

# Deconstructing SYNTAX

There are at least two ways in which the description of understudied languages can contribute to theories of syntax. The first is to tell us about the relative distribution of syntactic features across extant natural languages. The second is to challenge what we assume to be the hallmark of the syntax of natural languages. In this paper, we present a description of the syntax of Oneida, a Northern Iroquoian language, that makes this second kind of contribution to theories of syntax. In a couple of recent papers (Koenig and Michelson 2012, Koenig and Michelson 2014), we have claimed that Oneida syntax is *direct* rather than *selectional*: Oneida phrases are not built around one daughter selecting one or more other daughters and that the relation between daughters is strictly semantic, i.e. is not mediated by syntactic selection. In this paper, we go further and argue that there is no need for any syntactic features in Oneida. In HPSG terms, there is no need for a SYN(TAX) attribute in the representation of Oneida words and phrases.

For concreteness, we assume the type declaration in Sag (2012) for the value of the SYN attribute, i.e. syntactic categories of type *syn-obj*. In that ontology (and leaving aside issues of feature geometry for now), there are four kinds of syntactic features (we use the expression *syntactic feature* here to cover attributes and types within HPSG or Sign-Based Construction Grammar): (i) features that determine local selection of dependants by heads; (ii) part-of-speech features (features that distinguish or are specific to verbs, nouns, . . .); (iii) features that determine non-local selection of unbounded dependants; (iv) marking features. Our claim is that a comprehensive grammar of Oneida can be developed that makes no use of these features.

## 1 No need for local selection

In our previous publications, we have claimed that no word or phrase locally selects for other words or phrases. In other words, there is no need to record on words or phrases their local combinatorial potential (through ARG-ST and VAL attributes and the like). We cannot go into the details of our arguments here, but we summarize their logic:

- Oneida has inflectional processes that require an ordering of semantic arguments, i.e. to distinguish between a verb's proto-agent like and proto-patient like semantic arguments.
- Oneida does not have any morpho-syntactic lexical processes in the sense of Ackermann (1992) that manipulate or otherwise make reference to an ordering of semantic arguments: No passive, no antipassive, no inverse, no valence alternations, . . . Operations that alter a putative argument-structure are non-existent.
- The relation between external phrases and semantic heads (predicates in First-Order Predicate Logic) does not have any of the hallmarks of selection: External phrases are not obligatory (and in fact they are relatively rare), their order with respect to the verb or noun is purely pragmatic (Mithun 1987), and the relation between the index of an external phrase and that of the verb or noun's argument is not identity, as illustrated in (1).
- There is no need to refer to the relative obliqueness of semantic arguments *or* their expression. Binding is a derivational process and typical subject-object asymmetries do not hold in Oneida (see Baker 1991 for Mohawk), see the condition C violations in the elicited (2).

- (1) John wa-hy-atlanay $\Delta$ hn-á'                      lohsótha.  
 John FACT-3M.DU.A-go.to.church-PNC his grandfather  
 ‘John and/with his grandfather went to church.’
- (2) Wa-hak-lihwísa?ahs-e?                      tsi?  $\Delta$ -hak-kalatuhs-e?                      lake?níha ayólhane?  
 FACT-3M.SG>1SG-promise-PNC that FUT-3M.SG>1SG-story.tell-PNC my father tomorrow  
 ‘My father promised me that he would tell me a story tomorrow’

## 2 No need for parts-of-speech

Our previous work has shown that none of the motivations for positing an ARG-ST or a set of VAL attributes exist in Oneida. When modelling Oneida syntax we can dispense with the selectional portion of the CAT attribute and the ARG-STR attributes. An immediate consequence of the absence of local syntactic selection is that, at best, there would be limited use for syntactic part-of-speech features in Oneida. We show in our paper that there is in fact *no* use for part-of-speech features and no use for a syntactic notion of endocentricity. Oneida has a robust notion of stem classes. More specifically, several derivational and inflectional processes allow us to distinguish between four kinds of Oneida stems: nouns, verbs, uninflected, and kin stems (see Koenig and Michelson 2010 on Oneida kin stems). But, the same is not true of Oneida words. To illustrate the difference between nominal stems and what would be putative NPs (and their N heads), we counted in the naturally produced discourses in Michelson, Kennedy, and Doxator (2014) all referring expressions headed by words based on the four kinds of stems. Table 1 summarizes the relevant part of this corpus study: Over 60% of referring expressions (what typically would be encoded by NPs in English) are headed by words based on stems with *no* nominal morphology.

