Inuktitut mood-agreement interactions as contextual allomorphy

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1 Introduction

• We argue for the existence of what we term **valency-sensitive contextual allomorphy**, wherein allomorph selection is controlled by the **number** of sub-triggers within the conditioning environment.

• In particular, we identify two cases of allomorph selection that are dependent on the number of **φ-agreement morphemes** present (1).

\[
X \leftrightarrow \begin{cases} 
A / \phi_1 \\
B / \phi_1 \phi_2 
\end{cases}
\]

• **Case 1**: Arregi & Nevins’ (2012) analysis of Zamudio Basque.

  ◦ A&N claim that in Zamudio, the auxiliary alternates depending on the morphology of the verb.
  ◦ The auxiliary form -o- surfaces the presence of two argument clitics, as in (2).

\[
\text{indabak } \text{iminten } d-o \quad \text{-[CL1 t]} \quad \text{-[CL2 s]} \quad \text{-nean}
\]
\[
\text{beans.ABS } \text{put } \quad \text{L-AUX } \text{-[CL1 ERG.1.SG]} \quad \text{-[CL2 3.PL]} \quad \text{-IN.SG}
\]
\[
\text{‘when I serve beans’}
\]

  ◦ Conversely, the auxiliary form -a- surfaces in the presence of only one argument clitic...
  ◦ ...independent of the argument structure of the verb.
  ◦ Consider the contrast between the two verbs in (3), both syntactically transitive:
(3)  a. *itxao-ngo d-o-tzu-u
    wait-FUT L-AUX-CL.DAT.2-CL.ERG.2.PL
   Intended: ‘We will wait for you.’

   b. itxao-ngo y-a-tzu-e
    wait-FUT L-AUX-CL.DAT.2-CL.DAT.PL
   ‘We will wait for you.’

   ◦ (3a) is ungrammatical, as Zamudio does not allow 1st person ergative/dative clitics in
     the presence of a 2nd person clitic (participant dissimilation).
   ◦ Claim: As a repair, the 1st person ergative clitic in (3a) undergoes a postsyntactic
     deletion process (Obliteration), resolving the conflict between the two clitics, with the
     result in (3b).
   ◦ The argument structure in (3a) and (3b) is the same, but the allomorph -a of the auxil-
     iary, typically used for intransitive verbs, is selected in (3b).
   ◦ Why? Because Obliteration has affected the morphology on the auxiliary, leaving it
     with only one argument clitic; the auxiliary must therefore be realized as the intransitive
     allomorph, since two argument clitics are required for it to be realized as transitive -o-.
   ◦ Again, this is in spite of the fact that the example above is technically transitive.

• Today’s goals:
  ◦ Identify another instance of valency-sensitive allomorphy, based on verbal mood and
    agreement morphemes in Inuktitut.
  ◦ Show that an allomorphic approach captures patterns in Inuktitut that might otherwise
    appear to be idiosyncratic.
  ◦ Show that—just like in Zamudio Basque—this alternation does not track syntactic tran-
    sitivity (in the argument structural sense), but rather the number of agreement mor-
    phemes adjacent to the allomorph.

• Roadmap:
  ◦ Introduce the relevant basics of Inuktitut
  ◦ Discuss well-behaved mood paradigms in the language
  ◦ Motivate a “valency-sensitive” allomorphy analysis of Inuktitut mood morphology based
    on the irregular mood paradigms
  ◦ Place this discussion in the context of general approaches to allomorphy
2 Overview of Inuktitut

- Inuktitut is an agglutinative language in the Eskimo-Aleut language family.
  - We focus on the Arctic Quebec dialect (data from Dorais 1988 unless otherwise noted).
- Verbs cross-reference at least person/number features of the subject.
  - (In most cases) if an object is present, verbs also cross reference the person/number of the object.
    - Possible person features: first, second, third.
    - Possible number features: singular, dual, plural.
- There are several different moods in Inuktitut; different moods may also have different morphological agreement paradigms. The ones we will be discussing are in bold:¹
  - Indicative, participial, contemporative, dubitative, interrogative, imperative, becausative, conditional, negative indicative/interrogative/imperative (Compton 2012, citing Dorais 2003).
    - Indicative; participial: ≈ Declarative.
    - Contemporative: Used to describe an event taking place simultaneously with another event.
    - Dubitative: Expresses the speaker’s uncertainty/doubt towards the proposition.
- Morpheme order: The basic verb structure assumed in the literature for Inuktitut verbs is given in (4).
  - We assume with Compton (2014) that Inuktitut agreement is in the CP-domain, along with mood.
  - Note that the agreement form in (4a) is a portmanteau morpheme. We assume that this morpheme is decomposable into two heads probing separately for subject and object φ-features.

