Caused motion constructions and semantic generality in early acquisition of French*

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Abstract

The impact of specific characteristics of maternal input on language acquisition has undergone considerable scrutiny in recent years (Sampson 1989, Goldberg 1995, Lieven, Pine & Baldwin 1997, O'Grady 1997, Tomasello & Brooks 1999, Cartwright & Brent 1997, Naigles & Hoff-Ginsberg 1998). Numerous properties have emerged from this literature as being potentially predictive of the acquisition of verbs. Three of these properties - frequency, verb semantics and the construction in which verbs appear – will be examined in longitudinal data from two French speaking mother-child dyads. Specifically, the relation between maternal input and child uptake will be studied for verbs in a particular semantic domain – causing inanimate objects to move, or "putting events" (Bowerman, Brown, Eisenbeiss, Narasimhan & Slobin 2002). French, like English, has an early acquired generic verb *mettre* ('put') as well as a host of other more specific verbs, such as *attacher* ('to attach to'), *poser* ('to put down', 'to let go of'), *accrocher* ('to hook (on)to'), etc. The results reveal two distinct acquisition profiles. One child shows a clear generic verb bias and a construction approach to early expression of caused motion events. The other child shows greater diversity in lexical verbs expressed and less use of diverse constructions. The data from these two children highlight how two points of entry into a linguistic system are possible – when the language provides them.

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Introduction

Pinpointing the exact nature of the relationship between specific properties of child-directed speech and the child's acquisition of grammar is the object of much current research. Recent research (Behrend 1995) has argued for a three pronged approach which requires consideration of 1) characteristics of the child's propensities, 2) grammatical and semantic characteristics of the language to be acquired, and 3) specific characteristics of child-directed speech. A very fruitful body of research aimed at uncovering how child-directed input interacts with characteristics governing the child's intake can be found in the literature concerning the acquisition of verbs.

Child propensities: nouns before verbs

Gentner's (1982) pioneering work brought attention to a noun bias in the production of children acquiring different languages. Subsequent research has buttressed the noun bias in children's early speech by showing that children naturally perceive objects in ways that facilitate noun learning (Markman 1989). Nouns, following the Natural Partition Hypothesis, show an important, natural mapping advantage in comparison to verbs. The words *book* or *table* refer to classes of objects which remain relatively stable despite considerable variation in contexts of usage. Despite the fact that the book can be the child's or someone else's, can be red or blue, torn or intact, under a table or on top of a table, the word *book* refers to the same class of objects. Verbs, however, do not show this same stability (Givon 2001). In French a verb such as *mettre* ('to put'), for example, can cover a very wide range of activities, such as inserting a puzzle piece into a puzzle, pouring water into a glass, stuffing a teddy bear's head into a small sack, putting on a sweater, etc.

Words for denoting activities are also relational concepts, and thus their acquisition requires that the child establish relationships between, for example, the doer of the action and the meaning of the verbs. In order to assign a meaning to a verb such as *marcher* ('to walk', 'to work', or 'to be appropriate'), the French child needs to pay attention to the subject of the construction. Humans and animals can engage in activities, such as *walk* (*Pierre marche*, 'Peter is walking') while machines can not (*la télé marche*, 'the television works'). In addition, the undergoer of the action also supplies keys to the meaning of the verb. It is possible, for example, to *déchirer* ('to tear') paper or fabric, but not glass or mud. It can be argued, then, that nouns facilitate the child's work of mapping sounds to meaning whereas verbs, because of their instability of meaning across different contexts of use and their relational properties render the child's work more difficult.