Table 1: Proportions of referring expressions according to morphology

	REs headed by words with exclusive nominal morphology	REs headed by words with some nominal morphology	REs headed by words with no nominal morphology	Total
Count	575	686	2027	3288
As % of REs	17.5%	20.8%	61.7%	100%
As % of Wds	1.9%	2.2%	6.5%	10.6%
As % of clauses				39.93%

We then argue that no syntactic construction or constraint in Oneida makes reference to part-of-speech distinctions or their projections, e.g. no rule appeals to the difference between nouns and verbs. Constructions only make reference to semantic types, i.e. whether an expression describes an entity (roughly corresponding to the traditional notion of referring expression) or a situation. An informal representation of some of the major phrasal constructions of Oneida is given in (3)-(6). Subscripts on the left-hand side of the arrow indicate which daughter is the semantic head and contributes its index to the phrase. Our statement of **Construction 1** is simplified for expository purposes and abstracts away from the fact that the relation between the entity-describing and situation-describing expressions is unbounded (see Koenig and Michelson op. cit. for details).

(3) a. **Construction 1: Adjunction to situational phrase**

Sit-Expr<sub>s</sub> → (Ent-Expr<sub>i</sub>)\* Sit-Expr<sub>s;args:...k<sub>l</sub>,...k<sub>n</sub></sub> (Ent-Expr<sub>j</sub>)\*

(Each  $i, j$  must “overlap” in reference with one  $k$ )

- b. [<sub>SE</sub> waʔúkyehteʔ] [<sub>EE</sub> aknuhá· ]  
she woke me      my mother  
‘my mother woke me up’

(4) a. **Construction 2: Adjunction to referential phrase**

Ent-Expr<sub>l</sub> → (Ent-Expr<sub>i</sub>)\* Ent-Expr<sub>l;args:...k<sub>l</sub>,...k<sub>n</sub></sub> (Ent-Expr<sub>j</sub>)\*

(Each  $i, j$  must “overlap” in reference with one  $k$ )

- b. [<sub>EE</sub> lakeʔníha] [<sub>EE</sub> lohsótha]  
my father      his grandmother  
‘my father’s grandmother’

(5) a. **Construction 3: Apposition**

Ent-Expr<sub>i</sub> → Ent-expr<sub>i</sub> Ent-Expr<sub>i</sub>

- b. [<sub>EE</sub> laksótha ] [<sub>EE</sub> Amos ]  
my grandfather Amos  
‘my grandfather Amos’

(6) a. **Construction 4: Internally-headed relative clause**

Ent-Expr<sub>i</sub> → Sit-Expr<sub>args:...i...</sub>

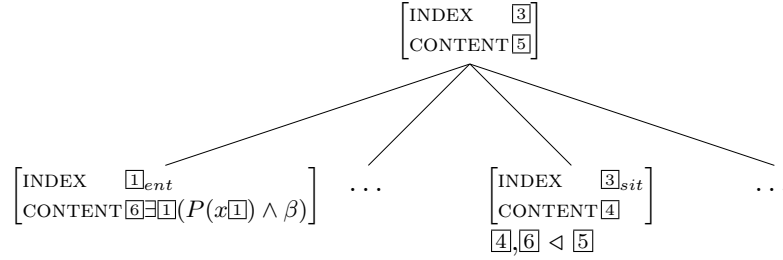
- b. [<sub>SE</sub> kwa:káheʔ] [<sub>EE<sub>i</sub></sub> thiká] [<sub>EE<sub>i</sub></sub> [<sub>SE</sub>loti<sub>i</sub>stó:sloteʔ]]  
we see you      that      they feather stand  
‘we see you with the feathered ones’

Our conclusion is that there is no need to distinguish between types of CAT values, i.e. there is no need for syntactic part-of-speech distinctions. Put differently, Oneida provides evidence for semantic endo-centricity, but not for syntactic endo-centricity.

### 3 No need for non-local selection of unbounded dependants

Koenig and Michelson (2012, 2014) assumed that, as in standard HPSG or Sign-Based Construction Grammar, unbounded dependencies are recorded on lexical entries in Oneida just as they are in English. But, given the absence of any need to record selection *or* part-of-speech information on words or phrases, it is possible to dispense with *syntactic* unbounded dependency information on words and phrases and substitute instead the constraint on semantic interpretation informally stated in the revised version of **Construction 1** in (7). (We use, rather loosely, Lexical Resource Semantics’ approach to semantic composition for expository purposes, see Richter and Sailer 2006; we only explicitly represent the composition of one entity-describing expression (one of the daughters) with the situation-describing expression for ease of exposition.)

(7) a. **Construction 1: Adjunction to situational phrases (version 2)**



- b. The contents of entity-describing expressions that combine with a situation-describing expression are *included* in the content of their combination. The construction does not specify what is conjoined to the contents of the entity describing expressions (i.e. what the value of the variable  $\beta$ ).

Our *syntactic*-feature free model of the unbounded relation between the meaning of entity-describing and situation-describing expressions requires an underspecified mode of semantic composition. Such underspecification is independently supported for Oneida by the ambiguity of sentences that include entity-describing expressions co-indexed with a semantic argument of opaque situation-describing words (opaque verbs in the terminology of Zimmermann 2006) and illustrated in (8). (9) outlines how the transparent and opaque readings of (8) arise out of the underspecified semantics of **Construction 1** informally stated in (7).

