects: 126 speakers of NAmIce (average age 77 years) + 101 speakers of English (some of them of Icelandic descent)
The project, 2

The areas visited:
Linguistic phenomena looked for included:

1. Phonetics and phonology:
   – The development of regional phonological features in NAm
   – Intonation (Nicole Dehé)

2. Morphology:
   – Plural formation of nouns
   – Tense (and aspect)

3. Syntax:
   – Subject and object case; agreement; passives
   – Pronouns and (long distance) reflexives; indicative/subjunctive
   – V2/V3; object shift

4. Lexical semantics:
   – Semantic categorization: colors, kitchen utensils, positional expressions

5. Language processing:
   – Interpretation of syntactically complex sentences
Elicitation methods:
• Interviews to elicit (semi-)spontaneous speech (incl. Frog ...) +

1. Phonetics and phonology:
   picture-naming (+ reading)
   describing a map, asking questions ... (Nicole Dehé’s intonation study)

2. Morphology:
   Tests, involving pictures (incl. a Wug-test ...)

3. Syntax:
   Various tests, mainly selection between alternatives ...

4. Lexical semantics:
   Test from an international study: Evolution of Semanti Systems (EoSS)

5. Language processing:
   A special test involving picture identification, originally designed to test synt. comprehension of Broca’s aphasics (Sigríður Magnúsdóttir 2000).
### Some results: Plural formation

**Plural formation**

*Basic rules:* gender dependent, partly regular, “strong”/ “weak”

<table>
<thead>
<tr>
<th>Gender</th>
<th>Irregular</th>
<th>Strong</th>
<th>Weak</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masc.</td>
<td>fótur – fætur</td>
<td>hundur – hundar</td>
<td>koddi – koddar</td>
</tr>
<tr>
<td></td>
<td>kjóll – kjólar</td>
<td>[læknir – læknar (-irar)]</td>
<td>[Dani – Danir]</td>
</tr>
<tr>
<td></td>
<td>selur – selir (-ar)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fem.</td>
<td>mús – mýs</td>
<td>nál – nálar</td>
<td>sátá – sátur</td>
</tr>
<tr>
<td></td>
<td>sól – sólir</td>
<td></td>
<td>panna – pönnur</td>
</tr>
<tr>
<td>Neut.</td>
<td>ljón – ljón</td>
<td></td>
<td>auga – augu</td>
</tr>
<tr>
<td></td>
<td>glas – glös</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>kerti – kerti</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Strongly regular – weakly regular – not predictable (marked?) – irregular

[ ] = not included in the test
Plural formation, 2

A Wug-type test:

- *Hér er einn hundur.*
  - here is one(m.) dog

- *Hér eru tveir*** ___
  - here are two(m.) ___

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Incomplete Acquisition and/or Attrition ...
Plural formation, 3

The types of nonsense words tested:

Strong:
- masc. teill – teilar
- petir – petar (-irar)

Weak:
- neli – nelar (-ir)

Fem.: 
- kíma – kímur
darga – dörgur, kraða – kröður

Neut.: 
- lún – lún
- kas – kós, darm – dörm
- buni – buni

So these should all be strongly regular or weakly regular
Prediction:
Based on what we know about the nature of heritage languages and the different complexity/predictability of the plural formation rules involved, we predicted that:

- Speakers of NAmIce should know the plural forms of common existing nouns.
- Speakers of NAmIce might have problems with at least some of the nonsense words.
- Speakers of NAmIce might do better on the simplest (most predictable) nonsense words (weak masc., weak fem. (without umlaut), strong neuter ...)

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Plural formation, 5

Performance of NAmIce speakers on plural of existing vs. non-existing nouns:

Considerable difference (mean 2.25 vs. 1.60 out of 3) Maybe older speakers (15, av. age 72, range 30–88) find the Wug-test difficult/silly ...
Performance of IceIce speakers on the plural tests:
Older speakers (30, av. age 77 years, range 69-89).

Very little difference between performance on the two sets
(mean 2.99 vs. 2.78, mostly due to the nonsense word *buni*).
Performance of Icelce speakers on the plural tests:
Younger speakers (30, av. age 35 years, range 30–41).

