

AGREEMENT WITHOUT AGREE: DISJUNCTION IN MI'GMAQ

Verbal morphology in Mi'gmaq, a northeastern Algonquian language, provides evidence that number and person features introduce semantic presuppositions (cf., Sauerland, 2003). Such a theory elegantly accounts for both the obligatory and optional morphological patterns involving conjoined and disjoined DP subjects. An interesting consequence of this finding is that syntactic agreement with the subject need not be responsible for verbal affixes that mark person and number. Rather, such affixes could restrict verbal denotations directly. Such a hypothesis is supported by auxiliary distributional facts. It explains why Mi'gmaq has a singular versus dual distinction in the verbal domain, but not the nominal. Thus, what on the surface looks like long distance syntactic effects is actually local and semantic. This analysis of Mi'gmaq can be extended to other languages as well, bringing into question the cross-linguistic nature of agreement.

**Conjoined and Disjoined DPs:** Intransitive-verb morphology in Mi'gmaq distinguishes between singular, dual and plural. For example, if the subject consists of two conjoined singular DPs, then the verb must be marked with dual morphology. The verb in (1) needs the 2<sup>nd</sup>, dual ending *-ioq* and cannot bear a non-dual affix such as *-in* or *-it*. This pattern holds for similarly-structured disjoined DPs, like the one in (2). This parallel between disjoined and conjoined subjects, at least on the surface, suggests that dual marking is due to some sort of percolation rule, where two singular features are inherited as a dual (see Marusic et al. 2003).

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| <p>(1) Gi'l aq Mali etlenm-ioq/*-in/*-it<br/>You and Mary laugh-2.dl/*-2.sg/*-3.sg<br/>'You and Mary are laughing'</p> | <p>(2) Gi'l gisna Mali etlenm-ioq/*-in/*-it<br/>You or Mary laugh-2.dl/*-2.sg/*-3.sg<br/>'You or Mary are laughing'</p> |
| <p>(3) John aq Mali etlenm-ijig/*-it<br/>John and Mary laugh-3.dl/*-3.sg<br/>'John and Mary are laughing'</p>          | <p>(4) John gisna Mali etlenm-ijig/-it<br/>John or Mary laugh-3.dl/-3.sg<br/>'John or Mary is/are laughing'</p>         |

However, when the two coordinated DPs match in person (either both being 3<sup>rd</sup> or 2<sup>nd</sup>), then the conjunctive subjects behave differently from the disjunctive ones. For example, in (3), the verb cannot have the 3<sup>rd</sup>, singular suffix *-it*. Rather it must have the 3<sup>rd</sup>, dual suffix *-ijig*. In contrast, the disjunctive subject in (4) is compatible either with the dual or singular suffix. No percolation theory can account for the optionality in (4) while also capturing the obligatory morphological pattern in (2), at least not in a way that is principled and non-arbitrary.

**Featural Interpretation:** Unlike a percolation theory, a semantic presuppositional account can explain why verbal suffixes in Mi'gmaq pattern the way they do. Consider the syntactic structure in (5) where  $\phi$  represents the number and person features of the coordinate DP.

- (5)  $[_{TP} [\phi_P [\&P DP_1 \text{ or/and } DP_2] \phi] ]_{[vP \text{ verb} + \text{affix}]}$

In Sauerland's theory, the  $\phi$ -features act as a gate, allowing only certain kinds of denotations to semantically "pass-through." In accounting for this data, this theory need only be modified slightly, changing the relevant person features from positive ones to negative ones that presuppose an absence. Hence, [2,sg] and [3,sg] are more accurately represented as [-3,-2,-dl] and [-1,-2,-dl] whereas [2, dl] is more accurately represented as [-1,-pl] (note that the dual would not specify [-3] since 3<sup>rd</sup> parties are permitted as part of the denotation). Semantically, each feature is interpreted as the identity function but with certain well-definedness conditions (see tables below, where SAP abbreviates Speech Act Participant).

Meaning	Defined iff
$[-1](x) = x$	$x$ doesn't contain the speaker
$[-2](x) = x$	$x$ doesn't contain the hearer
$[-3](x) = x$	$x$ doesn't contain a SAP

Meaning	Defined iff
$[-dl](x) = x$	$ x  < 2$
$[-pl](x) = x$	$ x  < 3$

Bundles
$[-1,-3,-dl] \Leftrightarrow -in$
$[-1,-pl] \Leftrightarrow -ioq$
$[-1,-2,-dl] \Leftrightarrow -it$
$[-1,-2,-pl] \Leftrightarrow -ijig$

Feature bundles, such as [-1,-2,-dl], are interpreted based on the meaning of their singular features, e.g.,  $\llbracket [-1,-2,-dl] \rrbracket(x) = \llbracket [-1] \rrbracket(\llbracket [-2] \rrbracket(\llbracket [-dl] \rrbracket(x)))$ . Thus, the feature bundle [-1,-3,-dl] (which corresponds to *-in*) requires the DP to refer to the hearer, whereas [-1,-pl] (which corresponds to *-ioq*) requires the DP to refer to a one or two-person group that does not contain the speaker. Similarly, [-1,-2,-dl] (which corresponds to *-it*) requires the DP to refer to one non-speech-act-participant (NSAP) while [-1,-2,-pl] (which corresponds to *-jig*) requires the DP to refer to a one or two-person group of NSAPs. (Note that competition effects will favour the use of singular over dual when the referent is singular, as discussed in Sauerland, 2003. Also, names and pronouns presuppose non-empty reference.)

