

Evolution of Language and Cognition: Recursion in CG  
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“Evidence from cognitive neuroscience and cognitive psychology is converging on the conclusion that the functioning of the brain can be characterized by two different types of cognition having somewhat different functions and different strengths and weaknesses.”(Stanovich 2004:34) To capture these two types of cognition, we propose two modes of cognition, one of which is termed *Interactional mode* (or *I-mode*) to emphasize the growing conviction that cognition is not the representation of a pregiven world by a pregiven mind but is rather the one that emerges through the interaction between the subject and the object of cognition. (In an extreme form of the interaction, the subject and object of cognition are not differentiated; they are one, e.g. in the sense of Buddhist psychology.) This cognition mode is diagrammed as in Figure 1. The ellipse depicts the ‘field of cognition,’ the circle (C) shows a cognizer or a conceptualizer, and the rectangle with a circle in it represents a state of affairs that emerges through the interaction. The double-headed arrow indicates some interaction between the conceptualizer and the event. The broken-line arrow stands for a cognitive process to construe the event.

Figure 1: I-mode

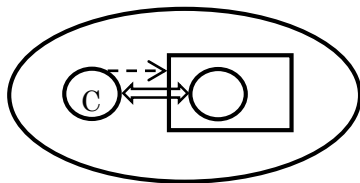
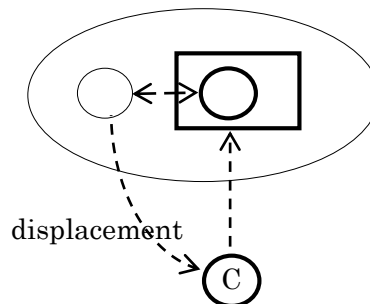


Figure 2: D-mode



We claim that we might tend to view the world or the state of affairs as if we are not involved in the interaction by displacing ourselves from the interaction and view the state of affairs from outside of the field of cognition in I-mode. This type of cognition is called *Displaced mode of cognition* (hereafter *D-mode* cognition), which is illustrated as Figure 2 above.

We argue that the cognitive transition from *I-mode* to *D-mode* is critical to the evolution of language. The distancing and objectifying function (cf. Langacker 2008:444) and the virtual vs. actual grounding (cf. Langacker 2009:268) in *D-mode* make a conceptual base for the emergence of recursive construction which is identified as “the only uniquely human component of the faculty of language by Hauser, Chomsky and Fitch (2002: 1569), whereas displacement itself is a decisive factor for the emergence of grammatical constructions at layer V of the 6-layer scenario of the evolution of grammar (Heine and Kuteva 2007:306). It is at layer V that categories that are suggestive of concepts relating to displacement and subordination/recursion, such as pronouns, definite articles, relative clause markers, complementizers, case markers and tense markers are attested. Relative and complement markers are formal means for presenting clausal subordination leading to recursion, whereas pronouns and definite markers allow for displaced reference and tense markers represent states of affairs as detached from the here-and-now. In this way the grammatical constructions at layer V shows the characteristics of *D-mode* (i.e. displacement and objectification). If these categories are the decisive feature of human language as Heine and Kuteva claim, the cognitive transition from *I- to D- modes* is claimed to be critical to the emergence of human language.

The same functions of *D-mode* may work for the ‘humanique’ combinatory nature of language (Hauser 2009, Boeckx 2010) and for the emergence of cooperative communication (Tomasello 2008).

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## Syntactic and semantic properties of Japanese nominative marker *ga*

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It has been observed since the earliest days of Japanese generative syntax (Kuroda 1965, Kuno 1973) that the nominative case marker *ga* in Japanese appears in different syntactic positions, and also that *ga*-marked NPs receive different semantic interpretations (“neutral description” and “exhaustive listing”) depending on the predicate types with which they co-occur. In this presentation, I attempt to provide a unified account of the following usages of *ga* with a special focus on the status of Tense in Japanese.

### Observation 1: Subject/major subject (Kuno 1973, etc.)

- (1) John-ga asi-ga haya-i  
-Nom leg-Nom fast-Pres ‘John is a fast runner’

### Observation 2: Object/major object with stative predicates

- (2) John-wa hidariasi-ga hiza-ga mage-rare-na-i  
-Top right leg-Nom knee-Nom bend-can-not-Pres ‘Taro cannot bend his right knee’

### Observation 3: “nominative ECM” with spontaneous verbs (Takezawa 1993, 1999)

- (3) John-wa Mary-ga miryokuteki-ni omoe-ta  
-Top -Nom attractive-be(inf) seem-Past ‘Mary seemed to John to be attractive’  
cf. John-wa Mary-o miryokuteki-ni omot-ta  
-Top -acc attractive-be(inf) think-Past ‘John considered Mary to be attractive’

### Observation 4: Subject-to-subject raising (Takezawa 1999)

- (4) a. John-ga yame-ru-yoo-da  
-Nom quit-Pres-likely-be(Pres) ‘It is likely that John will quit’  
b. John-ga yame-soo-da  
-Nom quit-likely-be(Pres) ‘John is likely to quit’

### Observation 5: stage level/individual level distinction of predicates and existential interpretations of nominative NPs (Suzuki 2013, cf. Diesing 1992)

- (5) a. gakusei-ga 3-nin hadasi-da  
student-Nom 3-Count bare-footed-be(Pres) ‘Three students are bare-footed’  
b. \*gakusei-ga 3-nin syooziki-da(Pres)  
students-Nom 3-Count honest-be ‘Three students are honest’
- (6) a. \*John-wa bengosi-ga 3-nin kirai-da(Pres)  
-Top lawyer-Nom 3-Count hate ‘John hates three lawyers’  
b. John-wa bengosi-o 3-nin kirat-te-i-ru  
-Top lawyer-Acc 3-Count hate-Asp-be-Pres ‘John hates three lawyers’  
cf. John-wa bengosi-ga 3-nin ir-u  
-Top lawyer-Nom 3-Count need-Pres ‘John needs three lawyers’

By examining the above data, I would like to argue that *ga* is uniformly assigned/checked/licensed by finite Tense (Takezawa 1987), and that the different semantic interpretations of *ga*-marked NPs can be accounted for in terms of their structural relations with Tense (Suzuki 2013).

