A Multi-Modal Combinatory Categorial Grammar analysis of *-te* form complementation in Japanese

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The syntax of *-te* form complementation as in (1a), where the first verb (V1) *hii-te* in the sentence final verb cluster is semantically a complement of the second verb (V2) *morat-ta*, has long been a puzzle in Japanese generative grammar (Shibatani 1978; McCawley and Momoi 1986; Sells 1990). This construction falls between the cracks of full-fledged sentential complementation and lexical complex predicates. For phenomena such as scrambling, adverb placement and right-node raising (Group **I**), it lines up with typical complex predicates in that the V1 and the V2 seemingly form a tight lexical unit; the scrambling data in (1b,c) show that arguments of V1 and V2 can scramble freely with one another, but cannot split the V1 V2 sequence. On the other hand, in terms of another set of phenomena such as embedded VP coordination, focus particle (FP) insertion and reduplication (Group **II**), the construction lines up with typical sentential complementation in that the V1 and V2 do not behave like a lexical unit; in (4), VPs headed by the embedded V1 are coordinated, whereby the V1 in the first conjunct is split from the V2. Two conceivable analyses of this construction in major syntactic theories (such as GB, HPSG or LFG) will necessarily treat the *-te* form either as a special case of sentential complementation or as a special case of complex predicates (Sells (1990) and Matsumoto (1996) exemplify the former). However, in either case, it turns out that a set of *ad hoc* mechanisms need to be invoked to account for the phenomena in which the *-te* form does not behave like the category that it is grouped with. Essentially, the trouble is that in standard syntactic theories there is no straightforward way of handling the intermediate nature of this construction, where the bond between the V1 and V2 is tighter than sentential complementation but looser than lexical complex predicates. This is because all of these theories (regardless of the derivational/nonderivational distinction) have as their backbone a phrase structural component that assigns rigid hierarchical structures at the level of syntax.

An alternative perspective is available in a recently developed categorial grammar theory of Multi-Modal Combinatory Categorial Grammar (MMCCG) (Baldridge 2002), in which the notion of modal control plays a key role in capturing different degrees of flexibility of constituency. In this setup, the very existence of a construction like the *-te* form that exhibits intermediate combinatoric flexibility is no longer a mystery, but is exactly what is expected. This paper presents an analysis of the *-te* form in MMCCG, capturing for the first time the whole range of data that have resisted a successful analysis in any of the previous approaches. The gist of the proposal is that the V1 and V2 in this construction are combined in a designated mode called the CP (complex predicate) mode (notated in (7) by the subscript $<$ on the slash), which has intermediate combinatoric flexibility relative to other modes. (7) illustrates the analysis of (1b). The crucial steps are the application of the Function Composition (FC) rule, which effectively liberates the embedded accusative argument *piano-o* to the higher clausal domain, and the successive application of the Permutation (P) rule, whereby the order in which the complex verb takes its arguments is changed, giving rise to the word order in (1b). Furthermore, the illicit word order in which an argument splits the V1 V2 sequence as in (1c) is not licensed, as a consequence of the natural assumption that P is applicable only to the default, non-CP, mode (note that NP_d and VP would have to be permuted over the CP mode slash in the lexical specification of the V2 to license such a string). This restriction on P and the availability of FC under certain restricted conditions (basically, FC is applicable only when the directionality of the modality on the slash and the directionality of the slash itself match, introducing associativity under restricted environments) are the concrete manifestations of the above-mentioned intermediate combinatoric flexibility of the CP mode. Phenomena in Group **II** are not problematic for this approach either, given that nothing in the present setup precludes the existence of a mode of combination that is still tighter than the CP mode. For example, assuming that FPs attach to the heads in a mode tighter than the CP mode, the contrast between FPs and

ordinary arguments and adjuncts in terms of their occurrence inside the complex verb (i.e. (1c) and (2) vs. (5)) follows straightforwardly. Finally, as a direction for future study, the success of the present approach to the empirical problem of the Japanese *-te* form invites us to investigate constructions exhibiting intermediate combinatoric flexibility crosslinguistically (for example, clitics in Romance languages) in order to further evaluate the potential of MMCCG as a syntactic theory.

I. Cases in which the *-te* form behaves like a complex predicate

(1) a. Mary-wa John-ni piano-o **hii-te morat-ta**.
Mary-TOP John-DAT piano-ACC play BENEF-PAST
'Mary had John play the piano for her.'

b. Mary-wa *piano-o* John-ni **hii-te morat-ta**.

c. *Mary-wa piano-o **hii-te** *John-ni* **morat-ta**. (scrambling)

(2) *Mary-wa John-ni piano-o **hii-te** *murini* **morat-ta**.
Mary-TOP John-DAT piano-ACC play forcibly BENEF-PAST
intended: 'Mary forcibly had John play the piano for her.' (adverb placement)

(3) *Mary-wa John-ni piano-o **hii-te**, Bill-ni huruuto-o **hui-te morat-ta**.
Mary-TOP John-DAT piano-ACC play Bill-DAT flute-ACC play BENEF-PAST
intended: 'Mary had John play the piano and Bill play the flute for her.' (RNR)

II. Cases in which the *-te* form behaves like a sentential complement

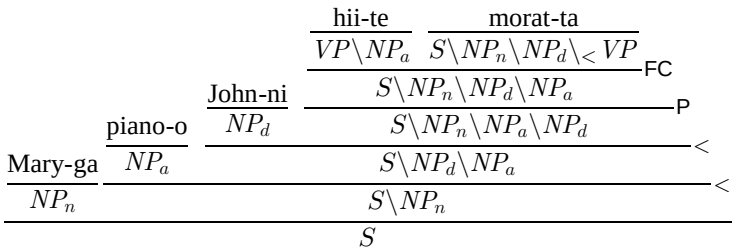
(4) Mary-wa John-ni [[piano-o **hii-te**] [huruuto-o **hui-te**]] **morat-ta**.
Mary-TOP John-DAT piano-ACC play flute-ACC play BENEF-PAST
'Mary had John play the piano and play the flute for her.' (embedded VP coordination)

(5) Mary-wa John-ni piano-o **hii-te** *sae* **morat-ta**.
Mary-TOP John-DAT piano-ACC play even BENEF-PAST
'Mary asked John even the favor of playing the piano for her.' (focus particle insertion)

(6) Kimi-ni Tookyoo-ni **it-te hosii** koto wa **hosii** ga, ...
you-DAT Tokyo-LOC go want want but
'I certainly do want you to go to Tokyo, but ...' (reduplication)

Example derivation

(7)



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