Very little difference between performance on the two sets (mean 2.99 vs. 2.83, mostly due to the nonsense word *buni*).
Conclusion:

• Speakers of NAmlCe know the plural form of (common) nouns, even irregular ones.
• Speakers of NAmlCe have not generally internalized the rules for plural formation, although they do better on the simplest regular nonsense words:

<table>
<thead>
<tr>
<th>Word:</th>
<th>NAmlCe</th>
<th>Older Icelce</th>
<th>Younger Icelce</th>
</tr>
</thead>
<tbody>
<tr>
<td>neli (weak masc.)</td>
<td>60%</td>
<td>93%</td>
<td>93%</td>
</tr>
<tr>
<td>kima (weak fem.)</td>
<td>53%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>lún (strong neut.)</td>
<td>47%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>kraða (weak fem. uml.)</td>
<td>20%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>darga (weak fem. uml.)</td>
<td>13%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>kas (strong neut. uml.)</td>
<td>0%</td>
<td>97%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Correct plural forms supplied by speakers of NAmlCe and Icelce for the most regular nonsense nouns
Some results: V2 and V3

Well known differences between Icelandic and English:

1. **Position of the finite main verb and a certain class of adverbs in subject-initial clauses** (no “V-to-I” in English, cf. Pollock 1989):

   (1) María *talar alltaf/*alltaf talar íslensku við foreldra sína. V2/V3
   Mary speaks always/always speaks Icelandic to parents her
   ‘Mary always speaks Icelandic to her parents.’

   I’ll sometimes refer to this as V2A (V3A) or S-Vf-Adv (S-Adv-Vf)

2. **Position of the finite verb in Topicalization structures:**

   (2) a. María *talar íslensku við foreldra sína. V2
       Mary speaks Icelandic to parents her
       ‘Mary speaks Icelandic to her parents.’

   b. [Við foreldra sína] *talar María íslensku. V2
     to parents her speaks Mary Icelandic
     ‘To her parents, Mary always speaks Icelandic.’

   c. *[Við foreldra sína] María *talar íslensku. V3

   I’ll sometimes call this V2B (V3B) or XP-Vf-S (XP-S-Vf)
Two “exceptions” to the generalizations just stated:

1. V2 with auxiliary verbs (and auxiliary-like verbs) in English

   (1) Mary **has** always spoken Icelandic to her parents.  "V2"

2. There are some V3-adverbs in Icelandic:

   (2) María **bara/einfaldlega/kannski/náttúrulegât/líka** ...  **talar** íslensku ...  V3

       ‘Mary just/simply/maybe/naturally/also ... speaks Icelandic ...’
Acquisition of V2 in Icelandic:
Basic rules about the positioning of finite verbs seem to be acquired early ("early optional infinitive stage", Sigurjónsdóttir 1999, 2005):

(1) a. Skotta fer ekki. (Eva 1;6:13) V2
   Skotta goes.IND not
   ‘Skotta [a cat’s name] doesn’t go.’

b. Maður stundum kokka. (Eva1;4:22)
   man sometimes cook.INF
   ‘The man sometimes cooks.’

The same goes for V2B (Topicalization, Sigurjónsdóttir 2005):

<table>
<thead>
<tr>
<th>child (and age range)</th>
<th>XP-Vinf-S</th>
<th></th>
<th>XP-Vinf-S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Eva (1;1:1–2;4:16)</td>
<td>96%</td>
<td>350</td>
<td></td>
</tr>
<tr>
<td>Bírna (2;0:19–2;6:13)</td>
<td>99%</td>
<td>74</td>
<td></td>
</tr>
</tbody>
</table>
V2 and V3, 4

Violations of both types of V2 had been reported in the literature on NAmIce, especially the second kind (V2B, i.e. Topicalization structures, cf. Haraldur Bessason 1984b, Birna Arnbjörnsd. 2006, Elma Óladóttir 2013):

(1) a. [Í dag] ég fer heim. (Bessason 1984b:5) V3B
today I go home
b. Doris stundum talar íslensku. (Arnbjörnsdóttir 2006:110) V3A
Doris sometimes speaks Icelandic
c. stundum ég hugsa um það (Arnbjörnsdóttir 2006:110) V3B
sometimes I think about that
Some hypotheses that could be tested cf. Birna Arnbjörnsdóttir, Iris Edda Nowenstein og Höskuldur Práinsson 2015):

A: Speakers of NAmIce are likely to produce and accept English-type Topicalization structures, i.e. the V3B variant XP-S-Vf.

B: Speakers of NAmIce are likely to produce and accept English-type V3A structures, i.e. the S-Adv-Vf kind.

C: The two kinds of violations of the V2-constraint described here need not go hand in hand.

