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# Caused motion events in Swedish as (2)L1 : the influence of typological factors in monolingual and bilingual initial acquisition

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### Introduction

The study presented here is situated in Hickmann's line of research on the development of motion events in children and adults. The expression of space in Swedish is an unexplored area (but see Hellerstedt 2013). Swedish is a Germanic language that is close to both German and English, two typically satellite-framed languages, often studied in the realm of Talmy (2000). According to his dichotomy, progressively modified and developed by Maya Hickmann and collaborators over the last twenty years (see e.g. Arslangul 2018), a verb-framed language such as French typically encode the direction of the event (PATH) in the verb and optionally the manner in a periphrastic expression beyond the verb phrase, whereas satellite-framed languages express the two notions PATH and MANNER more tightly within or close to the verb phrase (*traverser la rivière à la nage* versus *swim across the river*). In this study we analyse the development of the expression of motion events in Swedish children. To this end, two experiments based on cartoons designed and used by Maya Hickmann and her team - one on caused movement and the other on voluntary movement - were carried out. Only the caused motion experiment is presented in this poster.

The bulk of research on movement in space has focused on first language acquisition lately also on adult L2 (see e.g. Oschenbauer 2010, Demagny 2013, 2015, Arslangul, Hendricks, Hickmann, & Demagny 2018), but less on simultaneously bilingual children who grow up with two languages from birth (except for Engemann 2012). The second part of the project presented here concerns simultaneously (2L1) bilingual children (Swedish and French). Studying the development of two typologically diverging representations of space - French being a verb-framed language and Swedish satellite-framed - can shed light on how language structures affect cognitive representations of space when two languages are developed in parallel from birth. In this respect, little is known on whether one language combination is "easier" than another, and, in this presentation, whether a satellite-framed language has an impact on the lexicalisation patterns of a verb-framed language.

### Methodology

#### Participants

- 4 groupes of Swedish L1 : 4, 6, 8 and 10 years
- A group of Swedish adults L1
- 6 2L1 bilingual children aged 6 and 8 yrs (Swedish-French, pilot study, Lycée français, Stockholm)
- Random assignment to four different item orders of semantic components of caused motion.
- Transcription and coding in CHILDES/CLAN

#### Stimuli

- 32 animated cartoon clips of complex caused motion events, 8 distracter items.
- Caused motion : an agent (Popi) carries out an action causing the displacement of an object and follows the object until the end of the movement (same PATH for agent and object)
- Four types of motion (MANNER): slide, roll, pull, push, four directions of motion (PATH) : across, down, up, into and two scenes for each combination.

#### Examples

- 1) pull / roll :
- down / suitcase / hill / roof *Popi is pushing a suitcase down a hill*
  - into / tyre / cave / house *Popi is rolling a tyre into the cave*

- 2) Push / slide :
- across / wooden horse / street *Popi is sliding a wooden horse across the street*
  - up / bag / roof / dune *Popi is pushing the bag up on the roof*

- Productions were coded for all devices that expressed CAUSE, PATH or MANNER: main verb, satellites (up,down), prepositional phrases, adverbial phrases etc.

#### Two analyses

- **Semantic Density** : number of semantic components of CAUSE MANNER and PATH in each utterance
- **Information Locus** : the distribution of surface components, i.e. the number of verbs and other devices encoding the semantic components



Popi rullar (MANNER) höbalen över vägen (PATH)  
*Popi rolls the haybale across the street*

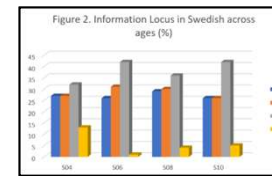
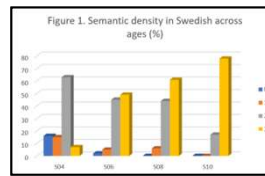


Popi drar (MANNER) barnvagnen över gatan (PATH)  
*Popi pulls the pram across the street*

