Morphological Argument referencing by itself: evidence from Soranî Kurdish

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As Haspelmath (2013) points out, modeling the morphological referencing of semantic arguments (what Haspelmath calls argument indexing) has been challenging for syntactic theories. This is true whether morphological argument referencing is treated as argument realization in the sense of Levin & Rappaport Hovav (2005) when no external NP co-occurs (see a.o. Bresnan & Mchombo (1987) and Van Valin & Lapolla 1997) or as agreement with syntactic phrases that can be empty categories (see a.o. Baker 1996). In this paper, we argue that morphological argument indices are the exponents of inflectional features, i.e. they require a morphomic level of the kind advocated in Aronoff (1994). Our argument is based on data from Soranî Kurdish. We show that Soranî morphological argument referencing displays a triple-dissociation between argument-structure obliqueness, valence, and morphological paradigms and argue that this dissociation provides evidence from distinguishing between indices of syntactic arguments (elements of argument structure) and morphomic inflectional features.

Soranî can morphologically reference one (1) or two (2) arguments. An external NP can co-occur with morphological argument indices for subjects (3), suggesting that the affixes are, in traditional terms, agreement markers. Object morphological argument indices, on the other hand, are in complementary distribution with external object NPs (4), suggesting object referencing affixes are incorporated pronouns in the terminology of Bresnan & Mchombo (1987) who discuss a similar distinction in Chichewa.

1 minal-ek-an/(ewan) e-ˇro-n  
  kid-DEF-PL/they  IPFV-go.PRS-3PL:S  
  'The kids/they are leaving.'

2 e-t-bîn-ê  
  IPFV-2SG:P-see.PRS-3SG:A  
  'S/he (will) see you.'

3 (êma) nan e-xo-yn  
  we  food IPFV-eat.PRS-1PL:S  
  'We are eating food.'

4 koˇr-eke  e-bîn-im  
  boy-DEF.SG IPFV-see.PRS-1SG:A  
  'I (will) see the boy.'

In (2), the affix that indexes the more oblique nominal syntactic argument (henceforth, the argument-structure object or AS-object) is the second morph of the verb form whereas the affix that indexes the less oblique nominal syntactic argument (henceforth, the argument-structure subject or AS-subject) follows the stem. In the past tense, the order of affixes that index the AS-object and AS-subject switches: the former follows the stem, while the latter precedes it (5)-(6). We call affixes that expound argument indices that precede the verb stem mobile morphs and affixes that expound argument indices that follow the verb stem verb bound morphs. The phonological make-up of the two classes of affixes differs (except in the first and second person singular), just as their morphotactics. Verb bound and mobile morphs thus belong to two distinct paradigm classes, which we call the verb bound argument referencing (vb-arg-ref) and mobile morph argument referencing (mm-arg-ref) classes, respectively.

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1All examples in this work are from fieldwork data unless stated otherwise. Soranî speakers were all from Suleymani in Iraq or Baneh in Iran.
We just saw that mobile morphs can precede the stem. They can also occur outside of the verb form on an object NP as the contrast between (7) and (8) shows. Example (9) shows that mobile morphs that occur outside of the verb form are affixed on the last word of the NP object (the ezafe suffix included in seyrî—the deverbal complement of the light verb—indicates that what follows modifies the deverbal). Finally, note that the suffixation of the mobile morph at the right edge of the object NP applies regardless of whether the NP corresponds to a participant argument (10) or is the deverbal complement of a light verb (9).

(7) hel-it-girt-in
PV-2SG:A-pick.PST-3PL:P
‘You picked them up.’ (Thackston 2004)

(8) hermê-ek-an-yan beş kird
pear-DEF-3PL:A share do
‘They shared the pears.’ (Mohammadirad 2020)

(9) [seyr-î wêne-kan-yan] kird
look-EZF photo-DEEP-3PL:A do.PST
‘They looked at the photos.’

(10) kořeke-m bînî
do.1SG:ABS give
‘I saw the boy.’

The contrast between the verb-internal subject agreement marker in (11) and the verb-external subject agreement marker in (12) demonstrates that the presence of an external NP object, rather than semantic dyadicity, determines the occurrence of the mobile morph outside the verb.

