Possession in North Saami: Rich Morphology in Competition with an Analytic Construction

Laura A. Janda
Lene Antonsen
North Sámi...

- A Uralic (Finno-Ugric) language
- About 20,000 speakers
- In contiguous regions of northern Norway, Sweden, and Finland
- Unique in Europe as a minority language in contact with majority languages from two different language families: Indo-European and Finno-Ugric (Ylikoski 2009:201-202)
5 = North Sámi
An ongoing language change: NPx is being replaced by ReflN

Two examples from Elle Márjá Vars’ novel Kátjá

NPx (possessive suffix, HIGH morphological complexity):
(1a) Kátjá... ollií latnjasís
Kátjá.NOM reach.IND.PRET.3S room.ILL.SG.PX.3S
‘Kátjá... got to her room’

ReflN (analytic construction with reflexive genitive pronoun):
(1b) Kátjá... ollií iežas latnjii...
Kátjá.NOM reach.IND.PRET.3S REFL.GEN.3S room.ILL.SG
‘Kátjá... got to her room’
WALS Feature 57a: Possessive affixes

North Saami
Research questions

• Is language change always motivated by social value alone, or can there be inherent fitness values? Cf. Blythe & Croft (2012) “S-curves and the mechanisms of propagation in language change”
• Is morphological complexity disadvantaged in a context of language contact?
• Is a new vocative emerging in North Saami, and how does it compare with the “new” vocative in Russian?
Overview

1. S-curves in language change
2. Factors involved in the N. Saami change
3. Inherent syntactic fitness
4. Inherent semantic fitness
5. Morphological complexity in the face of intense contact
6. A new vocative? Comparison with Russian
7. Conclusions
1. S-curves in language change

A. An example of an S-curve

B. The S-curve in our North Saami data

C. What drives S-curves?
A. An example of an S-curve (cited by Blythe & Croft 2012)

Figure 1. Trajectory of the evolution of four variants of the future in Brazilian Portuguese. Although three variants compete with the original synthetic future, the incoming *ir* ‘go’ periphrastic future is propagated following an S-curve. Data from Poplack & Malvar 2007:144.
B. The S-curve in our Data

- **Literary texts**: 530,000 words, three age groups, two geographic regions
  - 2,272 examples, full analysis by hand
  - 1,530 examples, full analysis by hand
- **Newspapers**: 10M words from three newspapers (1997-2011)
  - 29,964 examples of words with frequency ≥5, partial automatic analysis, a lot of cleaning by hand
- **Total**: 33,633 examples
The S-curve: longitudinal data from literary texts, showing only anaphoric and endophoric use.
C. What drives S-curves?

Blythe & Croft 2012:

- Language change is driven by differential weighting of variants
  - If \textbf{X} is older variant, \textbf{Y} is innovative variant
  - The innovative variant \textbf{Y} gets a higher positive weight and replaces the older variant \textbf{X}

How are S-curves created?

- ✔ Mathematical models using differential weighting produce S-curves
- Ø Social networks are unlikely to produce S-curves
- Ø Neutral drift can only produce random fluctuations
BUT: Where does the differential weighting come from?

Blythe & Croft 2012:

Social value is the sole source of differential weighting

Why?

Speaker is the locus of selection of variants, so the motive for all change must be social value metonymically transferred from the speaker who uses the innovative variant to the variant itself.
Is social value the ONLY source of differential weighting?

Can there be inherent fitness values? Conditioned fitness values?

Two thought experiments that involve two variants:

- X older variant
- Y innovative variant
Thought experiment 1:

• Variant X is used >90% of the time, but is restricted to contexts A, B, C and can always be replaced by Y.
• Variant Y is used <10% of the time and can appear in contexts A, B, C, D, E.

Y has an inherent fitness advantage
(and of course it can also attract social value)
Thought experiment 2:

- Variant X is morphologically highly complex, involves intricate morphophonemic alternations
- Variant Y avoids such alternations
- Under normal conditions, this should not matter, BUT: in the case of a minority language that is not the sole or primary language for most of its speakers, morphological complexity is a disadvantage (cf. Trudgill 2011)

♫ Y has a conditioned fitness advantage
(and of course it can also attract social value)
North Saami possessive constructions

- X = NPx
- Y = ReflN

- NPx is always replaceable by ReflN
- ReflN appears in more environments

- ☛ ReflN has an inherent fitness advantage
- NPx is morphologically much more complex than ReflN
- North Saami is an endangered language, under pressure from Norwegian, Swedish, and Finnish; for many speakers this is a language they have “taken back” as adults

- ☛ ReflN has a conditioned fitness advantage
2. Factors involved in the N. Saami change

A. Frequency
B. Alienable vs. inalienable possession
C. Geography
D. CART analysis of factors
A. Frequency

Does frequency explain the distribution?

