Modeling the proximate/obviative contrast in Algonquian languages

The proximate/obviative morphological marking in Algonquian languages is used to signify the prominence of individuals in a discourse. We use examples from Meskwaki texts and fieldwork on Mi'gmaq to show that Predicate Logic with Anaphora (PLA, Dekker 1994), a prominence-based semantic model, is a natural way to analyze the prominence marking contrast of proximate- and obviative-marked nouns.

Proximate/obviative contrast. Proximate and obviative are two ways to differentiate third person arguments. In contexts with two third persons, the topical, foregrounded third person is proximate and the nontopical, backgrounded third person is obviative. For example, in Mi'gmaq, an Eastern Algonquian language, the proximate **(P)** is unmarked, as in (1), and the obviative *(O)* is marked with the suffix *-l*, as in (2).

(1) *e'pites*
     woman
     '**woman (P)**'

(2) *e'pites-l*
     woman-OBVIATIVE
     '*woman (O)*'

(3) *Ges-al-a-t-l.*
     love-TA-DIR-3-OBV
     '**She (P)** loves *her (O)*.'

When pronouns are not overt, the agreement morphology on the verb indicates which argument is proximate and which argument is obviative. In (3), the subject is proximate and the object is obviative, which is signaled by the *-a* direct morpheme (DIR) and third person (*-t*) and obviative (*-l*) markers. In discourse or narratives, once a proximate has been established, a speaker has a choice whether to introduce the next argument as either proximate (prominent) or obviative (nonprominent) (Goddard 1990).

The puzzle. The puzzle to be considered here is, given a certain context, which antecedents can the unspecified proximate and obviative referents (translated as pronouns in English) in subsequent sentences refer back to. Consider the following text illustrating obviation from Meskwaki, a Central Algonquian language.

(4) o·ni=na·hkači nekotenwi **mahkate·wi-anakwe·wa** e·=ši·ša·či, e·h=nesa·či *pešekesiwani.*
     And then another time **Black Rainbow (P)** went hunting and killed a *deer (O)*.

(5) e·=wi·naniha·či, e·h=mo·hki·hta·koči *aša·hahi,* e·h=ma·ne·niči.
     As **he (P)** was butchering it *(O)*, some *Sioux (O)* rushed out at **him (P)**, a lot of *them (O)*.

In (4) the topic is Black Rainbow whereas the obviative is "a deer". The speaker then has a choice in (5) whether to introduce "Sioux" as proximate, as central characters, or as obviative, or less central characters, and thus, *prima facie*, maintaining the previously established central character "Black Rainbow". So, does "him" in (5) have to refer to Black Rainbow or can it also refer to "the deer"? We will test these possibilities with fieldwork on Mi'gmaq, an Eastern Algonquian language, using the following sentences.

(6) (a) Ann$_P$ loves Mary$_O$. (b) Sally$_P$ loves her$_O$, too.

(7) (a) Ann$_P$ loves Mary$_O$. (b) Sally$_O$ loves her$_P$, too.

In other words, how do speakers interpret the proximate or obviative argument (translated as the pronoun "her" in English) in (6-b) and (7-b)? Are "Ann" and "Mary" possible referents for "her" in (6) and (7) or is the proximate/obviative marking system more restrictive?

Background on PLA. We model these two possibilities in PLA, a semantic system that maintains ordered lists of discourse referents. The proximate/obviative system, or, henceforth, obviation marks the prominence of third person referents in a discourse and this prominence marking can be maintained across multiple sentences. Since PLA encodes the foregrounded or backgrounded status of referents in a discourse, it can naturally be used to capture obviation.

The pattern of anaphora in obviation-marking languages is different from English, but we use an English example to demonstrate the basics of how PLA creates ordered lists of individuals in a discourse. The English version of our test sentence (6) has two possible readings: one where "her"

refers to "Ann" and one where "her" refers to "Mary". This ambiguity can be captured in PLA using two translations, which can be seen in (8) and (9). Since PLA uses existential quantifiers to introduce discourse referents, names are translated with existential quantifiers.

(8) (a) Ann_i loves Mary_j. (b) Sally loves her_i. $\rightsquigarrow$
     (a) $\exists x[x = a \land \exists y[y = m \land Lyx]]$ (b) $\exists z[z = s \land Lp_0 z]$

(9) (a) Ann_i loves Mary_j. (b) Sally loves her_j. $\rightsquigarrow$
     (a) $\exists x[x = a \land \exists y[y = m \land Lyx]]$ (b) $\exists z[z = s \land Lp_1 z]$

These sentences are interpreted as updates of some information state, s, with respect to a model and an assignment function. The architecture of PLA maintains information states that store lists of discourse referents that have been introduced by indefinite noun phrases, translated as existential quantifiers, and that can be referenced using pronouns (Dekker 1994). In (8-9), the pronouns are p_0 and p_1 which refer to the most recently and second most recently introduced referent in the discourse, respectively.

In this example, illustrated in (10-11), our information state, s_0, will be $\{\langle\rangle\}$, an information state with a single ordered list into which no discourse referent has been introduced. In (10), $\exists y[y = m \land Lyx]$ must be interpreted before the whole formula can be interpreted. When $\exists y[y = m \land Lyx]$ is interpreted, the individuals in the domain that can be replace the variable bound by the quantifier and make the formula true—in this case, m—are each added to the the case in s_0. The same process occurs with the quantifier that takes scope over the whole forumula, adding a to the end of the list of referents to give the information state $\{\langle m, a \rangle\}$.

(10) $s_0 \left[\!\left[\exists x[x = a \land \exists y[y = m \land Lyx]] \right]\!\right]_{\mathcal{M},g} = \{\langle m, a \rangle\} = s_1$

(11) $s_1 \left[\!\left[\exists z[z = s \land Lp_{0/1} z] \right]\!\right]_{\mathcal{M},g} = \{\langle m, a, s \rangle\} = s_2$

In (11), when $Lp_{0/1}$ within the formula is interpreted, the pronoun, $p_{0/1}$ must be interpreted. p_0 is interpreted as the last member of each case in the information state, s_1, and p_1 is the second to last member. Thus, p_0 is interpreted as a (Ann), and p_1 is interpreted as m (Mary).

Obviation in PLA. In order to encode the discourse prominence sensitivity demonstrated by obivation using our system, it is is necessary for obviative and proximate marking on nouns to introduce discourse referents in different ways. One way to model obviation is to keep Dekker's single list of subjects and use one mechanism to introduce proximate marked referents and another to introduce obviative marked referents; these mechanisms alter the list in different ways. If we used quantifiers to introduce discourse referents as Dekker (1994) does, the proximate quantifier, given as $\exists_p$, introduces a new subject to the lists in an information state in the same way a quantifier does in Dekker 1994. The obviative quantifier, given as $\exists_o$, also adds a new subject to the lists, but it is added to the second-to-last position instead of the last.

Another way to model this phenomenon is to extend PLA by maintaining separate lists for referents introduced as proximate or obviative. A similar idea is used in the Centering system in the analysis of proximate/obviative affixes in Kalaallisut discussed in Bittner 2011. In our extension of the PLA system, each case consists of two sets of ordered lists: one list has proximate marked arguments added to it, and one has obviative arguments added to it. Then obviative agreement picks out the last referent on the obviative list and proximate agreement picks out the last referent on the proximate list.

This paper develops these two PLA systems and discusses the predictions that these systems make as they compare to the patterns of obviation found in Algonquian languages, particularly looking at new data from Mi'gmaq.

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