(4) taku- ja- ra
    see- PART.TR- 1SG/3SG
    ‘I see him.’

- In (4), the mood morpheme can be broken down into two parts (following, e.g., Spreng 2012):
  - j: expresses the participial mood itself
  - a: marks the (in)transitivity of the verb

¹Feel free to ask us about the rest during the question period. The ones discussed today are those that fit most straightforwardly with our analysis. Several other ones, such as the becausative, conditional, and some of the negative moods, are amenable to or compatible with our analysis, though do not follow as straightforwardly.
Spreng (2012): “This vowel is considered part of the mood component of the agreement morphology.”

We thus assume the following structure (note, we label the projection hosting the vowel as $\mu P$):

\[ (5) \]
\[
\begin{array}{c}
\text{Agr}_O P \\
\text{Agr}_S P \\
\mu P \\
\text{MoodP} \\
\text{VP} \\
\sqrt{\text{ROOT}}
\end{array}
\]

\[
\begin{array}{c}
\text{Mood} \\
[\mu] \\
[1SG] \\
[3SG]
\end{array}
\]

3 Baseline cases

- **Baseline Case**: The alternation between -u and -a seems to straightforwardly map to transitivity in certain moods.

  - (At least) The indicative and participial moods behave this way.
  - **Intransitive** verbs have the following morphological footprint: verb-MOOD-\text{-u}-AGR
  - **Transitive** verbs have the following morphological footprint: verb-MOOD-\text{-a}-AGR

\[ (6) \]

Indicative transitivity tracking:

a. intransitive $\rightarrow$ -u-
   
   taku-v-\text{-u}-nga
   
   see-IND-\text{-u}-1SG
   
   ‘I see.’

b. transitive $\rightarrow$ -a-
   
   taku-v-\text{-a}-git
   
   see-IND-\text{-a}-1SG/2SG
   
   ‘I see you.’

\[ (7) \]

Participial transitivity tracking:

a. intransitive $\rightarrow$ -u-
   
   taku-j-\text{-u}-nga
   
   see-PART-\text{-u}-1SG
   
   ‘I see.’

b. transitive $\rightarrow$ -a-
   
   taku-j-\text{-a}-git
   
   see-PART-\text{-a}-1SG/2SG
   
   ‘I see you.’

- Moods like the indicative and participial make it seem that the vowel alternation is directly linked to transitivity, e.g.,

  - -u is a morpheme that marks the verb as intransitive.
  - -a is a morpheme that marks the verb as transitive.
However, this generalization unravels once we look beyond these cases.

- **In the contemporative mood**, the verb always co-occurs with -u, regardless of transitivity.

<table>
<thead>
<tr>
<th>Example</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. taku-l-u-ta</td>
<td>see-CTMP-u-1PL</td>
</tr>
<tr>
<td>b. taku-l-u-nga</td>
<td>see-CTMP-u-1SG</td>
</tr>
<tr>
<td>‘While we see’</td>
<td>‘While (someone) sees me’</td>
</tr>
</tbody>
</table>

- **In the dubitative mood**, the verb always co-occurs with -a, regardless of transitivity.

<table>
<thead>
<tr>
<th>Example</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. taku-mm-a-ngarma</td>
<td>see-DUB-a-AGR</td>
</tr>
<tr>
<td>b. taku-mm-a-ngakku</td>
<td>see-DUB-a-1SG/3SG</td>
</tr>
<tr>
<td>‘(I wonder if) I see.’</td>
<td>‘(I wonder if) I see him.’</td>
</tr>
</tbody>
</table>

These counterexamples suggest that the -u/-a alternation isn’t really about transitivity or argument structure per se.