• Expectation: High frequency words are shielded from the change, while low frequency words are vulnerable

☛ Is NPx more frequent with high frequency words?
No evidence that high frequency helps to retain NPx
News data: Pearson's correlation = -0.14, p = 0.0001, 95% confidence interval: -0.2 - 0.07
No evidence that high frequency helps to retain NPx

News data: Pearson's correlation = -0.14, p = 0.0001, 95% confidence interval: -0.2 -0.07

Let’s look at high frequency nouns that prefer NPx
All words >100 examples and ≥50% use of NPx in News data

<table>
<thead>
<tr>
<th>Lemma</th>
<th>‘spelling’</th>
<th>total # exx</th>
<th>proportion NPx</th>
</tr>
</thead>
<tbody>
<tr>
<td>preassadieđáhus</td>
<td>‘press release’</td>
<td>293</td>
<td>97%</td>
</tr>
<tr>
<td>reive</td>
<td>‘letter’</td>
<td>133</td>
<td>92%</td>
</tr>
<tr>
<td>virgi</td>
<td>‘job’</td>
<td>140</td>
<td>89%</td>
</tr>
<tr>
<td>āhčči</td>
<td>‘father’</td>
<td>306</td>
<td>83%</td>
</tr>
<tr>
<td>sárdni</td>
<td>‘sermon, speech’</td>
<td>178</td>
<td>81%</td>
</tr>
<tr>
<td>eadni</td>
<td>‘mother’</td>
<td>276</td>
<td>78%</td>
</tr>
<tr>
<td>eallu</td>
<td>‘herd’</td>
<td>104</td>
<td>75%</td>
</tr>
<tr>
<td>viellja</td>
<td>‘brother’</td>
<td>115</td>
<td>71%</td>
</tr>
<tr>
<td>nieida</td>
<td>‘daughter’</td>
<td>139</td>
<td>65%</td>
</tr>
<tr>
<td>bárdni</td>
<td>‘son’</td>
<td>187</td>
<td>64%</td>
</tr>
<tr>
<td>mánná</td>
<td>‘child’</td>
<td>645</td>
<td>62%</td>
</tr>
<tr>
<td>boazu</td>
<td>‘reindeer’</td>
<td>183</td>
<td>58%</td>
</tr>
<tr>
<td>eamit</td>
<td>‘wife’</td>
<td>121</td>
<td>55%</td>
</tr>
<tr>
<td>girji</td>
<td>‘book’</td>
<td>158</td>
<td>53%</td>
</tr>
<tr>
<td>namma</td>
<td>‘name’</td>
<td>220</td>
<td>50%</td>
</tr>
</tbody>
</table>
B. Alienable vs. inalienable possession

Does type of possession explain the distribution?
• Expectation 1: One construction becomes specialized to alienable possession, the other to inalienable possession
• Expectation 2: Shorter (less formal marking) is used for inalienable possession

☛ Is NPx becoming specialized to inalienable possession?
Problem:
What is alienable vs. inalienable?

• No definitive or universal boundary
• Expression of possession is culturally anchored
• (Dahl & Koptjevskaja-Tamm 1998, Kockelman 2009, Aikhenvald 2013: 48-54)
• Core inalienable possession is generally assumed to be Kin + Body (parts)
<table>
<thead>
<tr>
<th></th>
<th>Lemma</th>
<th>total # possessive examples</th>
<th>% NPx</th>
<th>% ReflN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kin:</td>
<td>áhčči “father”</td>
<td>306</td>
<td>83%</td>
<td>17%</td>
</tr>
<tr>
<td></td>
<td>eadni “mother”</td>
<td>276</td>
<td>78%</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>viellja “brother”</td>
<td>115</td>
<td>71%</td>
<td>29%</td>
</tr>
<tr>
<td></td>
<td>nieida “daughter”</td>
<td>139</td>
<td>65%</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>bárdni “son”</td>
<td>187</td>
<td>64%</td>
<td>36%</td>
</tr>
<tr>
<td></td>
<td>mánná “child”</td>
<td>645</td>
<td>62%</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td>eamit “wife”</td>
<td>121</td>
<td>55%</td>
<td>45%</td>
</tr>
<tr>
<td>Verbal creations:</td>
<td>preassadiedáhus “press release”</td>
<td>293</td>
<td>97%</td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td>reive “letter”</td>
<td>133</td>
<td>92%</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td>sórdni “sermon, speech”</td>
<td>178</td>
<td>81%</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>girji “book”</td>
<td>158</td>
<td>53%</td>
<td>47%</td>
</tr>
<tr>
<td>Livelihood:</td>
<td>virgi “position, job”</td>
<td>140</td>
<td>89%</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>eallu “herd, livestock, livelihood”</td>
<td>104</td>
<td>75%</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>boazu “reindeer”</td>
<td>183</td>
<td>58%</td>
<td>42%</td>
</tr>
</tbody>
</table>

