

## Modal Subordination in Japanese: Dynamics and Evidentiality

This paper considers the realization of modal subordination (MS) in Japanese. Based on the results of a data survey, we conclude that MS is much more restricted in Japanese than in English, in many cases showing a requirement for an overt conditional clause or discourse particle. We ascribe this fact to properties of the Japanese modal system, much of which exhibits interactions with evidentiality lacking in the English modals that have been studied in MS contexts. We also show that the Japanese emotive particles *yo* and *zo*, which are not invariably modal in nature, are able to license MS, a surprising fact. We analyze these facts within a dynamic system making use of sets of epistemic possibilities.

As various authors (e.g. Roberts 1989, Frank 1997) have discussed, indefinite NPs introduced in the scope of a modal operator and construed *de dicto* are not available as antecedents for anaphoric pronouns in subsequent sentences (1a). However, if the later sentence also contains a modal, the discourse is felicitous even if the indefinite is nonspecific (1b). This phenomenon is known as *modal subordination*. Since nearly all previous research on modal subordination considers exclusively Indo-European languages, we tested the predictions made by previous theories against data from Japanese. We used three modal expressions that are clearly epistemic in nature (Johnson 2003): *kamosirenai* ‘might’, *nitigainai* ‘must’, and *hazu-da* ‘must’ in discourses like (2).

Because of varying speaker judgements on the felicity of examples like (2), we conducted a survey. We surveyed 10 native speakers of Japanese for judgements on the bare forms (those lacking conditional clauses and particles) both in a null context and in a context set up to increase the plausibility of the second sentence of the discourses. We also tested a subset of the survey participants on examples with conditionals and particles, using a *-tara* conditional and the discourse particle *sosite* ‘then’. We found that the nature of the modal in the second sentence had the greatest influence on discourse felicity. The main results obtained from the survey are summarized in (4). These complex results cannot be easily handled by existing approaches to MS.

Our analysis is developed in the dynamic framework proposed by Asher & McCready (2004) for English modals and counterfactuals. We treat the contrasts above by assuming that *hazu* and *nitigainai* have an evidential component that is not satisfiable in general in MS contexts; crucially, however, these expressions need different sorts of evidence. *Hazu* requires that the speaker have concrete evidence of some sort for the statement, in a way similar to the *best possible grounds* needed for use of the Quechua evidential enclitic *-mi* (Faller 2002). Since the second sentence of MS contexts already represents a hypothetical statement, no such evidence is available and MS is infelicitous with *hazu*; similarly for the conditional cases. *Nitigainai* indicates that the modal statement is made on the basis of inference by the speaker, so enriching the context so that the described situation is probable satisfies the evidential presupposition. Adding additional information for inference by use of conditionals and *sosite* is enough to satisfy this evidential requirement. However, *kamosirenai*, like English *might*, lacks a substantive evidential component, so MS continuations with it are more generally available.

A further fact that is unexpected on previous theories of MS is that certain sentence-final particles (SFPs) can license MS, as in (5). As shown by (6), however, *yo* and *zo* are not always interpreted modally. These particles are generally taken in the literature to mark new information; however, the observation that they sometimes induce a conditional interpretation (5) is new. The facts fall out from our analysis of *yo* and *zo* as revision operations on the hearer’s set of epistemic possibilities that also have preconditions about the speaker’s beliefs about the information state of the hearer. Independently needed mechanisms of discourse attachment dictate whether the revised set of possibilities includes the actual world (6) or not, in which case a conditionalized interpretation is obtained (5).

- (1) a.  $A_i$  wolf might come in. #  $It_i$  is big and gray.  
 b.  $A_i$  wolf might come in.  $It_i$  would eat you first.
- (2) ookami-ga kuru kamosirenai. #  $\emptyset$ /soitu anata-o taberu nitigainai.  
 wolf-NOM come might  $\emptyset$ /that-guy you-ACC eat surely  
 ‘A wolf<sub>i</sub> might come in.  $It_i$  would eat you first.’
- (3) ookami-ga kuru kamosirenai. sosite/soo-sitara  $\emptyset$ /soitu anata-o taberu nitigainai.  
 wolf-NOM come might then/that-do-COND  $\emptyset$ /that-guy you-ACC eat surely  
 ‘A wolf<sub>i</sub> might come in. Then/If so (if one did),  $it_i$  would eat you first.’
- (4) a. Continuations with *kamosirenai*: good following *kamosirenai*, good following any modal when a conditional clause or *sosite* is present.  
 b. Continuations with *nitigainai*: Bad/marginal after any modal in the null-context bare case; dramatic improvement seen when context enriched. Good when conditional clause or *sosite* present after any modal.  
 c. Continuations with *hazu*: No better than marginal in any case, regardless of the presence of conditional clauses or *sosite*.
- (5) ookami-ga kuru kamosirenai.  $\emptyset$ /soitu anata-o taberu yo/zo.  
 wolf-NOM come might  $\emptyset$ /that-guy you-ACC eat YO/ZO  
 ‘A wolf<sub>i</sub> might come in.  $It_i$  (will) eat you first, man (rough gloss).’
- (6) John-wa ima suupaa ni it-tei-ru nitigainai. soko-no sake-wa totemo  
 John-TOP now supermarket to go-PROG-NPST must. there-GEN alcohol-TOP very  
 yasui n da yo  
 cheap EMPH COP YO  
 ‘John must be at the supermarket now. The liquor’s very cheap there, man.’