- **Our proposal**: The alternation tracks morphological valency, i.e., whether there are one or two agreement morphemes present on the verb.

  - Specifically, the vowel is allomorphically conditioned by the morphological valency of the conditioning environment adjacent to it, by the rule in (10).

  - This amendment makes subtly different predictions which we explore below.

<table>
<thead>
<tr>
<th>Rule</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>V ⇔ { u / φ₁ } { a / φ₁ φ₂ }</td>
<td></td>
</tr>
</tbody>
</table>

### 4 Counterexample 1: the contemporative mood

- Unlike the baseline cases, in which the mood vowel alternates, the contemporative mood invariably surfaces with -u.

<table>
<thead>
<tr>
<th>Example</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. taku-l-u-nga</td>
<td>see-CTMP-u-1SG</td>
</tr>
<tr>
<td>b. taku-l-u-si</td>
<td>see-CTMP-u-2PL</td>
</tr>
<tr>
<td>‘While I see.’</td>
<td>‘While X sees you all.’</td>
</tr>
</tbody>
</table>

- **However**: The agreement morpheme in the contemporative mood tracks only the ABS argument (see, e.g., Pittman 2005). This is illustrated in (12):
Transitive contemporative agreement:

<table>
<thead>
<tr>
<th></th>
<th>1s</th>
<th>1d</th>
<th>1p</th>
<th>2s</th>
<th>2d</th>
<th>2p</th>
<th>3s</th>
<th>3d</th>
<th>3p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erg</td>
<td>-nga</td>
<td>-nga</td>
<td>-nga</td>
<td>-nga</td>
<td>-nga</td>
<td>-nga</td>
<td>-nga</td>
<td>-nga</td>
<td>-nga</td>
</tr>
<tr>
<td>Person/number</td>
<td>nuk</td>
<td>nuk</td>
<td>nuk</td>
<td>nuk</td>
<td>nuk</td>
<td>nuk</td>
<td>nuk</td>
<td>nuk</td>
<td>nuk</td>
</tr>
<tr>
<td>Abs</td>
<td>-ta</td>
<td>-ta</td>
<td>-ta</td>
<td>-ta</td>
<td>-ta</td>
<td>-ta</td>
<td>-ta</td>
<td>-ta</td>
<td>-ta</td>
</tr>
<tr>
<td>Abs</td>
<td>-tit</td>
<td>-tit</td>
<td>-tit</td>
<td>-tit</td>
<td>-tit</td>
<td>-tit</td>
<td>-tit</td>
<td>-tit</td>
<td>-tit</td>
</tr>
<tr>
<td>Abs</td>
<td>-tik</td>
<td>-tik</td>
<td>-tik</td>
<td>-tik</td>
<td>-tik</td>
<td>-tik</td>
<td>-tik</td>
<td>-tik</td>
<td>-tik</td>
</tr>
<tr>
<td>Abs</td>
<td>-si</td>
<td>-si</td>
<td>-si</td>
<td>-si</td>
<td>-si</td>
<td>-si</td>
<td>-si</td>
<td>-si</td>
<td>-si</td>
</tr>
<tr>
<td>Abs</td>
<td>-gik</td>
<td>-gik</td>
<td>-gik</td>
<td>-gik</td>
<td>-gik</td>
<td>-gik</td>
<td>-gik</td>
<td>-gik</td>
<td>-gik</td>
</tr>
<tr>
<td>Abs</td>
<td>-git</td>
<td>-git</td>
<td>-git</td>
<td>-git</td>
<td>-git</td>
<td>-git</td>
<td>-git</td>
<td>-git</td>
<td>-git</td>
</tr>
</tbody>
</table>

- (12) suggests that contemporative verbs show agreement with only one argument.
- Nevertheless, overt agents of these verbs take ergative case, and overt patients take absolutive case. This is shown in (13) (data from West Greenlandic; Bittner 1994):

(13) arna-p atisassa-t irrur-l-u-git irinarsur-p-u-q
woman-ERG clothes.ABS.PL wash-CTMP-u-3PL sing-IND-u-3SG
‘While woman was washing the clothes, she sang.’ (Bittner, 1994)

- These are syntactically transitive verbs, but with only one agreement slot.
- Proposal:
  - Data in this section suggest that the -$u/-a$ alternation is not conditioned on argument structure...
  - or on syntactic transitivity, given that the syntactically transitive contemporative paradigm always surfaces with the -$u$ vowel.
- Instead: Two alternative explanations for the -$u/-a$ alternation:
  - The vowel alternation tracks the number of arguments being agreed with.
  - The vowel alternation tracks morphological valency.