D: Early and extensive exposure to English during the acquisition period will influence the acquisition of the V2-constraint in a negative way.

E: Limited use of Icelandic, both at home and outside the home, will weaken the V2-constraint).

A and B: language transfer.

C: V2A and V2B may not be derived the same way (pick your favorite variant of V-to-I- vs. V-to-C-type proposals)

D: incomplete acquisition

E: attrition
V2 and V3, 6

Main elicitation methods used (after various experiments):

1. **Syntactic tests**, mainly choosing between alternatives:
   Randomized sentence types read aloud and shown on a computer screen. Example:

   **V2/V3 and topicalization**
   
   *Maria er að læra frönsku.* [context sentence]
   Mary is studying French
   □ hún ætlar
   
   *Næsta vetur að læra ítölsku.*
   Next winter she intends/intends she to study Italian
   □ ætlar hún

2. **Comparison with spontaneous speech materials** (life story interviews, elicited narrative (*Frog, Where Are You?*, *Pear Story*), personal letters ...)

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V2 and V3, 7

V2A/V3A: Three types tested:

A: Examples where there is a clear contrast between Icelandic and English: S-MainVf-Adv/S-Adv-MainVf.

Selection of the V3-variant by speakers of NAmlce could occur (language transfer).

B: Examples where there contrast is not so clear because the finite verb is an auxiliary: S-Aux-Adv/S-Adv-Aux.

Selection of the V3-order not predicted for speakers of NAmlce since it is bad/dispreferred in Icelandic and English.

C: Examples where the contrast is not so clear because the adverb is a possible V3-adverb in Icelandic: S-Vf-Adv/S-Adv-Vf.

Here we might expect speakers of NAmlce to select more V3-examples because they would work in both Icelandic and English.
V2 and V3, 8

Relevant test material:

• **One sentence of Type A (S-MainV-Adv / S-Adv-MainV).** Tested on 17 speakers of NAmlce and 15 speakers of each age group of the IceIce speakers (cf. above).

• **Five sentences of Type B (S-Aux-Adv / S-Adv-Aux).** Tested on 16 speakers of NAmlce and 15 speakers of each age group of the IceIce speakers.

• **Two sentences of Type C (S-Vf-V3Adv / S-V3Adv-Vf).** Tested on 16 speakers of NAmlce and 15 speakers of each age group of the IceIce speakers.
Tabulated results:
Type A: V3 bad in Icelandic but OK in English:

(1) Guðmundur vinnur mjög mikið
G works very hard
Hann vinnur alltaf/alltaf vinnur fram á kvöld.
he works always/always works until the evening

<table>
<thead>
<tr>
<th>Word order type selected</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NAmIce</td>
</tr>
<tr>
<td>V2: vinnur alltaf</td>
<td>75.5%</td>
</tr>
<tr>
<td>V3: alltaf vinnur</td>
<td>17.6%</td>
</tr>
<tr>
<td>V2+V3</td>
<td>5.9%</td>
</tr>
</tbody>
</table>

Some language transfer (rather limited)?
V2 and V3, 10

**Type B:** Five examples, including this one:

(1) Þórður veit ekkert um hvað bókin er.
Th. knows not about what the book is
Hann **hefur aldrei/aldrei hefur** lesið bókina.
he has never/never has read the book

Average selection of the word order types:

<table>
<thead>
<tr>
<th>Word order type selected</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NAmIce</td>
</tr>
<tr>
<td>V2: hefur aldrei</td>
<td>88.14%</td>
</tr>
<tr>
<td>V3: aldrei hefur</td>
<td>9.54%</td>
</tr>
<tr>
<td>V2+V3</td>
<td>2.68%</td>
</tr>
</tbody>
</table>

V3 is bad in Icelandic and dispreferred in English.
**Type C: Two examples, including this one:**

(1) *Við ætlum frá Rochester til Vermont.*
we intend (to go) from Rochester to Vermont
*Við stoppum kannski/kannski stoppum* í New York á leiðinni.
we stop perhaps/perhaps stop in NY on the way

**Average selection of the word order types:**

<table>
<thead>
<tr>
<th>Word order type selected</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NAmIce</td>
</tr>
<tr>
<td>V2: stoppum kannski</td>
<td>61.25%</td>
</tr>
<tr>
<td>V3: kannski stoppum</td>
<td>38.75%</td>
</tr>
<tr>
<td>V2+V3</td>
<td>0</td>
</tr>
</tbody>
</table>