(11) (ewan)/dar-ek-an kewt-in
they/tree-DEF-PL fall.PST-3PL:S
‘They/the trees fell.’

(12) pyase-man kird
walk-1PL do.PST
‘We walked.’

In cases where the proto-patient of a complex predicate or the recipient of a three-place predicate is a bound pronominal, the incorporated object pronoun or subject agreement marker is suffixed to the final word of the object NP, depending on the verb’s tense, as shown in examples (13) and (14) (only examples that involve subject agreement markers are provided).

(13) [çend wulax-i čak-i] bo kirî-n
some horse-EZF good-3SG:A for buy.PST-3PL:A
‘He bought some fine horses for them.’ (Mackenzie 1961)

(14) minal-êk-yan jinêw-i pê-da-m
child-INDF-3PL.POSS curse-3SG:A ABS-P give.PST-1SG:P
‘One of their kids swore at me.’ (adapted from Mohammadirad 2020)

Previous work on Soranî (Bonami & Samvelian 2008) has suggested that mobile morphs that occur verb externally are suffixed to the last word of the first constituent of the VP. Further data suggests that this hypothesis is incorrect. Rather, verb-external mobile morphs suffix to the last word of the least oblique NP complement. Consider examples (15) and (16). In (15) the mobile morph corresponding to the subject agreement marker is suffixed to the last word of the first constituent of the first VP conjunct, as it is an NP. But the subject agreement marker suffices to the deverbal qise in the second VP conjunct, as the first constituent of that VP is a PP. (16)—which involves a VP anaphor—shows that the PP constituent leget mindat-ekan ‘with the kids’ is part of the VP constituent headed by the light verb kird ‘did’.

(15) [çend wulax-i čak-i] bo kirî-n
some horse-EZF good-3SG:A for buy.PST-3PL:A
‘He bought some fine horses for them.’ (Mackenzie 1961)

(16) minal-êk-yan jinêw-i pê-da-m
child-INDF-3PL.POSS curse-3SG:A ABS-P give.PST-1SG:P
‘One of their kids swore at me.’ (adapted from Mohammadirad 2020)
To model Soranî morphological argument referencing, we make use of the distinction between argument-structure, valence and inflectional structure within the representation of lexical entries that is characteristic of Head-driven Phrase Structure Grammar (Müller et al. 2021), with each kind of information encoded in the value of distinct attributes: \textsc{arg-st} for argument structure, \textsc{subj} and \textsc{comps} for valence, and \textsc{infl} for inflectional structure, as shown in (17). The first member of the list value of the \textsc{arg-st} attribute is the \textsc{as}-subject and the second NP member of that list is the \textsc{as}-object. The \textsc{subj} and \textsc{comps} valence lists encode those members of the \textsc{arg-st} list that are realized syntactically within the local projection of a head. The Argument Realization Principles (Davis, Koenig & Wechsler 2021: p. 320) ensure that by default, the first member of \textsc{arg-st} is the member of the \textsc{subj} list and the rest of the \textsc{arg-st} list is identical to the \textsc{comps} list. This default is overriden in the case of so-called incorporated pronouns (e.g., members of \textsc{arg-st} of sort \textsc{pro-aff}) which are non-canonical members of \textsc{arg-st}, see Miller & Sag (1997). The attribute \textsc{infl}—following Crysmann & Bonami (2016) and Crysmann (2021)—includes information about the set of morphosyntactic features that the word expounds (\textsc{ms}), the set of exponence rules of a particular verb form instantiates (\textsc{rr}), and the list of morphs that are the result of these rules (\textsc{mph}), as shown in (17). (18) indicates the structure of argument index features we assume. Critically, exponence rules only have access to morphosyntactic features (\textsc{ms}) information.

\begin{equation}
\begin{bmatrix}
\text{infl} & \begin{bmatrix}
\text{mph} & \begin{bmatrix}
\text{ms} & \text{set} \\
\text{rr} & \text{set}
\end{bmatrix}
\end{bmatrix} \\
\text{subj} & \text{list} \\
\text{comps} & \text{list} \\
\text{arg-st} & \text{list}
\end{bmatrix}
\end{equation}

(17)

\begin{equation}
\begin{bmatrix}
\text{arg-ref} \\
\text{agr} & \text{agr}
\end{bmatrix}
\end{equation}

(18)

