# What does being a noun or verb mean?

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In introductory linguistic classes, we teach about parts of speech by pointing out that syntactic or morphological distributions can target distinct classes of lexical items. So, number marking in English singles out the class of nouns morphologically and the combination a lexical item with articles singles out nouns syntactically. Such distributional facts justify the inclusion in English lexical items of the distinction between *noun* or *verb* as values of the HEAD feature. But is the inclusion of distinct HEAD values universal? There are two ways in which distinct *noun* and *verb* sorts could not be universal. One is that there are no clear distributional facts to justify two classes of lexical items and the other that the distributional facts that warrant distinguishing two classes of lexical items should not be modeled via HEAD feature values. Simplifying somewhat, Koenig & Michelson (2014) argue that the syntax of Oneida (Northern Iroquoian) supports the first kind of argument against the universality of parts of speech because there is no syntactic selection in Oneida and, as a result, no use for the identification of the value of HEAD features between lexical items and phrases they are part of. But, as Evans (2000) points out, morphological and syntactic part-of-speech distinctions do not always coincide. Indeed, while there has been disagreement on whether there is a *syntactic* distinction between nouns and verbs in Iroquoian (see Sasse 1993 vs. Mithun 2000), all Iroquoianists to date assume a morphological distinction between nouns and verbs. In this paper, we provide morphological arguments of the second kind against the universality of the distinction between *noun* and *verb* HEAD values. More specifically, we argue that inflection clearly distinguishes between two classes of lexical items in Oneida, but that labels like *noun* and *verb* are redundant and misleading as the lexical classes are semantically transparent, in contrast to what they are in languages like English.

Iroquoian parts of speech are traditionally partitioned into nouns, verbs (both of which inflect), and uninflected particles. We concentrate on inflecting lexical items in this paper. The basic structure of nouns and verbs since Chafe (1967) is something like (1) and (2), where *base* is the locus of most of derivation and the suffixes and prefixes listed are, broadly speaking, inflectional. Pronominal prefixes reference (up to two) animate semantic arguments; pronominal prefixes that reference one animate semantic argument belong to two distinct paradigm classes, the so-called Agent and Patient classes. Typically, membership in this class, while motivated semantically, is not predictable (Koenig & Michelson, 2015). Pre-pronominal prefixes are optional and form a position class template with pronominal prefixes and stems (Diaz et al., 2019).

(1) [**(prepronominals)-pronominal**-[$V_{base}$-**aspect**]$_{stem}$]$_{word}$

(2) [ **pronominal**-[$N_{base}$-**noun.suffix**]$_{stem}$ ]$_{word}$

There are clear reasons to distinguish morphologically between "nouns" and "verbs" in Iroquoian. For example only "nouns" can take possessive prefixes or incorporate into a "verb" and only "verbs" can take aspect suffixes. So, distributional criteria justify partitioning inflecting lexical items into two classes. But, calling these classes *noun* or *verb* would be misleading and miss important differences between the grammatical basis of the partition of lexical items into "nouns" and "verbs" in languages like English and Oneida. Inflection in Oneida is sensitive to the ontological sort of what lexical items describe, objects or situations,

as well as the adicity of the primary relation that is part of a lexical item's semantic content. Traditional labels such as 'noun' or 'verb', while convenient, miss the sensitivity of Oneida inflection to these two cross-cutting classifications as well as their strictly semantic nature.

We model the distinction between ontological sort and adicity of the primary relation within HPSG by relying on the distinction between INDEX and KEY used in Koenig & Davis (2006). The distinction is similar to the distinction between parameters and restrictions going back to Pollard & Sag (1987) or between discourse referents and predicative conditions within DRT (Kamp & Reyle, 1993).[1] But, and critically for our model of Oneida inflection, the value of KEY is only one of the multiple relations or predicative conditions a single lexical item may include in its semantic content. The value of KEY is the predicative condition that is singled out for grammatical purposes (linking in Koenig & Davis' work, inflection in our paper). What is critical to model Oneida inflection, then, is the distinction between (i) what kind of entity a lexical item describes, (ii) number of animate arguments of the predicative conditions that help describe it and, in cases where the semantic contribution of a lexical item is complex, (iii) which predicative condition is relevant for grammatical purposes.

Table 1 lists the major inflectional properties of Oneida and the classes of lexical items they apply to in terms of values of INDEX and KEY attributes, respectively. The INDEX column indicates which sort the value of INDEX must belong to (if applicable); the KEY column indicates which class of relations the value of KEY belongs to (if applicable). A blank empty cell indicates the absence of constraints and a grey empty cell indicates that the set of lexical items targeted by the property must be listed and cannot be defined intensionally.