- (8) Úska yotlátstu Kwí tel luwa'yáts waʔ-t-ho-tuhútsyohs-eʔ a:sé aʔnya:náw $\Delta$ ʔ.  
 one it has happened Peter his name is FACT-DU-3M.SG.A-want-PNC new mitten

‘Once upon a time Peter wanted a new mitten’ Mercy Doxator, *The Mitten*, n.d.

- (9) Two interpretations of (8)  
 a. *Wide scope interpretation*:  $\boxed{5} = \exists x(\text{mitten}'(x) \wedge \text{want}'(j, \text{find}(j, x)))$  (if  $\beta = \boxed{4}$ );  
 b. *Narrow scope interpretation*:  $\boxed{5} = \text{want}'(j, \exists x(\text{mitten}'(x) \wedge \text{find}(j, x)))$  (if  $\beta = \boxed{3}$ ).

## 4 No need for markers

The MRKG feature in Sag (2012) (and markers more generally in HPSG) is used for various purposes, from complementizers (Pollard and Sag 1994) to minor prepositions (van Eynde 2000) and determiners (van Eynde 2003). There is one complementizer in Oneida, illustrated in (10).

- (10) tahnú: waʔ-k-lihwá:luk-eʔ tsiʔ lakeʔníha, aʔé né Leamington  
 and FACT-1SG.A-hear.news-PNC that my father, way over there it's Leamington  
 loyoʔtáhsu,  
 he has gone to work

‘And then I heard news that my father had gone to work way over in Leamington,’ (Clifford Cornelius, *A Lifetime Working*, recorded 1994)

We argue that the presence of the complementizer *tsiʔ* in (10) does not require the use of the syntactic feature MKG *as long as* one recognizes phrase-structure constructions as primary

grammatical objects. We only need posit a particular kind of clause, *factual-clause*, which have two daughters, one the word *tsi?*, the other a situation-describing expression. The existence of a specialized construction is partly motivated by the semantics of clauses that include *tsi?*: They describe situations that are factual. We show in the paper that other apparent needs for markers and other features (e.g.,  $WH_{\pm}$ ) can also be handled via specialized constructions. Each of these constructions, just like the *factual-clause* construction, is associated with a particular meaning (type-shifting, question formation).

## 5 Conclusion

Oneida challenges standard assumptions about the architecture of natural language grammars. Coming to terms with its description expands our understanding of what syntax is about by expanding the space of possible grammatical architectures. Most syntacticians, irrespective of framework, take it for granted that there are syntactic features and that one of the tasks of syntactic theory is to describe the space of possible syntactic features and their distribution across languages. Although Oneida provides ample evidence for inflectional features, at the word level and above (what syntax is about), syntactic features are simply irrelevant. As a consequence, most of the issues discussed in typical syntactic descriptions are non-issues for Oneida. From this traditional point of view, Oneida syntax is a *bore*. But, two caveats are in order. First, the elimination of syntactic feature is possible only once we recognize phrase-structural constructions that are semantically potent as syntactic objects. Second, the elimination of syntactic features does not mean Oneida does not have syntax or does not present interesting syntactic puzzles. In fact, as one example, Oneida syntax plays a critical role in mapping meaning onto form, as illustrated in sentence (11). An informal semantic representation of (11) is provided in in (12).

- (11) Tahnú aknulhá onulha?ká tshahanáklate? Bill ne? thó'ne? né tyakawahe'yú  
 And my mother her late mother when he was born Bill at that time it's she died  
 'And my mother's mother died when Bill was born.' (Olive Elm, Visits to my Auntie's, recorded 1993)

$$(12) \exists \boxed{?x/z} \exists \boxed{y} (\text{mother}(x, \boxed{y}) \wedge \text{late-mother}(\boxed{y}, z) \wedge \text{died}(\boxed{?x/z}))$$

The role of the nominal adjunction construction (**Construction 2**) informally stated in (4) is to specify which kin is relevant for phrase-external semantic composition (see the index “percolation” from head-daughter to mother in **Constructions 1-4**). As Quine (1976) showed in another context, identifying variables is important for semantic composition and recursion, but it is not enough. We need to select one variable for purposes of external composition. This is one of the functions of Oneida syntax, and one that does not require positing syntactic features. When syntactic constructions involve selection, as in English, one can use the order (and type) of members of the ARG-ST list and VAL lists (or the order of lambda operators in other approaches) to make sure the right index (variable) is “visible” for composition with an external functor. In Oneida direct syntax (which has a more conjunctive mode of composition similar to DRT, van Eijck and Kamp 1997), this job is done by constructionally specifying the index of the phrase that consists of two or more daughters.