The relation between \textsc{as}-subjects, \textsc{as}-objects and morphological argument indices is accounted for by constraints such as (19) and (20) (we omit similar constraints for brevity). Such constraints identify the indices of syntactic NP arguments and \textsc{AGR} indices of argument referencing inflectional features (identically numbered tags such as $\boxed{1}$ indicate identity). (19) says that the index of the \textsc{as}-subject of transitive verbs that are in the past tense is identical to the \textsc{agr} value of an argument referencing inflectional feature of sort \textsc{mm-arg-ref} (i.e., a feature that belongs to the mobile morph argument referencing paradigm). (20) says that the index of the non-canonical \textsc{pro-aff} \textsc{as}-object of transitive verbs that are in the past tense is identical to the \textsc{agr} value of an argument referencing inflectional feature of sort \textsc{vb-arg-ref} (i.e., a feature that belongs to the verb bound morph argument referencing paradigm). Constraints for transitive verbs that are in the present tense are identical aside from the fact that the argument index corresponding to the \textsc{as}-subject is now of sort \textsc{vb-arg-ref} and that of the \textsc{as}-object to which corresponds a morphological argument referencing feature in (20), \textsc{pro-aff}, ensures the complementary distribution between argument indices that reference \textsc{as}-objects and external NPs, as per the Argument Realization Principles laid out in Davis, Koenig & Wechsler (2021).
(19) Transitive verb subject agreement past:

\[
\begin{array}{c}
\text{TNS}_{\text{ARG-ST}} \text{ past } \langle \text{NP} \text{, NP} \rangle \rightarrow \text{INFL } \text{ MS set } \text{[mm-arg-ref]} \text{[AGR]} \text{[MM-ARG]} \text{[V]]}
\end{array}
\]

(20) Object incorporated pronoun past:

\[
\begin{array}{c}
\text{TNS}_{\text{ARG-ST}} \text{ past } \langle \text{NP} \text{, NP} \text{pro-aff} \rangle \rightarrow \text{INFL } \text{ MS set } \text{[vb-arg-ref]} \text{[AGR]} \text{[VB-ARG]} \text{[V]]}
\end{array}
\]

The distinction between argument referencing inflectional features (members of the morphomic \text{INFL} level) and argument structure members is critical to our model of the dissociation between argument structure, valence, and inflectional argument indices. As just mentioned, exponence rules are only sensitive to properties of inflectional features (members of \text{MS}): whether an argument index corresponds to the \text{AS-subject} as per constraint (19) or the \text{AS-object} as per constraint (20) is irrelevant. The same rules apply to \text{mm-arg-ref} and \text{vb-arg-ref} argument indices whether they correspond to \text{AS-subjects} or \text{AS-objects}. We illustrate how conceiving of argument indices as part of a morphomic level accounts for the dissociation of argument structure and exponence status by presenting the constraints that ensure mobile morphs are second position affixes whether they occur within the verb or at the right edge of the object NP.

The rule in (21) (adapted from Crysmann 2021: p. 984) expounds mobile morph argument referencing features as second position affixes (using the positional feature \text{1ST-PC}, as suggested by Crysmann, to model their exponence in second position irrespective of what occurs in the first position, e.g. a negation prefix, a present tense marker, or the stem).

(21) Exponence rule for argument indices of sort \text{mm-arg-ref}:

\[
\begin{array}{c}
\text{MUD} \quad \text{mm-arg}
\end{array}
\]

\[
\begin{array}{c}
\text{AGR} \quad \text{PERS} \quad \text{3}
\end{array}
\]

\[
\begin{array}{c}
\text{NUM} \quad \text{pl}
\end{array}
\]

The rule in (21) applies when the mobile morph is verb external as well as when it is verb internal as it is in second position in both cases. When a verb subcategorizes for an object NP the constraint in (22) overrides the default that every inflectional feature of a word is expounded by a rule targeting that feature (the morphosyntactic feature under discussion or \text{MUD}, Crysmann & Bonami 2016). (22) says that words that subcategorize for an object NP do not expound their \text{mm-arg-ref} argument referencing feature and that that feature is part of the (right) edge feature of the object NP.