Table 1 demonstrates that inflection in Oneida is sensitive to both ontological sort, i.e. what kind of entity a lexical item describes (an object or a situation) (properties 1-5 and 11) and the nature of the lexical item's primary predicative condition (properties 5-8, and 10). Given the complexity of Iroquoian morphology, we cannot provide details about most inflectional properties listed in the table (all inflectional properties mentioned in Table 1 have received an explicit HPSG analysis and formalization). We focus in this abstract on the interaction of constraints on the values of INDEX and KEY that involve relational nouns. Relational nouns are particularly relevant in this context as they describe objects, but do so with the help of a dyadic relation.

We start with the observation that "nouns" in Oneida can be possessed, which is marked by the fact that the pronominal prefix encodes the possessor of the noun's referent, as shown in (3). Possessed nouns contribute relational content, but they describe an object, so there is no glide in (3) (had the lexical described a situation, the pronominal prefix form would have been *wak-*, as shown in (4)). Possessed nouns can also be incorporated (as other "noun" bases can), as illustrated in (5)-(6). When they are, it is the possession relation that matters for pronominal prefix inflection, as shown by the fact that it is the possessor argument that the pronominal prefix references and the fact that the lexical assignment of the root verb to a paradigm class (Agent or A in the case of the verb *-a-* 'size.of', see (7)) can be overridden by possession-specific rules for assignment of a lexical to a paradigm class (property 10 in Table 1): the pronominal prefix *hoti-* in (5) belongs to the Patient paradigm class as houses are alienably possessed, but the prefix *ye-* in (6) belongs to the Agent paradigm class, as body-parts are inalienably possessed.

We model the possessor marking and override of the root's paradigm class exemplified in (5) and (6) through the notion of KEY shift. As Koenig & Davis (2006) have shown, sometimes two variants of a lexical item (valence alternations in their analysis of English) differ in the value of their KEY. The same is true, we argue, for the incorporation of possessed nouns into verbs. The possessor is marked in (5) and (6) and there is a change in pronominal prefix paradigm class because it is the possession relation that is now the value of the verb's KEY. But, KEY shift does not change the ontological status of the verb, it is still

[1] We use throughout this abstract the term *predicative condition* rather than the more common *relation*, as this latter term would be ambiguous in the context of Oneida where adicity of the predicative condition matters.

| | *Inflectional properties* | INDEX constraints | KEY constraints |
|---|---|---|---|
| 1 | Some pronominal prefixes do not have a glide word-initially | Object | |
| 2 | Pronominal prefixes can have a word-initial glide | Situation | |
| 3 | Negation involves the use of the negative particle *yah* together with the particle *tekʌ́* | Object | |
| 4 | Negation involves the use of the negative particle *yah* together with the prepronominal prefix *teʔ-* | Situation | |
| 5 | Possessive pronominal prefixes can attach to the stem | Object | Possession |
| 6 | Reflexive prefixes can attach to the base | | Dyadic relation (minus possession) |
| 7 | Transitive pronominal prefixes can attach to the stem | | Dyadic relation (minus possession) |
| 8 | Pronominal prefixes reference the possessor and only the possessor | | Possession |
| 9 | Stems fall into either the Agent or Patient paradigm classes | | |
| 10 | Agent vs. Patient paradigm class is determined by the (in)alienability of the possession relation | | Possession |
| 11 | Bases can occur in one aspect or all three aspects | Situation | |

Table 1: Inflectional properties and the sorts of INDEX and KEY values they select

a situation description. The form of the pronominal prefix is thus that appropriate for lexical items that describe situations: it does not lack a glide (see (8)).

The negation of possessed nouns displays the same interaction between INDEX and KEY. There are, in general, two ways of encoding negation in Oneida, as properties 3 and 4 suggest. Property 3, illustrated in (9), is true of lexical items that describe objects; property 4, illustrated in (10), is true of lexical items that describe situations. Interestingly, possessed nouns can participate in both patterns, as shown in (11) and (12). (11) is the expected and more usual pattern for object descriptions. We propose that (12) results from the application of a lexical rule targeting relational nouns—possessed nouns and for some speaker kinship terms—that adds an equality predicative condition to the meaning of the relational noun. The possession relation is still the KEY of this derived situation description, as evidenced by the fact that the possessor is marked, but, as the derived lexical item describes a situation, the pronominal prefix takes the form appropriate for situation descriptions and negation also takes the form appropriate for situation descriptions.