Nouns with >100 examples in newspaper corpus and >50% NPx
<table>
<thead>
<tr>
<th>Lemma</th>
<th>total # possessive examples</th>
<th>% NPx</th>
<th>% RefN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Humans, Human Groups, and Kin:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>álbumot “people”</td>
<td>147</td>
<td>4%</td>
<td>96%</td>
</tr>
<tr>
<td>olmmoš “person”</td>
<td>155</td>
<td>5%</td>
<td>95%</td>
</tr>
<tr>
<td>bellodat “political party”</td>
<td>147</td>
<td>6%</td>
<td>94%</td>
</tr>
<tr>
<td>fitnodat “company, firm”</td>
<td>116</td>
<td>7%</td>
<td>93%</td>
</tr>
<tr>
<td>lagamus “next-of-kin”</td>
<td>122</td>
<td>8%</td>
<td>92%</td>
</tr>
<tr>
<td>bearaš “family”</td>
<td>172</td>
<td>26%</td>
<td>74%</td>
</tr>
<tr>
<td>guoibmi “partner”</td>
<td>197</td>
<td>32%</td>
<td>68%</td>
</tr>
<tr>
<td>olmmái “friend”</td>
<td>137</td>
<td>38%</td>
<td>62%</td>
</tr>
<tr>
<td>váhnen “parent”</td>
<td>117</td>
<td>44%</td>
<td>56%</td>
</tr>
<tr>
<td>joavku “group”</td>
<td>243</td>
<td>46%</td>
<td>54%</td>
</tr>
<tr>
<td><strong>Abstract</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dăšši “matter”</td>
<td>167</td>
<td>&lt;1%</td>
<td>&gt;99%</td>
</tr>
<tr>
<td>ovddasvástādus “responsibility”</td>
<td>103</td>
<td>12%</td>
<td>88%</td>
</tr>
<tr>
<td>vásáhus “experience”</td>
<td>157</td>
<td>19%</td>
<td>81%</td>
</tr>
<tr>
<td>kultuvra “culture”</td>
<td>304</td>
<td>27%</td>
<td>73%</td>
</tr>
<tr>
<td>oavil “opinion”</td>
<td>238</td>
<td>28%</td>
<td>72%</td>
</tr>
<tr>
<td>dovđu “feeling”</td>
<td>102</td>
<td>32%</td>
<td>68%</td>
</tr>
<tr>
<td>oaidnu “view”</td>
<td>386</td>
<td>36%</td>
<td>64%</td>
</tr>
<tr>
<td><strong>Property and Products:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dáidda “art”</td>
<td>139</td>
<td>20%</td>
<td>80%</td>
</tr>
<tr>
<td>evttohus “suggestion”</td>
<td>102</td>
<td>25%</td>
<td>75%</td>
</tr>
<tr>
<td>musihka “music”</td>
<td>156</td>
<td>28%</td>
<td>72%</td>
</tr>
<tr>
<td>jurđda “idea”</td>
<td>118</td>
<td>29%</td>
<td>71%</td>
</tr>
<tr>
<td>ruhta “money”</td>
<td>146</td>
<td>31%</td>
<td>69%</td>
</tr>
<tr>
<td>duodji “handicrafts”</td>
<td>102</td>
<td>49%</td>
<td>51%</td>
</tr>
<tr>
<td><strong>Places:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>biras “surroundings”</td>
<td>106</td>
<td>8%</td>
<td>92%</td>
</tr>
<tr>
<td>eana “land”</td>
<td>145</td>
<td>14%</td>
<td>86%</td>
</tr>
<tr>
<td>guovlu “district”</td>
<td>315</td>
<td>14%</td>
<td>86%</td>
</tr>
<tr>
<td>riika “country”</td>
<td>106</td>
<td>17%</td>
<td>83%</td>
</tr>
<tr>
<td>ruoktu “home”</td>
<td>218</td>
<td>47%</td>
<td>53%</td>
</tr>
<tr>
<td><strong>Personal Identity:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>duogāš “background”</td>
<td>104</td>
<td>1%</td>
<td>99%</td>
</tr>
<tr>
<td>giella “language”</td>
<td>462</td>
<td>29%</td>
<td>71%</td>
</tr>
<tr>
<td>eatnigiella “mother tongue”</td>
<td>154</td>
<td>31%</td>
<td>69%</td>
</tr>
<tr>
<td>nákca “strength, ability”</td>
<td>106</td>
<td>39%</td>
<td>61%</td>
</tr>
<tr>
<td><strong>Events and States</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>eallin “life”</td>
<td>320</td>
<td>14%</td>
<td>86%</td>
</tr>
<tr>
<td>dillı “situation”</td>
<td>139</td>
<td>15%</td>
<td>85%</td>
</tr>
<tr>
<td>doaibma “activity”</td>
<td>369</td>
<td>31%</td>
<td>69%</td>
</tr>
<tr>
<td>bargu “work”</td>
<td>979</td>
<td>40%</td>
<td>60%</td>
</tr>
</tbody>
</table>
Distribution of NPx vs. ReflN across semantic classes
Alienable vs. inalienable in North Saami