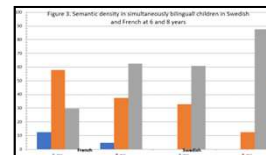
#### Predictions

1. Due to typological factors, the monolingual Swedish children should reflect the lexicalization patterns of their L1 at an early age: satellite-framed languages provide speakers with more compact structures to express several semantic components in the same sentence (Ochsenbauer & Engemann 2011)
2. Due to general cognitive factors, the semantic density of productions should progress with age.
3. Due to the variability and multi-factorial choice of encoding motion in French (Hendricks et al. 2008), any potential transfer in the bilinguals should be unidirectional, from Swedish to French

### Results



As shown in Figure 1, children encode two components already at 4 years and the semantic density increases steadily from 6 years onwards, with a peak at 10 years, where utterances with 3 components dominate at the expense of less semantically dense expressions. The Information Locus (Figure 2) shows that PATH is, from 6 years onwards, the most frequently encoded notion, followed by MANNER.



The bilingual children initially separate the patterns of their two languages, but a slight influence from Swedish appears in French at 8 years, by the increase of 3 components utterances.

### Discussion

- The typological pattern of the satellite-framed language Swedish was observed already at 4 years with CAUSESE, MANNER and PATH encoded in one sentence. A developmental path across ages appeared in all children in both analyses.
- The largest developmental difference was found between the 10-year-olds and the other age groups.
- The 4-year-olds differed from the other groups in that they rarely produced utterances with three components. This was due to the choice of manner verb. The verb *gå* 'walk' has a special status: the Swedish language makes a distinction between the fact of moving on foot and the fact of moving with the aid of a means of transport, where *åka* 'go by a vehicle' has to be used. Given that Popi was always walking, the major manner verb used by the youngest children was *gå* 'walk'. To include the object, with the intransitive verb *gå*, they had to use a prepositional phrase which did not express motion and was not included in the analysis, as in *Popi gick ner med paketet* 'Popi went down with the parcel'.
- From 8 years onwards, the children started to use a variety of manner verbs, such as roll, pull and push. The increase of semantic density is explained by a tendency to « double-mark » PATH in the same utterance, as in : *Han drar ner väskan ner för berget och ner till marken*. 'He pulls down the suitcase down along the hill and down to the ground'.
- In adult Swedish, this is a redundant construction, the satellite gives sufficient information as in *Popi drar ner paketet för kullen* 'Popi pulls down the parcel from the hill'. Only the 10-year-old used the targetlike construction
- The youngest age groups tended to use *dra* 'pull' as a dummy verb whatever the manner and the object, as in *Popi drog upp badbollen för kullen* 'Popi pulled the ring up the hill'. Half of the six-year-olds used this simplified and erroneous strategy, that disappeared in the 8-year-old group.
- Our predictions on the bilinguals were only partly confirmed. At 6 years, the lexicalisation patterns were separated in both languages (French of Swedish). However, at 8 years, the bilinguals, when speaking French, adopted the Swedish pattern of semantic density, expressing MANNER to a higher extent than in their French at 6 years. Ochsenbauer and Engemann (2011) show a similar unidirectional cross-linguistic influence in bilingual descriptions in English and French.

### Conclusion

- The coding of semantic density and information loci revealed similarities as regards the cognitive development of the Swedish children. The diversification of MANNER verbs lagged behind, as shown by the overuse of the Swedish equivalent to 'go' and the tendency to stick to a 'dummy' verb to express all types of caused events. From 8 years onwards, lexical diversity of verbs increased.
- From the typological viewpoint: Swedish turns out to be a highly satellite-framed language where the information loci very consistently showed a constant high figure for PATH (the primary notion according to Talmy)
- The results from a pilot study on bilingual children (Garant 2013) showed some cases of transfer of lexicalization patterns from Swedish to French at 8 years, but not at 6 years. The evolution after 8 years and the role of dominance have to be examined to get a clearer picture of transfer versus separation in simultaneous bilinguals
- As for the dominance of the verb *gå* 'walk' in the youngest groups, comparisons with the voluntary motion experience, conceived by Maya Hickmann and collaborators, would be necessary to confirm the results of this study.

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