(22) Transitive word mobile morph inflection:

\[
\begin{array}{c}
\text{tr-wd} \rightarrow \text{INFL } \text{ MS set } \{\text{mm-arg-ref}} \text{[MM-ARG]} \text{[V]}\text{[MM-ARG]} \text{[V]}\}
\end{array}
\]

We cannot go into the details of how the introduction of the right edge feature \text{mm-arg-ref} in (22) ensures the exponence of mobile morphs of transitive verbs at the right edge of object NPs. Suffice it to say that we use the approach to edge inflexion proposed in Miller & Halpern (1993) and adapted to Head-driven Phrase Structure Grammar by Crysmann (2010). Under this approach, right (left) edge features introduced on a constituent (the object NP in this case) “percolate” to the right-most (left-most) terminal of that constituent, on which they are then expounded. The actual realization of the right edge \text{mm-arg-ref} feature itself is due to a word-to-word rule (provided in (23)) that creates a stem from the phonology of a word (such a rule is needed as the \text{mm-arg-ref} feature...
can be suffixed to a word that does not inflect or is already fully inflected). The \textit{mm-arg-ref} edge feature is expounded together with this new stem, as it would if the feature was expounded verb internally (i.e., by the same exponence rules, e.g., (21)). (23) says that the phonology of a word (\textcircled{2} in (23)) becomes the phonology of the stem feature of a word that also includes a \textit{mm-arg-ref} feature (via edge feature “percolation”). Rules such as (21) ensure that this \textit{mm-arg-ref} feature is expounded as a second position affix, i.e. after the phonology of the last word of the object NP.

(23)

\[
\begin{array}{c}
\text{wd-to-wd-infl} \\
\text{INFL} \\
\text{EDGE}\text{MARK}\text{RIGHT} \\
\text{DAUGHTERS}
\end{array}
\begin{aligned}
\text{MS} & \left\{ \text{\textcircled{2}mm-arg-ref, } \text{\textcircled{3}} \right\} \\
\text{RR} & \left\{ \text{MUD} \left[ \text{\textcircled{2}mm-stem-lid, } \text{\textcircled{2}STEM, } \text{\textcircled{2}MPH, } \text{\textcircled{2}PH} \right] \right\} \text{\textcircled{4}set} \\
\text{word} & \text{\textcircled{2}}
\end{aligned}
\]

Morphological argument referencing has for a long time been treated on a par with syntactic valence saturation (at least, in the absence of co-nominals) or as isomorphically “recapitulating” syntactic structure (Baker 1985, Embick 2015). Even Haspelmath, who properly diagnoses some of the issues with both approaches, ends up treating argument indices as “expressing” arguments just as syntactic subjects and complements do (Haspelmath 2013: p. 224). Sorani Kurdish makes clear argument indices are morphomic in nature as the paradigm class these indices belong to and the expounding of their person and number features is insensitive to properties of the syntactic arguments or valence requirements they are co-indexed with. The same verb bound or mobile morph forms and morphotactics (including verb external morphotactics for mobile morphs) can correspond to \textit{AS}-subjects as well as \textit{AS}-objects and appear either with a co-nominal (for \textit{AS}-subjects) or be in complementary distribution with a co-nominal (for \textit{AS}-objects). Such dissociation between argument structure, valence, and morphological argument referencing is not only incompatible with a presumed “isomorphism” between syntactic structure and inflectional structure, contra Baker and Embick, it also runs afoul of any approach that treats overt expression of subjects and objects and morphological argument referencing as two distinct ways of realizing \textit{AS}-subjects and \textit{AS}-objects, of satisfying valence requirements, or of expressing arguments.

The solution we suggest in this paper is to treat argument indices as part of a morphomic level: whatever correspondence between indices of \textit{AS}-subjects (and overt subject NPs) and \textit{AS}-objects and inflectional indices is orthogonal to the rules of exponence that account for the form and morphotactics of inflectional indices. Ever since the analysis of head-marking languages and so-called non-configurationality in the late 70s and early 80s (see, among others, Davies (1981) for Choctaw, Jelinek (1984) for Warlpiri, and Nichols (1986) for head-marking vs. dependent marking languages), morphological argument referencing has been compared to syntactic valence saturation. What our paper shows is that it is time to think of morphological argument referencing in itself and separately from syntactic arguments and valence saturation and to only compare it to other inflectional processes.
References