- Not a clear picture
- NPx is increasingly attracted to Kin over time,
- But NPx is less attracted to Body over time
- ReflN shows no strong pattern, diffuse spread across classes
- This is a complex picture no reducible to alienable vs. inalienable possession
C. Geography

Does the geography of language contact explain the distribution?

• West: North Saami is in contact with Norwegian and Swedish: - possessive suffix

• East: North Saami is in contact with Finnish: + possessive suffix

• Other features, such as placement of adpositions (Janda et al. 2014) show contact-related geographical distribution

Expectation: Possessive constructions should follow the behavior of contact languages

Is NPx used more in the East?

CART analysis shows that geography is a very weak factor
Tagging

- Construction (PossCon): NPx, RefN
- Reference: Anaphoric, Endophoric, Exophoric, Generic
- Possessum (the one that is possessed; PM):  
  - Case: Nom, Acc, Gen, Ill, Com, Loc, Ess  
  - Number: Sg, Pl  
  - Semantic class: Kin, Human, Body...
- Possessor (the one that possesses; PR):  
  - Case: Nom/Verb, Acc, Gen, Ill, Loc  
  - Person and number: 1Sg, 2Sg, 3Sg, 1Du, 2Du, 3Du, 1Pl, 2Pl, 3Pl  
  - Semantic class: Human, Animal, Nature...
- Source, Generation (Old vs. Mid vs. Young), Geography (East vs. West)

See examples illustrating Reference, Possessum Case, and Possessor Case on the handout

Only Anaphoric and Endophoric are used in statistical analysis

“New” vocatives may be emerging among Exophoric uses
Endophoric reference

(2)
(a) Málbmageaidnu han lei ain sin nálldus, ja ulbmil lei dieđusge geahččalit doallat dán buot návccaideasetguin. (AOE: 66)

\[
\begin{align*}
\text{sin} & \quad \text{návccaideasetguin} \\
3\text{P.GEN} & \quad \text{strength.COM.PL.PX.3P}
\end{align*}
\]

“The mining road was still in their possession, and the goal was of course to try to hold onto it with all their strength.”

(b) ... Dušše heasta guođui stállanjálmmes bán̄degeažes. Dat leai iežaset heasta. (HÁG2: 26)

\[
\begin{align*}
iežaset & \quad \text{heasta} \\
\text{refl.GEN.3P} & \quad \text{horse.NOM.SG}
\end{align*}
\]

“There was just a horse grazing by the stable door at the end of a rope. It was their horse.”
Exophoric (deictic) reference