Characteristics of the language to be acquired

Gentners's landmark study inspired a number of in-depth analyses of the noun bias in the early production of children acquiring different languages. The bias was confirmed for English and Hebrew (Dromi 1987, Goldfield 1993). However, conflicting results have been observed for Italian. Using a parental report Casselli, Bates, Casadio, Fenson, Fenson, Sanderl & Weir (1995) confirmed a noun bias, whereas Camaioni & Longobardi (1995), using naturalistic speech samples, found that nouns are less predominant than expected when the children's vocabularies range from 30 to 89 word types. Acquirers of Korean and Mandarin also appear to use as many verbs as nouns in their early productions (Choi & Gopnick 1995, Tardif 1996). To understand the differences observed between children acquiring different languages and the universal child propensity for object names, attention was turned to characteristics of the language to be acquired.

Position of the verb in the construction has been shown to be relevant to verb acquisition. A highly salient position, often identified with utterance final position, is more likely to be filled by

a verb in Chinese than in English (Goldfield 1993, Tardif, Shatz & Naigles 1997) due to frequent use of subject and object drop. This fact may explain why the proportion of verbs in the production of young Mandarin speakers is higher than that for English. Camaioni & Longobardi (2001) explain that the high percentage of verbs in Italian children's vocabulary is due to the pro-drop parameter, which results in more verbs in highly salient utterance initial position. In addition, when objects of transitive verbs are pronominalised in Italian, they move to preverbal position which results in many transitive verbs in utterance final position. Thus, language specific grammatical facts dictate that Italian children will hear verbs in salient initial or final utterance position. Positional salience has also been invoked to explain why some early event words used by English-speaking children are not verbs at all, but rather are verb particles such as *up* or *down* (Smiley & Huttenlocher 1995).

Child directed speech

In addition to language specific characteristics, caretaker's modifications of speech addressed to children has also been identified as influencing the acquisition of verbs. In addition to position of the verb in the utterance, as discussed in the previous paragraph, Naigles & Hoff-Ginzberg (1998) identified verb frequency and diversity of their use in constructions as contributing to acquisition. The proportion of verbs in children's total vocabulary varies in children acquiring different languages such as English, French, Japanese, Mandarin or Korean and has been correlated with varying proportions of verbs in the input (Bassano 2000, Chenu & Jisa 2005; Choi & Gopnik 1995; Gopnik, Choi & Baumberger 1996; Tardif 1996, Gelman & Tardif 1998, Camaioni & Longobardi 2001). Thus, the specific proportion of verbs in the input of the language in question influences the proportion of verbs in the child's production.

A greater diversity of constructions in which a given verb occurs has been claimed to help the child determine the verb's meaning (Landau & Gleitman 1985, Naigles 1990). Hearing a verb in a variety of syntactic contexts entrenches the child's apprehension of the verb's meaning (Behrend 1995). Thus, the more the child hears a verb in diverse syntactic frames, the more keys the child obtains as to its meaning (Naigles 1990, 1996, Naigles, Gleitman & Gletiman 1993, Naigles & Kako 1993, Naigles & Hoff-Ginsberg 1995). Learning the meaning of action verbs, for example, requires that the child disentangle a variety of potential components of meaning. Hearing the structure in a wide diversity of constructions supplies the child with more keys to verb meaning.

The preceding paragraphs have attempted to illustrate how understanding the relationship between child-directed input and child intake requires consideration of characteristics of the child's learning mechanisms, characteristics of the language to be acquired, and characteristics of the specific maternal input (Behrend 1995). In the work to be presented here we will examine how French-speaking mothers and children talk about events in which an inanimate object is caused to move to a new location, or "putting events".

Generic verbs

Among the most frequent verbs in child-directed speech are generic verbs which apply to a wide range of arguments and are appropriate in a wide range of contexts (Bybee, Perkins & Pagliuca 1994, Heine 1993). And, it has been argued that a large number of different uses of a small number of generic verbs favours the child's abstraction of the verb's meaning (Sandhofer, Smith & Luo 2000). The generic verb *mettre* ('put'), as mentioned earlier, is very frequent and can be used to denote a multitude of actions. In addition to the generic verb *mettre*, French has a host of other more specific verbs that could be used in the same situations as *mettre (*for example,

accrocher, ‘to hook onto’, *attacher*, ‘to attach to’, *enfiler* ‘to slip on’). Generally, however, these more specific verbs are observed infrequently in child-directed speech. Generic verbs are frequent in child-directed speech and acquired early on in many languages (Clark 1978, 1996). Slobin (1996) suggests that mothers, as do all speakers, prefer generic verbs because they conform to Gricean maxims (Grice 1975) that require making contributions which are only as informative – not too little and not too much - as is required for the current purposes of exchange.

