A Distributed Morphology Analysis of Karuk Pronominal Affixes

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Outline

Karuk: Biographical Info

- Spoken by the Karuk tribe along the Klamath River in northern California

- The number of speakers was placed at "about ten elders" in 2000 (Macaulay), may be less or more due to revitalization programs

- Documented primarily by William Bright

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- Karuk is a language isolate, often presented as part of the Hokan family (Dixon and Kroeber, 1913)

- Arguably, the language has no known relatives

- Culture similar to Yurok (Algic) and Hupa (Athabaskan); these languages and a few neighbors may form a *sprachbund* of sorts

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Outline

ϕ-Feature System

  Person: 1, 2, 3

Number: singular, plural

> **Binary ϕ-Feature System**
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> - **Person:** ±1, ±2, ±3
> - **Number:** $\pm$pl

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Person: 1, 2, 3

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> - **Person:** ±1, ±2, ±3
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Outline

Introducing the Affix Paradigm

Ta-da! These are the agreement markers of the positive verbal paradigm. (There is also a negative one and an optative one.)

pos	1sg	1pl	2sg	2pl	3sg	3pl
1sg	–	–	*nú-*	*ki·k--ap*	*ni-*	*ni-*
1pl	–	–	*nú-*	*ki·k--ap*	*nú-*	*nú-*
2sg	*ná-*	*kín-*	–	–	*ʔi-*	*ʔi-*
2pl	*kaná-*	*kín-*	–	–	*ku-*	*ku-*
3sg	*ná-*	*kín-*	*ʔi--ap*	*ki·k--ap*	*ʔu-*	*ʔu-*
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Some observations:

- Agreement mainly in the prefix

- φ-Agreement with **subject OR object**, except for *ka-ná-* (XPL > 1SG)

- Some affixes only for subject or object agreement, some for both

- *-ap* only appears together with 2nd-person markers *ʔi-* and *ki·k-*

- Intransitive forms show the same marking as 3SG-object forms

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2sg	ná-	kín-	–	–	ʔi-	ʔi-
2pl	kaná-	kín-	–	–	ku-	ku-
3sg	ná-	kín-	ʔi--ap	ki·k--ap	ʔu-	ʔu-
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2pl	ka-ná-	kín-	–	–	ku-	ku-
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Morpheme Structure

$$\left[\begin{array}{c} \text{NOM} \\ \dots \end{array}\right] + \left[\begin{array}{c} \text{ACC} \\ \dots \end{array}\right] + \sqrt{Root}$$

Outline

Subject Agreement

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2sg	*ná-*	*kín-*	–	–	*ʔi-*	*ʔi-*
2pl	*ka-ná-*	*kín-*	–	–	*ku-*	*ku-*
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Affixes in the subject's Agree head:

- *ka-* agrees with subject for [+pl]

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pos	1sg	1pl	2sg	2pl	3sg	3pl
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1pl	–	–	nú-	ki·k--ap	nú-	nú-
2sg	ná-	kín-	–	–	ʔi-	ʔi-
2pl	ka-ná-	kín-	–	–	ku-	ku-
3sg	ná-	kín-	ʔi--ap	ki·k--ap	ʔu-	ʔu-
3pl	ka-ná-	kín-	ʔi--ap	ki·k--ap	kun-	kín-

Affixes in the objects's Agree head:

- *ná-* and *kín-* solely and consistently show up with 1st-person objects
- When the object is the 2nd person, *ʔi-* and *ki·k-* show up together with *-ap*; when *ʔi-* shows up alone, *-ap* is absent

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Putting it together

pos	1sg	1pl	2sg	2pl	3sg	3pl
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1pl	–	–	*nú-*	*ki·k--ap*	*nú-*	*nú-*
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Morphemes

$$\left[\begin{array}{c} \textsc{nom} \\ \cdots \end{array} \right] + \left[\begin{array}{c} \textsc{acc} \\ \cdots \end{array} \right] + \sqrt{Root}$$

Outline

Vocabulary Items

kín-	↔	[ACC +1 +pl]
ná-	↔	[ACC +1 −pl]
kun-	↔	[NOM +3 +pl]
ku-	↔	[NOM +2 +pl]
ni-	↔	[NOM +1 −pl]
ʔu-	↔	[NOM +3 −pl]
nú-	↔	[NOM +1]
ka-	↔	[NOM +pl]
-ap	↔	[NOM] (+2)
ʔi-	↔	[+2 −pl]
kiꞏk-	↔	[+2 +pl]
kín-	↔	[+3 +pl][+3 +pl]

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1. Karuk
   - Background Information
   - Classification

2. ϕ-Features and Agreement
   - ϕ-Features
   - Verbal Agreement

3. Structure
   - Morpheme Structure
   - Agreement Structure
   - Vocabulary Items

4. **Analysis**
   - **X>1sg**
   - X>1pl
   - X>2
   - X>3sg

The problem

ka-'s presence means the subject Agree morpheme is available, yet only the very nonspecific VI ka- $\leftrightarrow$ [NOM+pl] is inserted

subject	form
sg	ná-
pl	ka-ná-

Possible solutions

- Making *ka-* more specific by making it [NOM−1+pl] would be somewhat arbitrary, and still would not block subject marking for singular subjects