(3)
(a) Na de geahččalii mearrananusvuodamet. (KNT: 124)
   mearrananusvuodamet
   seasickness-resistance.ACC.SG.PX.1P
   “Then it tested our resistance to seasickness.”
(b) ležamet čivggat, liikká jallat go dáččat! (MÁS: 29)
   ležamet čivggat
   refl.GEN.1P kid.NOM.PL
   “Our kids, just as stupid as outsiders!”
(4)
(a) Mąŋii lea nu buorre beassat bidjat sániidis báhpára ala. (KP2: 53)
   sániidis
   word.ACC.PL.PX.3S
   “Many times it is so good to get a chance to put one’s words down on paper.”
(b) Mihá buoret livččii leamaš baicca ruovttus iežas seanŋgas oaddit. (EMV1: 224)
   iežas    seanŋgas
   refl.GEN.3S   bed.LOC.SG
   “It would have been much better to stay home and sleep in one’s own bed.”
Possessum in accusative

(5)
(a) Loahpas **son** vuolggahii **bártnis**... (NT)

```
son   bártnis
3s.nom son.acc.sg.px.3s
```

“Finally he sent his son...”

(b) **Mun** vuolggahan **iežan** ráhkis **bártni**. (NT)

```
Mun   iežan   bártni
1s.nom refl.gen.1s son.acc.sg
```

“I send my dear son.”
CART-analysis

“Classification and regression trees and Random forests”:

– Optimal sorting of data
– Results similar to regression, but appropriate for non-parametric data
– Bootstrapping and measurement of variable importance
CART-analysis for Literary texts + NT (Anaphoric + Endophoric data only)

PossCon ~ PMCase + PMClass + PRCase + Author
Variable importance for Literary texts + NT

PossCon ~ Generation + PMClass + PRCase + PMCase + Geography
CART analysis for News

PossCon ~ PMCase + PMClass + PRPersNum
Measurement of variable importance for News

- PMClass
- PMCase
- PRPersNum
What this analysis tells us

• The most important factors are:
  – Case of possessum and possessor
    >> syntactic fitness
  – Semantic class of possessum
    >> semantic fitness
3. Inherent syntactic fitness

- Case of possessum
- Case of possessor
  - For case-marking of possessum and possessor, we see that ReflN predominates in non-prototypical uses
- Replaceability
  - NPx is always replaceable, ReflN is not

ReflN has greater inherent syntactic fitness
Possessum Case (Literary texts + NT data)

<table>
<thead>
<tr>
<th>Case</th>
<th>ReflN</th>
<th>NPx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acc</td>
<td>1099</td>
<td></td>
</tr>
<tr>
<td>Gen</td>
<td>434</td>
<td></td>
</tr>
<tr>
<td>Loc</td>
<td>397</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>322</td>
<td>145</td>
</tr>
<tr>
<td>Com</td>
<td>303</td>
<td>58</td>
</tr>
<tr>
<td>Nom</td>
<td>78</td>
<td>17</td>
</tr>
<tr>
<td>Ess</td>
<td>15</td>
<td>6</td>
</tr>
</tbody>
</table>
Possessum Case

• Prototypical case for possessum is Accusative
  – ~40% of all uses of both NPx and ReflN have Accusative
• Both NPx and ReflN are robustly attested for Genitive, Locative, Illative, and Comitative
• Nominative and Essive are least prototypical for possessum
  – Here ReflN has a strong advantage

• ReflN is robust in all uses, and especially strong in non-prototypical uses
<table>
<thead>
<tr>
<th>PM Case</th>
<th>NPx</th>
<th>vert %</th>
<th>horiz %</th>
<th>ReflN</th>
<th>vert %</th>
<th>horiz %</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comitative</td>
<td>303</td>
<td>12%</td>
<td>84%</td>
<td>58</td>
<td>6%</td>
<td>16%</td>
<td>100%</td>
</tr>
<tr>
<td>Locative</td>
<td>397</td>
<td>15%</td>
<td>78%</td>
<td>109</td>
<td>12%</td>
<td>22%</td>
<td>100%</td>
</tr>
<tr>
<td>Accusative</td>
<td>1098</td>
<td>43%</td>
<td>77%</td>
<td>334</td>
<td>37%</td>
<td>23%</td>
<td>100%</td>
</tr>
<tr>
<td>Genitive</td>
<td>435</td>
<td>17%</td>
<td>74%</td>
<td>152</td>
<td>17%</td>
<td>26%</td>
<td>100%</td>
</tr>
<tr>
<td>Illative</td>
<td>322</td>
<td>13%</td>
<td>69%</td>
<td>145</td>
<td>16%</td>
<td>31%</td>
<td>100%</td>
</tr>
<tr>
<td>Essive</td>
<td>6</td>
<td>&lt;1%</td>
<td>26%</td>
<td>17</td>
<td>2%</td>
<td>74%</td>
<td>100%</td>
</tr>
<tr>
<td>Nominative</td>
<td>15</td>
<td>&lt;1%</td>
<td>16%</td>
<td>78</td>
<td>9%</td>
<td>84%</td>
<td>100%</td>
</tr>
<tr>
<td>Overall</td>
<td>2576</td>
<td>100%</td>
<td>74%</td>
<td>893</td>
<td>100%</td>
<td>26%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Possessor Case