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## Newness, Givenness and Focus

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In English, every sentence is pronounced with a pattern of accented and unaccented words. The choice of what words to accent and what words to leave unaccented is not arbitrary, however. In particular there are several general tendencies that can be discerned. Words that encode old information tend not to bear an accent; phrases that encode information being highlighted or emphasized tend to bear an accent; and phrases that encode new information also tend to bear an accent. While clear in broad outline, however, explaining the details of accent location has proven a formidable task. Early attempts to do so (Chomsky 1971, Selkirk 1984) aimed to derive accent location entirely from focus marking. This led among other things to formal analyses of focus like that of Rooth (1992,1995) and of givenness like those of Tancredi (1992) and Schwarzschild (1999). Later, evidence began to mount (Rooth 1996, Beaver 2004, Selkirk 2008) that expressions could qualify simultaneously as focused and as given. Additionally, it was shown (Katz & Selkirk 2012) that new expressions are phonetically distinct from focused expressions even when both bear accents. This paper pursues the theoretical consequences of these later observations, and argues that neither focus nor givenness can be reduced to the other.

Examples with expressions that are simultaneously focused and given can be seen below.

(1) John saw Mary and Sue saw Bill. Then,

LIZ saw *HER*/#’er/#HER and TOM saw *HIM*/#’im/#HIM

(2) John saw Mary. In fact, *he* ONLY saw *HER*/#’er/#HER

In (1), the pronouns *her* and *him* are overtly contrasted with one another while at the same time being identified with their antecedents in the first sentence. The contrast is indicative of focus, while the antecedence signals givenness. Phonetically, in this case we find that the pronoun cannot bear an accent, as expected if givenness marking is obligatory. However, the pronouns also cannot be completely reduced, unlike other occurrences of given pronouns, suggesting that the pronouns are also focused. In (2) we find the same phonetic effects on the pronoun *her* with the same theoretical consequences. However, here we have even stronger evidence of focus: focus is needed for the pronoun to associate with *only*.

Additional evidence for the distinct behavior of focus and givenness comes from examples where the focused and given parts of a sentence relate to separate antecedents. Such a case can be seen in (3B), where *him*, marked as given, has its givenness licensed by the occurrence of *John* in (A), while the focused associate of *only*, i.e. *Mary tripped him*, is contrasted with *that was an accident* in (C).

(3) A: Many people know that John<sub>1</sub> fell.

B: Most of them, however, only know that [MARY TRIPPED *him*<sub>1,G</sub>]<sub>5,F</sub>

C: They don’t know that [that was an accident]<sub>5</sub>.

Of particular significance is the fact that the phrase that contrasts with *Mary tripped him* does not contain a potential antecedent for *him*, while no phrase that contains an antecedent for *him* can be plausibly analyzed as contrasting with *Mary tripped him*. This suggests not only that focus and givenness are distinct, but that they are each sensitive to independent features. In (3) I employ F to mark focused expressions and G to mark given expression. (3) shows that focus is not sensitive to G while givenness is not sensitive to F.

To account for the examples in (1) – (3), I propose to combine Rooth’s semantics for focus with a modified version of Schwarzschild’s semantics for givenness that is sensitive to G-marking rather than F-marking. Schwarzschild’s analysis as a whole, however, suffers from over-generation. In particular, in addition to correctly predicting the acceptability of (4a), it also wrongly predicts that (4b) should be acceptable as well.

- (4) a. A: John saw Mary. B: Then, BILL *saw Mary*.  
 b. A: John saw Mary. B: #Then, BILL *saw John*.

These examples exhibit what I call *connectedness of givenness*: the given verb and object not only need to have separate antecedents, but the antecedents need to stand in the same thematic relation as the verb and object themselves stand in. I show that this over-generation problem can be overcome by taking G-marking in the syntax to project from a head to all of its syntactic projections. In (4) this will result in the VPs being G-marked and hence having to be given in addition to the verb and the object. This small modification makes it possible to retain the semantic core of Schwarzschild's analysis of givenness.

A final and important change is needed to Schwarzschild's analysis in relating F- and G-marking to the distribution of pitch accents. Schwarzschild's analysis predicts a one-to-one correlation between foci and pitch accents. However, we find in examples like (5) that it's possible for a single focus to bear multiple pitch accents.

- (5) Bill went dancing. John *only* [*drank* BEER]<sub>F</sub> / [DRANK BEER]<sub>F</sub> / #[DRANK *beer*]<sub>F</sub>

This is problematic not only for Schwarzschild's original analysis of givenness based on F-marking but also for the modification proposed above based on G-marking instead. I account for the range of possible accentings in (5) by making accents dependent on both the absence of G-marking and the presence of phonological phrasing. Following Truckenbrodt (1995), I take accents to be assigned to the metrical head of a phonological phrase, and take G-marking on an expression to be incompatible with metrical prominence. Optional accents like that on *drank* in (5) then come about as a side effect of optional phonological phrasing. The role of focus on the phonology under this analysis is one of enhancing the greatest prominence withing the focus, not of locating a pitch accent. This accounts for the lack of accent on the pronouns in (1) and (2) while also accounting for their non-reducibility.

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