Here V3 should be OK in Icelandic (although almost never selected by the Icelandic speakers) and the corresponding order is also fine in English.
V2 and V3, 12

The V2/V3 order in Topicalization structures (V2B/V3B):
Four test sentences, including this one:

(1)  *Hann borðar köku á hverjum degi.*
    he eats cake every day
    Núna *vill hann/hann vill* ávexti
    now wants he/he wants fruit

Average selection of the word order types:

<table>
<thead>
<tr>
<th>Word order type selected</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NAmIce</td>
</tr>
<tr>
<td>V2: <em>vill hann</em></td>
<td>60.25%</td>
</tr>
<tr>
<td>V3: <em>hann vill</em></td>
<td>33.4%</td>
</tr>
<tr>
<td>V2+V3</td>
<td>6.35%</td>
</tr>
</tbody>
</table>

Very clear difference between NAmIce and Icelce.
The test results are supported by production data: It is not easy to find genuine V3A-examples (S-Adv-Vf) in NAmIce: (1)

a. hún aldrei só mosqito  
   she never saw mosquito  
   ‘she never saw a mosquito’ 

b. ég líka tók [... lexíur á háskólanum  
   I also took lessons on university.DEF  
   ‘I also took lessons at the university’

c. hún kannski skildi það  
   she perhaps understood it  

d. hann kannski skilur eiththvað  
   he perhaps understands something

• The adverbs in b,c,d are potential V3-adverbs in Icelandic.  
• Most of the V3-examples found in Jóna’s letters (cf. Björnsdóttir 2014 and below) are of this kind.
It is easy to find V3B-examples in NAmIce (XP-S-Vf):

(1) a. hérna hann er að ... að ... hjálpa hundinn upp
   here he is to to help dog.DEF.ACC up
   ‘here he is helping the dog up’

b. stundum ég er að hugsa í ensku
   sometimes I am to think in English
   ‘sometimes I am thinking in English’

c. þá strákurinn er á ee ... the head
   then boy.def is on
   ‘then the boy is on the head’

d. líka ég hefur gert mikið vinnu með ætta- ættin
   also I have done much work with family.DEF

• This suggests that V2 in topic-initial clauses is indeed different from V2 in subject-initial clauses.
Are the problems with topic-initial clauses due to **incomplete acquisition** and **language attrition**? We checked background:

- when X began to speak Icelandic
- how often X used Icelandic the past year
- when X began to speak English
- when X began hearing Icelandic around
- when X began hearing English around
- was X able to read in Icelandic before school age?
- use of Icelandic at home when growing up
- **use of English at home when growing up**
- how often X had been to Iceland
- does X read books or newspapers in Icelandic?
- does X follow Icelandic news on radio or TV or Internet?  

Very little difference between the speakers w.r.t. many of these features but **highly significant correlation with “use of English at home when growing up”** (r = 0.504, p = 0.003). = **Incomplete acquisition** (early interference)?
Some results: Case

• It has been reported in the literature that case often causes problems for speakers of heritage languages (cf. e.g. Bennamoun et al. 2010 and references cited there).

• There have been some reports in the literature that speakers of NAmIce have problems with case (Birna Arnbjörnsdóttir 2006, Sigríður Mjöll Björnsdóttir 2014):

(1) a. Litli stúfurinn í Toronto leið vel. (SMB 2014:51)
the little guy(N) in Toronto felt good [Nom for Dat]

b. Ég sakna svo mikið bréfunum frá þér. (SMB 2014:48)
I miss so much the letters(D) from you [Dat for Gen]

Subject case in Icelandic:
- **Nominative** is the default subject case in Icelandic.
- **Dative subjects** are not uncommon, especially on experiencer arguments.
- **Accusative subjects** are rare and are sometimes replaced by Dat (Dative Substitution for experiencers) or Nom subjects (Nom Substitution for themes).
- **Genitive subjects** are very rare.