- Prototypical case for possessor is Nominative/subject-agreement on the finite verb (“Nom/Verb”)
  - 96% of all NPx and 82% of all ReflN uses are Nom/Verb
- ReflN has strong advantage in non-prototypical uses, particularly Locative and Genitive
- ReflN is robust in all uses, and especially strong in non-prototypical uses
<table>
<thead>
<tr>
<th>PR Case</th>
<th>NPx</th>
<th>vert %</th>
<th>horiz %</th>
<th>ReflN</th>
<th>vert %</th>
<th>horiz %</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nominative</strong></td>
<td>1813</td>
<td>71%</td>
<td>79%</td>
<td>475</td>
<td>54%</td>
<td>21%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Verb</strong></td>
<td>658</td>
<td>26%</td>
<td>72%</td>
<td>250</td>
<td>28%</td>
<td>28%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Accusative</strong></td>
<td>46</td>
<td>2%</td>
<td>63%</td>
<td>27</td>
<td>3%</td>
<td>37%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Illative</strong></td>
<td>10</td>
<td>&lt;1%</td>
<td>43%</td>
<td>13</td>
<td>1%</td>
<td>57%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Locative</strong></td>
<td>21</td>
<td>&lt;1%</td>
<td>33%</td>
<td>43</td>
<td>5%</td>
<td>67%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Genitive</strong></td>
<td>18</td>
<td>&lt;1%</td>
<td>19%</td>
<td>76</td>
<td>9%</td>
<td>81%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>2566</td>
<td>100%</td>
<td>74%</td>
<td>884</td>
<td>100%</td>
<td>26%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Replaceability

- **NPx can always be replaced** by either ReflN or null marking of possession or a Genitive pronoun
  - NPx can be replaced by ReflN in exx. (1-12)
  - NPx can also be replaced by Genitive pronoun or Ø, as in:

  *Máhttájeadjíi leat stuirít go oahpaheaddjīs [Original with NPx]*
  *The disciple is not greater than his teacher*

  *Máhttájeadjíi leat stuirít go su oahpaheaddjī [Genitive pronoun]*

  *Máhttájeadjíi leat stuirít go oahpaheaddjī [Ø]*

- But the converse is not true for **ReflN**, which **cannot always be replaced**:

  *Muhto dien ádjagis lea iežas suollemasvuohta. (KP2: 107)*
  *But that spring has its secret."

  *Muhto dien ádjagis lea suollemasvuohtas.*
Summary for Syntactic Fitness

• ReflN is well-represented across full syntactic spectrum
• ReflN is predominant in peripheral uses
• NPx is always replaceable
• ReflN is sometimes irreplaceable
• Recall also that ReflN predominates in Generic Reference (a type of impersonal construction)
4. Inherent semantic fitness

Distribution across semantic classes for possessum

- **NPx** focuses on “core possession” of **Kin**, **Body**, and **Property**
  - This focus grows tighter over time

- **ReflN** shows more **even distribution** across semantic classes
Distribution of NPx vs. ReflN across semantic classes

Old

NT

Mid

Young

News
5. Morphological complexity in the face of intense contact

- NPx is much more **morphologically complex** than ReflN
- North Saami is under **intense pressure** from both **Germanic** (Norwegian and Swedish) and **Finnish**
- Many North Saami speakers have reclaimed the language as adults
- Language contact and 2nd language learners can lead to **morphological simplification** (Trudgill 2002, McWhorter 2007, Bentz & Winter 2013)
- In this situation, there may be an advantage for the **morphologically simpler form**: ReflN
North Saami on Trudgill’s (2011) scale

Trudgill (2011) has a 6-point scale
1 = strongest trend toward complexification
6 = strongest trend toward simplification

North Saami receives a “4” due to:
- small size
- loose network
- high level of contact

Expectation: Reduction in paradigmatic redundancy, loss of morphological categories compensated for by an increase in transparent analytical structures (like ReflN)
RefIN is built entirely of otherwise existing morphology