- We now consider a mood that will allow us to adjudicate between the two possible analyses.

5 Counterexample 2: the dubitative mood

- The dubitative mood is, on the surface, the mirror of the contemporative mood.
- Whereas the contemporative mood invariably surfaces with -$u$, the dubitative mood surfaces with -$a$ in both intransitive and transitive contexts.
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(14) a. taku-mm-a-ngarma see-DUB-a-1SG ‘(I wonder if) I see.’ b. taku-mm-a-ngat see-DUB-a-3SG ‘(I wonder if) He sees.’ c. taku-mm-a-ngakku see-DUB-a-1SG/3SG ‘(I wonder if) I see him.’

- **Key observation:** All of the data points in (14) contain the sequence -nga; the table in (15) additionally illustrates that this sequence is found throughout the paradigm. Crucially, this sequence is used elsewhere in the language to reference first person singular, as shown in (16):

(15) **Intransitive dubitative paradigm:**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>sg</td>
<td>nga-rma</td>
<td>nga-rpit</td>
<td>nga-t</td>
<td>nga-mi</td>
</tr>
<tr>
<td>du</td>
<td>nga-nnuk</td>
<td>nga-ttik</td>
<td>nga-tik</td>
<td>nga-mik</td>
</tr>
<tr>
<td>pl</td>
<td>nga-tta</td>
<td>nga-tsi</td>
<td>nga-ta</td>
<td>nga-rmik</td>
</tr>
</tbody>
</table>

(16) a. taku-j-u-nga see-PART-u-1SG ‘I see.’ b. taku-l-u-nga see-CTMP-u-1SG ‘While I see...’

- **Proposal:** The sequence -nga is a 1SG morpheme, inherent to the dubitative mood.
  
  ◦ The dubitative mood expresses the speaker’s uncertainty or ignorance towards \( p \).
  
  ◦ We suggest that the speaker-oriented nature of this mood is contributed by the presence of a 1SG morpheme.

- **Consequence:** All dubitative mood/agreement combinations are by default morphologically bivalent, even when syntactically intransitive—\textit{intransitive} dubitative forms consist of a subject agreement morpheme and an inherent 1SG morpheme -nga.
  
  ◦ Crucially, the presence of -nga in conjunction with the true verbal agreement is enough to trigger the allomorph -a, even when the verb is otherwise intransitive.

(17)

<table>
<thead>
<tr>
<th></th>
<th>Agr(_S)P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Part(_P)</td>
</tr>
<tr>
<td>( \mu)P</td>
<td>Agr(_S)</td>
</tr>
<tr>
<td></td>
<td>[( \phi)]</td>
</tr>
<tr>
<td></td>
<td>Mood(_P)</td>
</tr>
<tr>
<td>( \mu)</td>
<td>Part [1SG]</td>
</tr>
<tr>
<td></td>
<td>a</td>
</tr>
<tr>
<td></td>
<td>Mood [DUB]</td>
</tr>
<tr>
<td></td>
<td>XP</td>
</tr>
<tr>
<td></td>
<td>( \ldots)</td>
</tr>
</tbody>
</table>
We reject an alternative whereby the 1SG -nga cross-references an argument in the illocutionary space above CP.

- This morpheme does not behave like the agreement morphemes that cross-reference syntactic arguments.
- It does not undergo Fusion with the adjacent agreement morphology to produce a portmanteau. Compare the dubitative with a true case of cross-clausal agreement in (18):

(18) Jaani-up kapi-qqu-nira-lauq-t-a-a  tukt Miali-mu
Jaani-ERG stab-NR.PST-say-PST-PART-a-3SG/3SG caribou.ABS Mary-OBL
‘John said last week that Mary stabbed the caribou.’ (Pittman, 2009)

- The 1SG -nga in the dubitative does not undergo Fusion because it accompanies the dubitative.