Object case in Icelandic:
- **Nominative** objects depend on dative subjects.
- **Accusative** is arguably the default object case in Icelandic.
- **Dative objects are very common** and productive (new verbs, substitution of Dat for earlier Acc).
- **Genitive objects** are very rare and apparently on the way out.
A common classification of morphological case in Icelandic (cf. Yip et al. 1987, Jónsson 2003 and many others, but pace Barðdal 2011):

Thematic roles of case marked subjects in Icelandic: No thematic restrictions on Nom subjects (cf. Thráinsson 2007:206):

<table>
<thead>
<tr>
<th>subject case</th>
<th>agent</th>
<th>exper.</th>
<th>goal</th>
<th>source</th>
<th>theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>nominative</td>
<td>+</td>
<td>+</td>
<td>(+)</td>
<td>+</td>
<td>(+)</td>
</tr>
<tr>
<td>accusative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Case, 4

A proposal meant to account for historical development and synchronic variation of morphological case in Icelandic: The Case Directionality Hypothesis (Eythórsson 2002, based on ideas in Yip et al. 1987, Jónsson 2003, 2009, Maling 2002 etc.):

1. Case Directionality Hypothesis (CDH)
   a. lexical case → structural case
   b. idiosyncratic lexical case → thematic lexical case

Questions:
• How/When does this happen? [It doesn’t always.]
• Can we learn something from Heritage Icelandic about this?
Case, 5

Same elicitation techniques as before and same subject groups:
1. **Syntactic tests, mainly choosing between alternatives.**
   Sentences (read aloud and shown on a computer screen):

   (1) það er langt síðan ég ferðaðist síðast.
   it is long since I travelled last
   □ Ég langa
   □ Mig langar  aftur í ferðalag
   □ Mér langar
   □ Mín langar
   I (N/A/D/G) want to travel again.

2. Comparison with **spontaneous speech materials** (life story interviews, elicited narrative (*Frog, Where Are You?*, *Pear Story*), personal letters (SMB 2014)...)
Subject case

**Subject case** in NAmIce – some predictions (based on what we know about morphological case in Icelandic):

• Speakers of NAmIce should typically **select the default Nom** as the subject case, especially for agents.
• Speakers of NAmIce might also **substitute the default Nom for thematic Dat experiencer** subjects.
• Speakers of NAmIce might **substitute the more regular Dat for Acc** experiencer subjects (Dative substitution (or “Dative sickness”, frowned upon in schools in Iceland).
• Some speakers of NAmIce **might not have a clue** what to do with case and make random errors not found in the language of native speakers.
Verbs taking **Nom agentive** subjects: Three examples *(borða ‘eat’, vinna ‘work’, sauma ‘sow’)* including:

1. *Fiskur er hollur matur.*
   fish is healthy food
   *Ég/Mig/Mér/Mín* borða(r) fisk á hverjum degi.
   I(N/A/D/G) eat fish every day.

Average case selection:

<table>
<thead>
<tr>
<th>Case selected</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NAmlce</td>
</tr>
<tr>
<td>Nom</td>
<td>82.5%</td>
</tr>
<tr>
<td>Acc</td>
<td>8.7%</td>
</tr>
<tr>
<td>Other</td>
<td>8.8%</td>
</tr>
</tbody>
</table>
Subject case, 3

Verbs taking **Dat experiencer subjects**. Three examples (leiðast ‘be bored by’, finnast ‘find’, þykja ‘find’), incl.:

(1) *Petta var hryllingsmynd.*
   this was a horror movie

*Ég/Mig/Mér/Mín* leiðast svona bíómyndir.
I(N/A/D/G) a am-bored-by such movies

Average case selection:

<table>
<thead>
<tr>
<th>Case selected</th>
<th>Group</th>
<th>NAmIce</th>
<th>Older IceIce</th>
<th>Younger IceIce</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nom</td>
<td>41.6%</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Acc</td>
<td>11.9%</td>
<td>2.2%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Dat</td>
<td>33.7%</td>
<td>97.8%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>12.8%</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
Verbs taking **Acc experiencer subjects**. Four examples (langa ‘want’, vanta ‘want, need’, svíða ‘have a burning feeling’, klæja ‘itch’), including:

(1) *Það er langt síðan ég ferðaðist síðast.*
   it’s been a long time since I travelled last
   Ég/Mig/Mér/Mín langa(r) aftur í ferðalag.
   I(N/A/D/G) want again on travel

**Average case selection:**

<table>
<thead>
<tr>
<th>Case selected</th>
<th>NAmIce</th>
<th>Older Icelce</th>
<th>Younger Icelce</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nom</td>
<td>54.1%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Acc</td>
<td>9.9%</td>
<td>75%</td>
<td>90%</td>
</tr>
<tr>
<td>Dat</td>
<td>25.3%</td>
<td>21.7%</td>
<td>8.3%</td>
</tr>
<tr>
<td>Other</td>
<td>10.7%</td>
<td>3.3%</td>
<td>1.7%</td>
</tr>
</tbody>
</table>
Subject case, 5