RefIN = Gen/Acc reflexive pronoun + substantive

- Gen/Acc reflexive pronoun has 9 forms:
  - Sg1 iežan
  - Sg2 iežat
  - Sg3 iežas
  - Du1 iežame
  - Du2 iežade
  - Du3 iežaska
  - Pl1 iežamet
  - Pl2 iežadet
  - Pl3 iežaset

- A noun has 10 forms:
  - guoibmi “partner”
  - NomSg guoimmi
  - GenSg=AccSg guoimmi
  - IllSg guoibmái
  - LocSg guoimmis
  - ComSg=LocPl guimmiin
  - NomPl guoimmit
  - GenPl=AccPl guimmiid
  - IllPl guimmidi
  - ComPl guimmiiguin
  - Ess guoibmin
Gen/Acc reflexive pronoun is something one needs for other purposes...

This pronoun does its expected jobs aside from expressing possession

Pronominal use of reflexive pronoun:

- Son  ii  orron
- 3s.NOM  NEG.IND.PRS  seem.IND.PRT.CONNEG
- dov dame  ie žas  spead jal is...
- recognize.AKTIO.ES SIVE  REFL.ACC.3S  mirror.LOC.SG

“She didn’t seem to recognize herself in the mirror...”
NPx requires a large quantity of unique morphology -- See Handout

- [N. Saami has 3 types of noun stems: vowel stems, consonant stems, and contracted stems]
- NPx expands the paradigm of a noun from 10 forms to 91
  - see 81 additional forms for guoibmi “partner” on handout with forms involving NPx-unique morphology boldfaced
- There are two full sets of 9 possessive suffix forms, one set attaches after vowels and one set attaches after consonants (compare Gen/AccSg with IllSg in handout)
- NPx conditions unique changes in case endings: Illsg -i/-ii > -s/-asa-; LocSg -s/-is > -st/-isttá/-istti-; IllPl -ide/-iidda > -idas/-iiddás-
- With NPx certain case endings have additional morphophonemic variants depending on the type of stem: LocSg, Com Sg=LocPl, AccPl=GenPl, IllPl
- NPx conditions additional morphophonemic alternation in the stem, e.g. i ~ á
- NPx requires insertion of the possessive suffix inside the Comitative Plural ending
6. A new vocative?

Nominative + possessive suffix may be evolving into a new Vocative

In preceeding statistics we excluded Exophoric Reference

Nearly all examples of Exophoric use are NPx, and most of those are what we call “Exophoric Vocative”:

*Gula, mánážan.* (KP2: 6)

mánážan
child.DIM.NOM.SG.PX.1S

“Listen, oh my (little) child.”

Note diminutive suffix
-š > -ž intervocalically
Can a possessive form become a vocative?

• The claim that a possessive construction could develop into a vocative is not unprecedented

• Michael (2013: 157) documents the use of the First Person Singular possessive construction with close kinship terms, as in *ina* “my mother” in Nanti (spoken in Peruvian Amazonia) as vocatives
North Saami noun paradigm + first person possessive suffix

<table>
<thead>
<tr>
<th></th>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genitive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accusative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comitative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essive</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
North Saami noun paradigm + first person possessive suffix

<table>
<thead>
<tr>
<th></th>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genitive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accusative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comitative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essive</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Robustly attested for all cases except Nominative and Essive (Essive is rare overall)
North Saami noun paradigm + first person possessive suffix

Fully realized as vocative in 100% of uses when PM is Nom Pl and PR is 1P sg & pl, high style register

<table>
<thead>
<tr>
<th></th>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genitive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accusative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comitative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essive</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
North Saami noun paradigm + first person possessive suffix

When PM is Nomsg, 92% exophoric, and when PR is 1Psg, 83% of these are vocative

<table>
<thead>
<tr>
<th>Case</th>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genitive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accusative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comitative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essive</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Are these forms leaving the paradigm?
Of 61 examples of Exophoric Vocative use of 1sg NPx found in literary texts:

<table>
<thead>
<tr>
<th>Semantic class</th>
<th>Human names</th>
<th>Kin</th>
<th>Human Friend</th>
<th>Animal</th>
<th>Other (‘box’)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of examples (exx with diminutives)</td>
<td>37 (36 dim.)</td>
<td>14 (12 dim.)</td>
<td>6 (2 dim.)</td>
<td>3 (3 dim.)</td>
<td>1 (1 dim.)</td>
</tr>
</tbody>
</table>

The only name that occurs without a diminutive is Jesus, which occurs only once. One “Friend” is actually a fox that is addressed as a friend and conversed with. One “Animal” is actually a little girl who is addressed as a “little bird”. The other two animals are a lamb (in a quote from the Saami translation of the song Baa, baa, black sheep), and a cat (a house pet).