Generic verbs, then, confound both frequency in the input and a high degree of semantic generality. Untangling the contributions of frequency and of semantic generality to the acquisition of verbs is no easy matter. Theakson, Lieven, Pine & Rowland (2004) attempted to identify the contribution of these two factors by using a multivariate analysis on data from nine English-speaking children (1;10-3;00) from the Manchester corpus (Theakson, Lieven, Pine & Rowland 2001). Given the difficulty of estimating semantic generality, the authors used two measures: one based on Pinker (1989) and Clark (1978) and the other based on Ninio (1999a, 1999b). The results show that while input frequency plays a significant role for all the children, semantic generality is a significant predictor for the age of acquisition and for the syntactic diversity of verb usage in children’s speech for only a few children.

Ninio (1999a, 1999b) reviews the grammaticalization literature (Dixon 1982, Traugott & Heine 1991; Bybee, Perkins & Pagliuca 1994) which suggests that frequency of use and semantic generality are inherently correlated, as high frequency is both a cause and an effect of semantic generality. Ninio (submitted) criticizes the Theakson *et al.* (2004) study by pointing out that two effects which are in an inherent correlation relationship (frequency and semantic generality) should not be supposed to effect independently a third variable (verb acquisition).

A learning advantage of high frequency, general purpose verbs was explored by Goldberg, Casenhiser & Sethuraman (*to appear*). They hypothesized that high frequency of generic verbs in

a particular construction allows children to establish a correlation between the meaning of a particular verb in a constructional pattern and the pattern itself. The authors show that there is considerable regularity between the syntactic patterns in which verbs are observed and verb semantics. For instance, verbs found in the pattern "X causes Y to move Z $_{path/location}$" (Subject Verb Object Oblique, 'John puts the glass on the table') were more often than would be expected by chance to be associated with caused motion in the early speech of 27 English-speaking children as well as in the speech directed to the children.

"Putting" events: generic *mettre*

Languages differ in the way meaning components of actions are lexicalised (Talmy 1985). For example, in contrast to French generic *mettre* ('put'), Korean has five more specific verbs which invite the child to pay attention to more specific characteristics of, and the relationship between the figure and ground (Bowerman & Choi 2003). Putting a hat on one's head and putting an object on a horizontal surface require two different verbs. The manner of attachment, whether the figure and ground are in a tight fit (putting a puzzle piece into a puzzle) or a loose fit (putting an apple into a large bowl) require yet again two distinct verbs. While French generic *mettre* masks these different action configurations and categorises them all with one verb, Korean subdivides the category with five more specific verbs.

Bowerman, Brown, Eisenbeiss, Narasimhan & Slobin (2002) studied how mothers and young children speaking eight different languages talk about events of putting things in places The eight languages included four satellite-framed languages (English, Finnish, German and Russian), which characteristically encode the path of motion in a satellite (e.g. particles, prefixes, directional adverbs) and four verb-framed languages (Hindi, Spanish, Turkish, Tzeltal), which encode the path in the lexical verb (Talmy 2000). In verb-framed languages information

concerning the manner or cause of motion is typically encoded in a constituent outside the verb, such as an adverbial. In satellite-framed languages, this information is most typically encoded in the verb itself.

The authors identified the following relevant meaning components of "putting events".