The test results are supported to some extent by production data (interviews, narratives (Frog, Where Are You?):

**Acc** does occur with agentive verbs: *Froskana er að horfa* ‘the frogs(A) are looking’ ... and a few other examples

**Dat experiencer** subjects of verbs like *leiðast* ‘be bored by’, *finnast* ‘find’, *þykja* ‘find’:
- fairly well preserved: 7 instances in a sample of 9
- > Nom in 1 example: *hann þykir* ‘he(N) finds’
- > Acc in 1 example: *strákinn leiðist* ‘the boy(A) is bored’

**Acc experiencer** subjects of verbs like *langa* ‘want’, *vanta* ‘want, need’:
- not as well preserved: 3 instances in a sample of 11
- > Nom in 4 examples, e.g. *hundurinn langar* ‘the dog(N) wants’
- > Dat in 4 examples, e.g. *henni langar* ‘she(N) wants’
Object case

A brief review:

• **Accusative** is arguably the default object case in Icelandic. Hence there are no thematic restrictions on Acc objects (cf. nominative subjects).

• **Dative** is at least a semi-regular case for certain thematic roles of objects. It is productive, as shown by the fact that many new verbs take Dat objects (cf. Barðdal 2001, 2011, Maling 2002, Jónsson 2009).

• **Genitive** objects are idiosyncratic and on the way out.
Object case, 2

Object case in NAmlce – some predictions (based on what we know about morphological case in Icelandic):

• Speakers **should not in general select Nom as an object case** – unless case is a mystery for them – since Nom objects only occur with Dat subjects.

• Speakers **should do well on Acc objects** since Acc is arguably the default object case in Icelandic.

• Speakers might also **do pretty well on Dat objects where they are “supported” by the thematic role of the object** (verbs of helping, praising, throwing ..., cf. Barðdal 2001, 2011, Maling 2002, Jónsson 2009, Thráinsson 2007).

• Speakers **might substitute Acc objects for Dat objects** if Acc is the default object case.

• Speakers **should not do well on Gen objects**.
Verbs taking Acc objects: Four examples (velja ‘select’, hitta ‘meet’, sjá ‘see’, elta ‘chase’), including:

(1) ðjófarnir reyndu að flýja.
the thieves tried to escape
Lögreglan elti þeir/þá/þeim/þeirra.
the police chased them(N/A/D/G)

Average selection of case:

<table>
<thead>
<tr>
<th>Case selected</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NAmIce</td>
</tr>
<tr>
<td>Nom</td>
<td>38,5</td>
</tr>
<tr>
<td>Acc</td>
<td>35,7</td>
</tr>
<tr>
<td>Dat</td>
<td>13,0</td>
</tr>
<tr>
<td>Gen</td>
<td>9,6</td>
</tr>
<tr>
<td>Other</td>
<td>3,3</td>
</tr>
</tbody>
</table>

**Nom** a general default case?
Object case, 4

Verbs taking **Dat objects**: Four examples (bjarga ‘save’, hrósa ‘praise’, kasta ‘throw’, henda ‘throw (away)’), including:

(1)  *Maðurinn er mjög hugrakkur.*
    the man is very brave
    Hann bjargaði ég/mig/mér/mín í óveðrinu.
    he saved me(N/A/D/G) in the blizzard

Average case selection:

<table>
<thead>
<tr>
<th>Case selected</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NAmIce</td>
</tr>
<tr>
<td>Nom</td>
<td>13,6</td>
</tr>
<tr>
<td>Acc</td>
<td>36,5</td>
</tr>
<tr>
<td>Dat</td>
<td>38,9</td>
</tr>
<tr>
<td>Gen</td>
<td>5,1</td>
</tr>
<tr>
<td>Other</td>
<td>4,5</td>
</tr>
</tbody>
</table>
Object case, 5

Verbs taking **Gen objects**: Three examples (sakna ‘miss’, spyrja ‘ask’, krefjast ‘demand’), including:

(1)  *það er erfitt að vera langt í burtu.*  
    it is difficult to be far away  
    Ég sakna *þú/þig/þér/þín.*  
    I miss you(N/A/D/G)

Average case selection:

