

## **Interface Properties: Their Roles on the Acquisition of Abstract Syntactic Recursion**

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**Background:** The Strong Minimalist Thesis assumes that the ability to generate recursive structures is the core property of human language and that all other properties of language result from the requirement imposed by the two interfaces with other internal systems, C(onceptual)-I(ntentional) interface and S(eonsory)-M(otor) interface. According to this view, language is defined as a recursive computational system satisfying the requirements of the interfaces (Interfaces + Recursion(Merge) = Language) (Chomsky (2007, 2008, 2010), Sauerland & Gärtner eds. (2007)). Nevertheless, languages vary in which forms of recursion they allow and therefore it must be triggered. Making a distinction between two types of recursion, Direct Recursion and Indirect Recursion (Snyder & Roeper (2011)), previous studies on language acquisition have argued that children initially go through a stage where they assign a direct recursive structure (DR-structure) instead of an indirect recursive structure (IR-structure) (Limbach & Adone (2010) among others).

**Aim:** Based on our previous and new experimental results on Japanese, we will argue that the final form of recursion is purely categorical and that the triggers are specifically linked to the semantic and (morpho-)phonological (CI and SM) interfaces. Until purely categorical form of recursion is acquired, DR-representation is used as default and this tendency is observed when a sentence has structural ambiguity even in an adult-grammar or no semantic and morphological cues are available.

### **Data:**

[1] **Structural Ambiguity:** The sentence which includes multiple relative clauses ((1)) are ambiguously assigned both DR-representation ((1i)) and IR-representation ((1ii)). Using the picture which visually presents potential interpretations ((Fig.1-iv) for DR-representation and (Fig.1-iii) for IR-representation), Nakajima et al. (2017) have shown that children seem to have an ability to create a recursive relative-clause structure but it is not perfectly adult-like event at the age of five. When they fail to assign an IR-structure, they tend to assign a DR-structure and this tendency is most strongly observed in the oldest age group (5-year-olds).

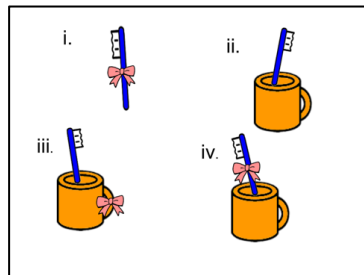
[2] **Morphological & Semantic Cues:** Japanese recursive possessives and recursive locatives include repeated use of morphological marker *-no* and it helps Japanese children to acquire recursion at earlier ages than English children ((Terunuma et al. (2017), Terunuma & Nakato (2018), Pérez-Leroux et al. (2018)). However, the impact of this overt morphological marker becomes weak when semantic bias toward recursive interpretation is neutralized. Nakato et al. (2018) have shown that children easily assign IR-representation to recursive locatives when semantic properties of multiple locative phrases are identical (see (2)), but not when they are different (see (3)). Guerrero et al. (2020) have also observed that children, even at the age of seven or eight, tend to assign DR-representation to recursive possessives when no relationship among entities is implied (see (4) and Fig. 2). The new data from a follow-up study will show that those children who failed can assign IR-representation to recursive possessives when possessor-possessee relation is semantically implied by head nouns, such as kinship relation or humanity (see (5) and Fig. 3).

**Discussion:** Based on the evidence from Japanese, we will propose a possible process of formal abstraction in child grammar.

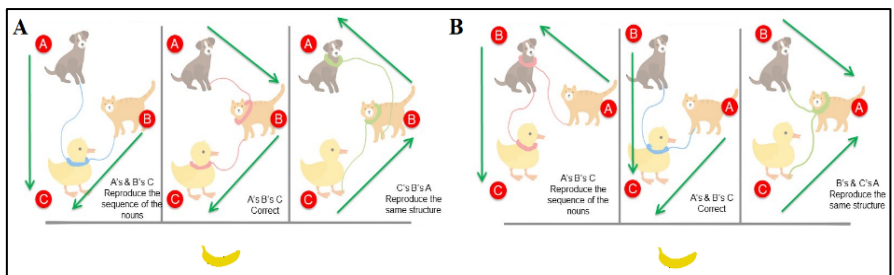
**Stimulus Sentences:**

- (1) *ribon-ga tuiteiru koppu-ni haitteiru haburasi-wa*  
 ribbon-nom attaching cup-in being.in toothbrush-top  
*kore da yo*  
 this-be-aff  
 “The toothbrush that is in the cup that has the ribbon is this”  
 i. [the toothbrush [that is in the cup] [that has the ribbon]] (DR-representation)  
 ii. [the toothbrush [that is in the cup[that has the ribbon]]] (IR-representation)
- (2) *kuma-no shita-no kirin-no shita-no shimauma (o misete)*  
 bear under giraffe under zebra  
 “Show me a zebra under a giraffe under a bear.” (2-ident-LOCs)
- (3) *wani-no shita-no shimauma-no tonari-no raion (-o misete)*  
 crocodile under zebra next to lion (-Acc show me)  
 “Show me a lion next to a zebra under a crocodile.” (2-diff-LOCs)
- (4) *inu-no neko-no ahiru (ni banana-o agete)*  
 dog-Poss cat-Poss duck (to banana-Acc give)
- (5) *shiro-chan-no onii-san-no nezumi-no koppu (-o misete)*  
 White-Poss brother-Poss mouse-Poss cup (Acc show me)  
 “Show me Shiro’s brother’s mouse’s cup.”

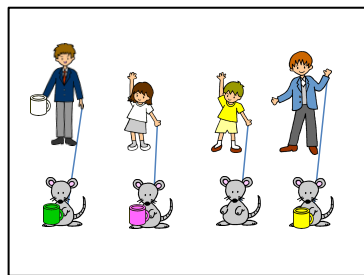
**Figures:**



**Fig. 1**



**Fig. 2**



**Fig. 3**

**Selected References:** Chomsky (2007) Approaching UG from Below. In Sauerland and Gärtner (eds.) Interfaces + Recursion: Chomsky's Minimalism and the View from Syntax-semantics. 1-30. / Chomsky (2010) Some Simple Evo Devo Thesis: How True Might They Be for Language? In Larson et al. The Evolution of Human Language: Biolinguistic Perspectives. 45-62. / Limbach and Adone (2010) Language Acquisition of Recursive Possessives in English. BUCLD 34. 281-290. / Pérez-Leroux et al. (2018) Strong Continuity and Children’s Development of DP recursion. In Amaral et al. (eds.) Recursion across Domains. 296-313. / Sauerland and Gärtner eds. (2007) Interfaces + Recursion: Chomsky's Minimalism and the View from Syntax-semantics. 1-30. / Terunuma et al. (2017) Acquisition of Recursive Possessives and Locatives within DPs in Japanese. BUCLD 41. 626-6.