FIGURE: the object that is caused to move

ACTION: the placement action (caused motion toward a goal)

GROUND: the location toward or from which the figure is moved

RELATION: The resulting spatial relation between the figure and the ground

Two hypothetical examples using the generic verb *mettre* and a more specific verb, *accrocher* ('to hook on(to)') are given in (1 a, b) and (2 a, b).

(1)	a.	mettre	la tasse	sur	la table
		ACTION	FIGURE	RELATION	GROUND
	b.	mettre	la tasse	là	
		ACTION	FIGURE	GROUND: DEIXIS	
(2)	a.	accrocher	le manteau	à la patère	
		ACTION&RELATION	FIGURE	GROUND	
	b.	accrocher	le manteau	là	
		ACTION&RELATION	FIGURE	GROUND: DEIXIS	

The children acquiring the four satellite-framed languages were observed to use few verbs in their early production and to emphasize the spatial relation (e.g., *on* [RELATION] *table* [GROUND], *cup* [FIGURE] *on* [RELATION], while the children acquiring the verb-framed languages preferred generic verbs in their early productions (e.g. *put* [ACTION] *it* [FIGURE], *put* [ACTION] *it* [FIGURE]

here [GROUND: DEIXIS]), as well as more specific verbs, such as *insert* [ACTION&RELATION] *it* [FIGURE].

French is predominantly a verb-framed language (Kopecka 2004) in that action and relation/trajectory are conflated in the verb (Talmy 2000). It has a full set of "path" verbs such as *entrer* ('enter'), *sortir* ('exit'), *descendre* ('go down'), *monter* ('go up'). In descriptions of "putting events" French has many verbs which conflate different meaning components. A verb such as *accrocher* ('to hook on(to)'), specifies the relation between the figure (the object to be placed) and the ground (the location toward which the figure is moved). It also specifies that the ground should have a prominent part which can be conceived of as a hook. A verb such as *insérer* ('to insert in(to)') specifies that the figure be smaller than the ground, that the relationship between the figure and the ground be a tight fit and that the ground be conceived of as a container. The verb *verser* ('to pour in(to)', 'to pour on(to)') requires that the figure be liquid (water, juice) or a set of little pieces (flour, sand, rice). The ground, if mentioned, can be construed either as a container (*verser dans la tasse* 'pour in(to) the cup') or as a horizontal surface (*verser sur la table,* 'pour on(to) the table').

The generic verb *mettre* can be used in place of all the above mentioned verbs, but the resulting relationship between the figure and the ground is distributed (Talmy 2000) between the verb and the preposition, i.e., *mettre dans* ('put in'), *mettre sur* ('put on'), *mettre entre* ('but between'), *mettre à côté de* ('put next to'). More specific verbs constrain the spatial prepositions such as *insérer la pièce de monnaie dans/*sur la machine* ('insert the coin in(to)/*on(to) the machine'), as opposed to *mettre la pièce de monnaie dans/sur la machine* ('put the coin in(to)/on (top of) the machine'). Still other verbs take a general preposition *à*: *accrocher la veste à la patère (*'hook the jacket on(to) the coat peg'), *attacher le sac à la poussette (*attach the bag to the stroller'), *ranger les stylos à leur place* ('put the pens away in their place'). This general

preposition does not indicate a specific relation between the figure and the ground. In addition *à* marks a number of other relations, such as dative (*Jean donne une fleur à Marie*, 'John gives a flower to Mary'), location (*je suis à la maison* ('I'm at home'), goal (*je vais à l'école*, 'I'm going to school').

An additional characteristic of 'putting events' in verb framed languages is that the ground can be left unmentioned, as shown in (3 a, b, c.). The verb is enough to convey the relationship between the figure and the ground as well as the direction of movement, or the trajectory, which are encoded by a satellite in English.

(3) a. *Jean pose la tasse sur la table*. 'John puts the cup (down) on the table.'

b. *Jean pose la tasse*. 'Jean puts the cup (down).'

c. *Jean la pose*. 'Jean puts it (down).'