<table>
<thead>
<tr>
<th>Case selected</th>
<th>Group</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NAmlce</td>
<td>Older Icelce</td>
<td>Younger Icelce</td>
<td></td>
</tr>
<tr>
<td>Nom</td>
<td>12,7</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Acc</td>
<td>47,6</td>
<td>4,4</td>
<td>2,2</td>
<td></td>
</tr>
<tr>
<td>Dat</td>
<td>17,8</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Gen</td>
<td>19,7</td>
<td>95,6</td>
<td>88,9</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
<td>8,9</td>
<td></td>
</tr>
</tbody>
</table>
Object case, 6

The test results are supported to some extent by production data (interviews, narratives (*Frog, Where Are You?*)): Mistakes of most of the types found in the test results can also be found in the production data, including mistakes where case marking is regular:

- Nom for regular Acc: *sjá froskurinn* ‘see the frog(N)’
- Acc for regular Dat: *henda hann* ‘throw him(A)’

(and case marking of prepositional objects seems fairly random)
Subject and object case

Question:
• Are the problems that speakers of NAmIce have with case due to incomplete acquisition or attrition — or is subject case different from object case in this respect?

An interesting “case in point” (cf. Sigríður Mjöll Björnsdóttir 2014):
• Jóna (born to Icelandic parents in Canada 1890) wrote 152 letters (approx. 82,000 words) to her half-sister in Iceland 1907–1980.
• Husband Norwegian. Doesn’t seem to have used Icelandic much at home.
• Her case marking is pretty good throughout, although there are slightly more case marking errors in the later letters, especially in the irregular cases (genitive objects of verbs, objects of prepositions). Also some instances of substituting Dat for Acc objects (hypercorrection?)

So maybe the extensive case marking errors that the NAmIce speakers make are mainly due to incomplete acquisition.
Some results: Sentence processing

Issues:

• Speakers of heritage languages have been found to have problems with the processing (semantic interpretation) of relative clauses, especially object relatives (Bennamoun et al. 2010, w. references).

• Research on Broca’s aphasics has revealed that certain types of syntactically complex sentences are difficult for them to process (Magnúsdóttir 2000, w. references), e.g.:
  – Passives are harder than actives (passives have object gaps).
  – Clefts w. object gaps are more difficult to process than those w. subject gaps.
  – Wh-questions can pose problems, especially object gaps.
  – Topicalization structures are difficult, especially those where the interpretation depends on the case marking of the arguments (inversion of subject and a main verb): Stráknum hrinti stelpan “the boy(D) the girl(N) pushed.”
Sentence processing, 2

Why might it be interesting to investigate this further in the language of heritage speakers?

• Assuming that the complex sentences are not all equally difficult/easy to process, what characterizes the difficult ones?
  – non-canonical word order? (not Agent – Predicate – Patient)?
  – object gaps? [can be the same thing]

• What kinds of linguistic clues can the heritage speakers make use of? Case marking?

• How similar to/different from “normal adult speakers” and aphasic speakers are heritage speakers in this respect? [Cf. e.g. Grodzinsky’s proposal 1986: Aphasics do not “have” traces, hence they cannot interpret (object) gaps.]
A picture identification task:

a. Stelpan eltir strákinn. ‘The girl(N) chases the boy(A).’
   - Act

b. Strákurinn er eltur af stelpunni. ‘The boy(N) is chased by the girl(D).’
   - Long Pass

c. Strákurinn er eltur. ‘The boy(N) is chased.’
   - Short Pass

d. Það er elt strákinn. “there is chased the boy(A)”
   - New Pass

e. Hvaða stelpa eltir strákinn? ‘Which girl(N) chases the boy(A)?’
   - Subj-wh

f. Hvaða strák eltir stelpan? “which boy(A) chases the girl(N)”
   - Obj-wh

g. Það er stelpan sem eltir strákinn. ‘It is the girl(N) that chases the boy(A)’
   - Subj-cleft

h. Það er strákinn sem stelpan eltir. ‘It is the boy(A) that the girl/N) chases’
   - Obj-cleft

i. Strákinn er stelpan að elta. “the boy(A) is the girl(N) chasing”
   - Top w. aux.

j. Strákinn eltir stelpan. “the boy(A) chases the girl(N)”
   - Top w. main.
The picture identification task:

- 33 speakers of NAmlCe
- 60 sentences (10 types x 6 of each)
- 6 different verbs, introduced at the beginning of the test with one relevant picture each, all involving a boy and a girl:
  - *lemja* ‘hit’
  - *greiða* ‘comb (hair)’
  - *mála* ‘paint (face)’
  - *klappa* ‘pat (on the head)’
  - *kitla* ‘tickle’
  - *ýta* ‘push (on a swing)’
- The sentences/pictures were presented in a random order, the sentence spoken clearly and an English translation of the verb typically given (e.g. *lemja* ‘hit’).
Sentence processing, 5