The preceding description of two interactions between the inflectional properties listed in Table 1 illustrates the cross-cutting semantic classification of lexical items relevant for Oneida inflection as well as the importance of distinguishing between INDEX and KEY since the values of these two attributes are targeted by distinct inflectional properties. Importantly, the analysis of Oneida inflection we sketched does not make reference to *noun* and *verb* as parts of speech. It is reductionist and eliminates any reference to *noun* and *verb* as two distinct sorts of HEAD values. The advantage of eliminating *noun* and *verb* as morphological parts of speech is evident when one compares the analysis we propose in this paper to the analysis of kinship terms in Koenig & Michelson (2010). Koenig & Michelson focuses on four morphological properties of kinship terms from the list in Table 1: properties 1 and 3 which they label *nominal* properties and properties 6 and 7 which they label *verbal* properties. They propose that kinship terms form a mixed category in the sense of Malouf (2000). Koenig & Michelson's proposal is descriptively adequate but does not explain why kinship terms have the nominal properties or verbal properties they have. In the model of Oneida inflection that we propose, kinship terms have properties 1 and 3 because they describe one member of the kinship relation (i.e., the value of their INDEX is of sort *object*); they have properties 6 and 7 because the value of their KEY is a dyadic relation. In other words, the semantic content of kinship terms predicts their inflectional properties and stipulating, as Koenig & Michelson do, that they are *nominal* and *verbal* as well as what inflectional properties are associated with the sorts *nominal* and *verbal* is unnecessary.

Overall, our paper illustrates how morphological part-of-speech information is redundant in Oneida as the classes of lexical items that are targeted by inflectional properties can be defined on strictly semantic terms. Labels such as *noun* and *verb* would miss the cross-cutting classification of lexical items into ontological sorts and semantic types and lead to the kind of stipulation of putative mixed categories proposed in Koenig & Michelson for kinship terms. More generally, the morphological behavior of Oneida lexical items suggests that there are two kinds of lexical partitions that distributional criteria can lead to. One, the most frequent kind by far, is one in which the partition does not reduce to semantic criteria (at least under standard semantic analyses) or is semantically opaque.[2] It is illustrated by English, for example. The other, quite rare we suspect, is one in which the partition reduces to agreed upon semantic criteria or is semantically transparent. It is this latter kind that the Oneida lexicon exemplifies. For such languages, labels such as *noun* or *verb*, while pedagogically useful, are linguistically misleading as they obscure their redundancy or that they function differently in the grammar than in more well known languages like English.

[2]Our use of the term *standard* is meant to recognize analyses of English such as Langacker (1987) and Chaves (2013) that try to reduce its part-of-speech distinctions to semantic categories. Irrespective of the success or failure of these attempts, the semantic properties at stake in these analyses are subtle and not standard semantic fare. The kind of semantic distinctions at play in Oneida, in contrast, are rather coarse and agreed upon by almost all semanticists.

(3) Í· né· **ak**-kʌ́h-aʔ thi·kʌ́.
FIRST.PERSON assertion 1SG.POSS-blanket-NSF that
'It's my blanket.'

(4) **wak**-atleʔ-sl-a-ká·te-ʔ
1SG.P-grandparent.grandchild-NMZR-JN-have.many-STV
'I have many grandchildren'

(5) yah teʔwé·neʔ tsiʔ ni-**hoti**-núhs-a-hseʔ tsiʔ nú· ni-**hati**-nákle-ʔ kʌ́·,
it's incredible how PART-3M.DP.P-house-size.of-STV.PL where PART-3M.PL.A-reside-STV y'know
'it's incredible how big their houses were where they lived,'

(6) Kʌh né· n-aʔte-**ye**-ká·l-a-hseʔ.
this, yea assertion PART-DL-3FI.A-eye-size.of-STV.PL
'Her eyes were THIS big.'

(7) Kháleʔ n cottage cheese kʌh ni·-**w**-á-·seʔ, ké·yaleʔ né· tsiʔ
and cottage cheese this, yea PART-3Z/N.SG.A-size.of-STV.PL I remember assertion because
oye·lí· né· kwénis.
ten assertion pennies
'And cottage cheese was THIS big, I remember because it was ten cents.'

(8) **wak**-ahtahkw-aksʌ-hseʔ
1SG.P-shoes-bad-STV.PL
'I have bad shoes'

(9) Yah né· **o**-tsí·tsi-ʔ té·kʌ thi·kʌ́.
not assertion 3Z/N.SG.P-flower-NSF it's not that
'That's not a flower.'

(10) yah teʔ-**wak**-núhs-ot-eʔ
not NEG-1SG.P-house-stand-STV
'I don't have a house'

(11) Yah né· í· **ak**-kʌ́h-aʔ té·kʌ thi·kʌ́.
not assertion FIRST.PERSON 1SG.POSS-blanket-NSF it's not that
'It's not my blanket.'

(12) Yah né· í· **teʔ-wak**-kʌ́h-aʔ thi·kʌ́.
not assertion FIRST.PERSON NEG-1SG.POSS-blanket-NSF that
'It's not my purse/blanket.'

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