Kin (non-dim.): siessal ‘niece/nephew’, eadni ‘mother’
North Saami “new” vocatives in -žan

-žan (DIM.PX.1S) “my dear/little” may be functioning as a unit for deriving vocative forms

This form may be undergoing a morphological reinterpretation as a vocative derivational morpheme in extrasentential contexts
Comparison with Russian “new” vocative
Danièl’ 2009: “недопадежная форма”
Andersen 2012: “transcategorial lexical derivative”

<table>
<thead>
<tr>
<th></th>
<th>Russian new vocative</th>
<th>N. Saami new vocative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not perform syntactic functions of nouns</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Conative (calling) and phatic (speaker’s intent) functions</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Pragmatically defined lexemes used in direct address</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Not modified by adjectives</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>
New vocative in Russian (and in North Saami) is not modified by adjectives

• The “old” vocative did allow modification:
  – Вечный Боже
  – Милосердный Господи
  – Преподобный Отче
  – Святый Владыко

• But the “new” vocative doesn’t:
  – *Милый Дим
  – *Дорогая Свет
  – *Красивый Саш
What does the new vocative mean for the N. Saami noun paradigm?

- If indeed the vocative uses of NPx are becoming detached from the nominal paradigm and serving as lexemes in a different part of speech, this development could be further undermining the integrity of the NPx paradigm and thus further disadvantaging NPx vis a vis the ReflN construction.

- The tendency of inflectional forms to get “recycled” into new roles when paradigms are under pressure due to historical erosion is well documented, as both Lass (1990) and Janda (1996) have shown with reference to numerous languages.
Conclusions:
Many factors can contribute to an S-curve

- Replacement NPx > ReflN is an ongoing language change shaped as an S-curve
- This change is not easily explained by frequency, alienable vs. inalienable, or language contact
- Possible factors:
  - ReflN is more flexible syntactically
  - ReflN is more flexible semantically
  - ReflN is morphologically simpler
  - Paradigm of NPx is undermined by evolution of new Vocative
Take your linguistic data to the bank!

TROLLing

t is an international archive of linguistic data and statistical code
• is built on the Dataverse platform from Harvard University and complies with DataCite, the international standard for storing and citing research data
• is compliant with CLARIN (Common Language Resources and Technology Infrastructure in the EU), the EU research infrastructure for language-based resources
• assigns a permanent URL to each post
• uses metadata that ensures visibility and retrieval through international services
• is professionally managed by the University Library of Tromsø and an international steering committee.

Authors of scholarly works around the world are welcome to deposit their data in TROLLing, along with citations of their publications. Conversely, authors can reference their data by citing their TROLLing posts in their articles.

Visit us at
http://opendata.uit.no/
http://site.uit.no/trolling/

“In the age of Big Data, the creation of a general repository of datasets and statistical models for linguistic research is a welcome development. It will stimulate more research and new analyses.” -- Maria Polinsky, Director of the Polinsky Language Sciences Lab at Harvard University

“TROLLing will revolutionize research in linguistics and drive the discipline forward: making data publicly available significantly reduces the risk of bogus results, avoids duplication of efforts and facilitates large-scale analysis of meticulously annotated datasets.” -- Dagmar Divjak, Reader, Russian and Slavonic Studies, University of Sheffield

“TROLLing is crucial for the field of linguistics as it takes the next steps towards becoming more empirical. For the first time, it will be possible for researchers to deposit their primary linguistic data (the foundation for all research) in a central freely accessible on-line repository so that colleagues around the world have access to the same data. This invaluable resource will promote ongoing academic exchange on an empirical basis.” -- Hans Boas, Professor, Department Germanic Studies and the Department of Linguistics, University of Texas at Austin

“TROLLing is exactly what our field needs - with the potential to become the most useful data resource in linguistics.” -- Marit Westergaard, Professor, Center for Advanced Study of Theoretical Linguistics, UiT The Arctic University of Norway

“I would like to recommend that scholars deposit their data at TROLLing. I strongly believe that sharing of data and methods for analysis can play a key role in the growth of cognitive linguistics. It will be beneficial for the community of linguists to have a single searchable repository rather than having data scattered about in many places.” -- Laura Janda, Professor, Center for Advanced Study of Theoretical Linguistics, UiT The Arctic University of Norway