For speakers of NAmlce, the sentences appear to fall into four categories w.r.t. the ease/difficulty of processing:

1. **Easiest** (97–99.5% correct):
   Active, Subject *wh*-question, Subject cleft, New Passive

2. Better than chance performance (about 60–70% correct)
   Object cleft, Passives (long and short)

3. About 30% correct:
   Topicalization with an auxiliary verb

4. **Most difficult** (only about 10% correct):
   Object *wh*-questions, Topicalization with a main verb (the only clue is the case marking of the two arguments in both instances)
The results are rather similar to those obtained for aphasic patients.

Possible reasons:

• **The easiest** constructions have a *canonical word order* (Agent before verb or Patient after main verb (**New Pass**)).

• Maybe the relatively difficult Top. with an auxiliary verb is confusing because it has **two arguments** before the main verb.

• **The most difficult** constructions **rely mostly on case marking** [Some aphasics can make use of clues of this kind but not all. Very few of the Icel. heritage speakers could, which is not surprising.]
A possibility worth considering:

• The Icelandic heritage speakers participating in this part of the test were mostly quite old (mean age 73, range 35–95). Is it possible that some of their processing problems were just a factor of their old age?

• What does the comparison with the two groups of Icelandic speakers tell us?
  – 30 older speakers (average age 77 years, range 69–89)
  – 30 younger speakers (average age 35, range 30–41)
Sentence processing, 8

Performance of the three groups: Percentage correct

<table>
<thead>
<tr>
<th>Construction</th>
<th>NAmlce</th>
<th>Older Icelce</th>
<th>Younger Icelce</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>99.5%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Subject wh-</td>
<td>98.0%</td>
<td>100%</td>
<td>100%</td>
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<tr>
<td>Subject clefts</td>
<td>97.0%</td>
<td>99.4%</td>
<td>100%</td>
</tr>
<tr>
<td>New Passive</td>
<td>97.0%</td>
<td>97.2%</td>
<td>100%</td>
</tr>
<tr>
<td>Object cleft</td>
<td>68.9%</td>
<td>92.8%</td>
<td>98.3%</td>
</tr>
<tr>
<td>Passive – long</td>
<td>59.4%</td>
<td>91.7%</td>
<td>100%</td>
</tr>
<tr>
<td>Passive – short</td>
<td>58.1%</td>
<td>98.9%</td>
<td>100%</td>
</tr>
<tr>
<td>Topicalization w. aux</td>
<td>30.3%</td>
<td>94.4%</td>
<td>98.9%</td>
</tr>
<tr>
<td>Object wh-</td>
<td>10.6%</td>
<td>98.9%</td>
<td>100%</td>
</tr>
<tr>
<td>Topicalization w. main verb</td>
<td>9.7%</td>
<td>85.6%</td>
<td>98.9%</td>
</tr>
</tbody>
</table>

Slight deterioration of the processing abilities of the older Icelce
Sentence processing, 9

Distribution of scores for Long passives:

NAmlce:  

Older Icelce:  

Means: 2 = all correct, 1 = none correct
Sentence processing, 10

Distribution of scores for Topicalization w. main verb

**NAmlce:**

- Mean: 1.097
- Std. Dev.: 0.22673
- N: 30

**Older Icelce:**

- Mean: 1.85596
- Std. Dev.: 0.23462
- N: 30

Means: 2 = all correct, 1 = none correct
Summary

We have learned that speakers of NAmlce:

• Typically know the plural forms of common nouns but have not mastered rules for regular plural formation like native speakers.
• Sometimes violate “the V2-constraint”, especially in Topicalization structures. This is more common if English was used at home when these speakers were growing up.
• Sometimes make mistakes in subject case assignment, including mistakes that native speakers never make, e.g. selecting and using Acc as a subject case for agents.
• Often make mistakes in object case assignment, including selection/use of Nom as an object case and making mistakes in regular case assignment.
• Have problems interpreting syntactically complex sentences, especially when the interpretation depends on grammatical clues like case. But this also holds, although to a much more limited extent, of older and healthy native speakers.
References


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Bessason, Haraldur. 1984a, b. Að rósta kjötið og klína upp húsið. [To roast the meat and clean up the house.] *Lésbók Morgunblaðisins* 16. júní bls. 4-5 og 23. júní bls. 11–12.

References


References