**Coordination:** The key difference between  $\llbracket gisna \rrbracket$  (or) and  $\llbracket aq \rrbracket$  (and) follows from the semantics of coordination. As discussed in Link (1983), conjunction with respect to DPs acts as a group-formation operator (i.e.,  $\oplus$ ). Thus,  $\llbracket DP_1 aq DP_2 \rrbracket$  denotes a group consisting of at least two individuals. As a result, this coordinate structure is only consistent with  $\phi$ -bundles that do not contain [-dl]. Thus, *-in* and *-it* ( $\llbracket [-1,-3,-dl] \rrbracket$  and  $\llbracket [-1,-2,-dl] \rrbracket$  respectively) cannot be used with these structures. In contrast, as discussed in Kratzer & Shimoyama (2002), cross-linguistic evidence from modality suggests that disjunction is interpreted as forming Hamblin-sets of alternatives. Semantic computation with Hamblin-sets involves pairwise functional application. Thus,  $\llbracket DP_1 gisna DP_2 \rrbracket = \{\llbracket DP_1 \rrbracket, \llbracket DP_2 \rrbracket\}$ , and taking pairwise functional application into account,  $\llbracket \llbracket DP_1 gisna DP_2 \rrbracket \phi \rrbracket vP \rrbracket = \{\llbracket vP \rrbracket(\llbracket \phi \rrbracket(\llbracket DP_1 \rrbracket)), \llbracket vP \rrbracket(\llbracket \phi \rrbracket(\llbracket DP_2 \rrbracket))\}$ . The resulting meaning is true iff one member of the alternatives is true. However, more importantly, the resulting meaning is defined iff  $\llbracket \phi \rrbracket(\llbracket DP_1 \rrbracket)$  and  $\llbracket \phi \rrbracket(\llbracket DP_2 \rrbracket)$  are defined. In other words, the sentence presupposes that each disjunct meets the presuppositions induced by the  $\phi$ -features. This semantics would explain why  $\llbracket \llbracket gi'l gisna Mali \rrbracket [-1,-3,-dl] \rrbracket$  is not well-formed whereas  $\llbracket \llbracket John gisna Mali \rrbracket [-2,-3,-dl] \rrbracket$  is (see (2) vs. (4)). Although  $\llbracket gi'l \rrbracket$  satisfies the presupposition introduced by [-1,-3,-dl],  $\llbracket Mali \rrbracket$  does not (the referent contains a NSAP, namely Mali). However, both  $\llbracket John \rrbracket$  and  $\llbracket Mali \rrbracket$  satisfy the presuppositions introduced by [-2,-3,-dl] (both denotations are singular and both are NSAPs). Similarly, the semantics would explain why  $\llbracket \llbracket gi'l gisna Mali \rrbracket [-1,-pl] \rrbracket$  and  $\llbracket \llbracket John gisna Mali \rrbracket [-2,-3,-pl] \rrbracket$  are both well-formed. Both  $\llbracket gi'l \rrbracket$  and  $\llbracket Mali \rrbracket$  are NSAPs and both of their cardinalities are less than 2. Similarly, both  $\llbracket John \rrbracket$  and  $\llbracket Mali \rrbracket$  do not contain the speaker or hearer and both of their cardinalities are less than 2. Note that competition effects predict that  $\llbracket \llbracket John gisna Mali \rrbracket [-2,-3,-pl] \rrbracket$  should imply that  $\llbracket \llbracket John gisna Mali \rrbracket [-2,-3,-dl] \rrbracket$  could not be used, and indeed there is a slight meaning difference between the two constructions as a result: the use of the plural implies an inclusive *or* meaning whereas the use of the singular implies an exclusive *or*. These competition effects follow from the presuppositional account as well.

**Agreement without AGREE:** The presuppositional account of  $\phi$ -features is the only theory that can explain both the obligatory and optional nature of number marking in Mi'gmaq. Yet, the features that trigger such presuppositions need not be a part of the DP-subject. They could attach directly to the verb. According to this alternative, the syntactic structure in Mi'gmaq would be better represented as (6) rather than (5), where vPs are interpreted as in Cooper (1983), with a positive and negative denotation plus a presuppositional gap.

$$(6) \quad [_{TP} [_{\&P} DP_1 \text{ or/and } DP_2] [_{vP} \text{ verb} + \phi]]$$

In a domain  $D$ ,  $\llbracket vP \rrbracket = \langle X, Y \rangle$ , where  $X$  is the positive denotation,  $Y$  the negative, and for all  $x$ ,  $\llbracket vP \rrbracket(x) = 1$  iff  $x \in X$ ,  $\llbracket vP \rrbracket(x) = 0$  iff  $x \in Y$ , otherwise  $\llbracket vP \rrbracket(x)$  is undefined. By diminishing the size of the positive and negative denotations (and thus increasing the gap), the vP induces presuppositions about the subject. Thus, the entire presuppositional account of dual versus singular can be redone with respect to this gap (e.g.,  $\llbracket [-2] \rrbracket(\langle X, Y \rangle) = \langle X - H, Y - H \rangle$ , where  $H$  is the set of all groups that contain the hearer,  $\llbracket [-dl] \rrbracket(\langle X, Y \rangle) = \langle X - P, Y - P \rangle$ , where  $P$  is the set of all groups whose cardinality is greater than 2, etc.). This alternative to Sauerland's theory explains why Mi'gmaq only has a dual marker with respect to verbal suffixes. The  $\phi$ -features only attach to verbs and hence do not adjoin to nouns.

**REFERENCES:** Sauerland. (2003). A new semantics for number. Proceedings of SALT. Kratzer & Shimoyama. (2002). Indeterminate Phrases: the View from Japanese. Proceedings of TCP.