- The dubitative mood thus provides evidence that the vowel alternation tracks morphological valency, not syntactic transitivity, and not the number of arguments being agreed with.
  - The 1SG -nga does not cross-reference a syntactic argument yet counts toward the total number of φ-morphemes in the conditioning environment.

- The allomorphy rule, repeated:

(19) \[ V \leftrightarrow \{-u / \phi_1 \} \]

6 Allomorphy, more generally

- Our analysis bears on current treatments of the nature of contextual allomorphy.

- While it is generally assumed that contextual allomorphy is strictly local, occurring under sisterhood between structurally adjacent nodes (Adger et al., 2001; Embick, 2010, 2012), our analysis counters this view.
  - The Inuktitut vowel alternation accesses both the immediately higher node and the node immediately above that.
  - More generally, the very idea that allomorphy may be sensitive to the total number of conditioning nodes is fundamentally incompatible with a strictly local view of contextual allomorphy.

- **Spans:** Merchant (2015) argues that the conditioning environment for contextual allomorphy is a span—a series of projections, rather than necessarily a single node.

- The adjacency requirement for contextual allomorphy remains; the edge of the span must be adjacent to the conditioned morpheme.
  - If allomorph selection appears to be conditioned by a non-adjacent element, that is because this element is within a span that is adjacent to the morpheme in question.

- The allomorphy-conditioning span in Inuktitut, then, is the agreement domain above mood:
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(20) a. Agr$_S$P
    \[\mu P \rightarrow \text{MoodP} \quad \text{XP} \quad \text{Mood} \[\text{Mood}\] \quad \mu u \quad \text{Agr}_S \[\phi\]
    
b. Agr$_O$P
    \[\mu P \rightarrow \text{MoodP} \quad \text{XP} \quad \text{Mood} \[\text{Mood}\] \quad \mu a \quad \text{Agr}_S \[\phi\] \quad \text{Agr}_O \]

- Following from this, we suggest that the Basque data from Arregi & Nevins (2012) shown in §1 is also amenable to a span-based treatment.

7 Conclusion

- We started with a mood vowel alternation that appeared to be conditioned on transitivity...
- But showed that amending this generalization slightly allows us to account for some otherwise idiosyncratic patterns in Inuktitut.
- Comparing the data and rule from Inuktitut with the data from Basque suggests that both languages are amenable to a common analysis: allomorphy that is triggered by the number of agreement morphemes present (morphological valency).
- Further work:
  - In this presentation, we have only addressed four of the many moods in Inuktitut.
  - The remaining moods may also be compatible with our analysis, although some may require a bit more legwork.
  - Take for instance, the indicative mood (one of our baseline cases): under negation, both transitive and intransitive indicative verbs surface with the allomorph -a.

(21) a. taku-v-\(\mu\)-nga
    see-IND-\(\mu\)-1SG
    ‘I see.’

b. taku-nngi-l-\(\mu\)-nga
    see-NEG-IND-\(\mu\)-1SG
    ‘I do not see.’

(22) a. taku-v-\(\alpha\)-ra
    see-IND-\(\alpha\)-1SG/3SG
    ‘I see it.’

b. taku-nngi-l-\(\alpha\)-ra
    see-NEG-IND-\(\alpha\)-1SG/3SG
    ‘I do not see it.’

- This can be accounted for if we take negation to ‘count’ as a subtrigger for the overall conditioning environment.
• Something similar has been attested in Yimas (Foley, 1991; Phillips, 1995); as (23) shows, the ABS morpheme cross-referencing an intransitive subject is realized as ERG in the presence of negation.

(23) Yimas (Foley, 1991)
   a. ama-wat
      1SG.ABS-went
      ‘I went.’
   b. ta-ka-wat
      NEG-1SG.ERG-went
      ‘I didn’t go.’

• In future work, we hope to further investigate the other moods of Inuktitut and their interaction with negation.

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