- Specifying *ka-* for context (/[____NOM][+1−pl]) would be somewhat less arbitrary, but not very elegant, and again would not block singular subject marking

- Impoverishment could both block more specific subject prefixes (such as *ku-* ↔ [NOM+2+pl]) and block singular subject prefixes

Person Impoverishment Rule

$$\text{PERS} \rightarrow \varnothing/[\text{NOM}\_\_\_\_][\text{ACC}+1]$$

(We shall see this is fine for forms with a 1st-person plural object as well, hence no number specification in context.)

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The problem

kín-

When the object is 1PL, we get nothing but object agreement. We need to block all subject markers in this context.

Possible solutions

- As above, we can impoverish subject agreement. However, person impoverishment is not enough, as then we get *ka-* here as well. We would have to additionally impoverish number.

- Another option is a rule of Fusion that fuses the two agreement heads in this context. Subject's Agree would still lack person, so *kín-* would be the most specific VI for the Fused head.

- Fusion of both Agree heads could be a mandatory operation. Such an analysis is plausible, and solves other problems as well – but it is inelegant in requiring a lot of Fission rules to allow for the several cases of multiple affixation.

Fusion Rule

$$
\left[\begin{array}{c} \text{NOM} \\ \ldots \end{array}\right] + \left[\begin{array}{c} \text{ACC} \\ +1+\text{pl} \end{array}\right] \rightarrow \left[\left[\begin{array}{c} \text{NOM} \\ \ldots \end{array}\right]\left[\begin{array}{c} \text{ACC} \\ +1+\text{pl} \end{array}\right]\right]
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The problems

sub/obj	**2sg**	**2pl**	**3**
1sg	nú-	kiˑk--*ap*	ni-
1pl	nú-	kiˑk--*ap*	nú-
3	ʔi--*ap*	kiˑk--*ap*	...

- *-ap* is highly unspecific, yet it is the only subject marker that shows up together with 2nd-person object markers *ʔi-* and *kiˑk-*

- *nú-* is less specific than *ni-*, but we get *nú-* for 2nd-person singular objects

- Where *nú-* expresses subject agreement, there is no object marker – we would expect *ʔi-*

The problems

sub/obj	2sg	2pl	3
1sg	*nú-*	*ki·k--ap*	*ni-*
1pl	*nú-*	*ki·k--ap*	*nú-*
3	*ʔi--ap*	*ki·k--ap*	...

- *-ap* is highly unspecific, yet it is the only subject marker that shows up together with 2nd-person object markers *ʔi-* and *ki·k-*

- *nú-* is less specific than *ni-*, but we get *nú-* for 2nd-person singular objects

- Where *nú-* expresses subject agreement, there is no object marker – we would expect *ʔi-*

The problems

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The solutions

Number Impoverishment Rule

$$\pm\mathsf{pl} \rightarrow \varnothing/[\text{NOM}\_\_\_\_][\text{ACC}+2]$$

This rule is simple, similar to the previous rule of Impoverishment, and explains both why unspecific *nú-* and unspecific *-ap* are inserted for 2nd-person objects.

-ap's specification for $(+2)$ as a secondary feature means it can only be inserted after a 2nd-person marker, so it will follow *ʔi-* and *ki·k-* but not *nú-*.

However, it provides no reason why *nú-* appears without object marking. This requires a separate solution.

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The solutions

- One solution which does not fit into our current framework would be a constraint-based approach saying that we wish to avoid two prefixes, and that we prefer 1st-person agreement over 2nd-person. However, let's leave that for another analysis

- We could posit a null marker that blocks *ʔi-* through specifity, but this is highly inelegant (and I don't believe in null VIs)

- Finally, we can posit yet another rule of Impoverishment, which would have to be very specific:

Specific Impoverishment

$$[\text{acc}-\text{pl}] \rightarrow \varnothing / [\text{nom}+1][\_\_\_\_]$$

(This affects 3rd-person object agreement as well, but in a way that is harmless, as we shall see.)

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Outline

Agreement in 3ʳᵈ-person singular-object forms

Remember that these forms always display subject agreement, and are identical to the corresponding intransitive forms. There are a few possible explanations for this:

- This pattern suggests a strong hierarchy which prefers VIs with 1ˢᵗ or 2ⁿᵈ-person features over those without

- A simple explanation may simply be that there is no VI with [ACC+3+sg], but this would be explaining a pattern of agreement by conspiracy of VIs, which is not great

- Finally, we can posit another rule of Impoverishment that removes 3ʳᵈ-person object features in transitive contexts

None of these hypotheses has a clear advantage. Likely as not, a person hierarchy causes a bias in the Vocabulary or in Impoverishment, leading to this agreement pattern.

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And that's it.