However, given that *mettre* does not convey such a specific relationship, the omission of the ground is only possible in highly contextualised situations in which the ground can be inferred.

In the following section we will present a study of how "putting events" are talked about by two French-speaking mothers and children in spontaneous conversation. We will begin by presenting the participants and the coding system. The results of the study and discussion of the results will follow.

The participants

Two monolingual French-speaking children (MAR (girl) and THE (boy)) and their mothers were recorded (audio and video) every two weeks in spontaneous interaction in the home from the age of 12 months to 36 months. For this study we used two transcriptions at four time points (18, 22, 24 and 29 months) for each dyad. For the children we examined all utterances from both transcripts. Given that the mothers speak much more than the children, we examined

maternal utterances in only one transcription for each point in time. Table 1 gives the total number of utterances produced by the mothers (in one transcription from each time point) and the children (in two transcriptions from each time point) and the MLU measures for the children at the four points in time.

<< Insert Table 1 about here >>

Analyses: syntax and semantics

Analyses were undertaken to explore "putting event" constructions from two different points of view. We examined, on the one hand, the syntactic constructions used by the mothers and the children, and the other, the semantic components expressed in those constructions.

VOL constructions

The major syntactic constituents (Subject, Object, Dative, Oblique and Verb) of all maternal and child utterances were coded, following the framework given in Goldberg *et al.* (*to appear*). Constructions containing a Verb, an Object and a Locative (subtype of Oblique), in any order, were extracted with the goal of ascertaining if, as predicted by Goldberg *et al. (to appear*), this construction type serves as a key of caused motion meaning for the child. In what follows VOL constructions refer to two different word orders. When object constituents are pronominalized their position moves, as in Italian, from post-verbal to pre-verbal clitic position as shown in (4b).

(4) a. *Pierre met une fleur dans le vase.* 'Pierre puts a flower in the vase.'

b. *Pierre la met dans le vase/dedans.* 'Pierre puts it in the vase/inside.'

Demonstrative pronouns, in contrast to clitic pronouns remain in post-verbal position, as shown in (5).

(5) *Pierre met ça dans le vase/dedans.* 'Pierre puts that in the vase/inside.'

Table 2 shows the total number of VOL constructions, the total number of verb types used in those constructions, the total number and percentage of VOL constructions which encode caused motion and the percentage of caused motion constructions containing the generic verb *mettre*.

<< Insert Table 2 about here >>

As can be seen in Table 2, the majority of VOL constructions addressed to children encode caused motion (55% in the discourse of THE's mother and 68% for MAR's mother). In addition, the majority of those constructions contain the generic verb *mettre* (78% for THE's mother and 81% for MAR's mother). These results argue in favour of the prediction that VOL constructions in maternal speech convey a caused motion meaning. Turning now to the children's production, Table 2 shows that THE produces very few VOL constructions. At 29 months, 50% (3/6) of the VOL constructions encode caused motion and two of the three occurrences include *mettre*. MAR produced more VOL constructions and at 24 months shows a very clear construction bias: all of the eleven occurrences of VOL constructions encode caused motion and include *mettre*. At 29 months there is more diversity in MAR's VOL constructions, with 38% (8/21) encoding caused motion. Of those 8 caused motion utterances 75% (6/8) include the verb *mettre*.

Our next question concerned caused motion meanings that were not found in VOL constructions. In order to extract the relevant verbs from the transcriptions we searched through an on-line electronic dictionary (*Trésor de la langue française,* [http://atilf.atilf.fr/tlf.htm]) for all the synonyms for the verb *mettre* in its transitive use as a "putting event" verb for situations in which an inanimate figure is moved toward an inanimate ground. Thus, posture (*se mettre debout,* 'to stand up') and self motion (*emmener,* 'bring'; *porter,* 'carry') verbs were excluded. In addition, utterances including *prendre* ('take') which could not be paraphrased with *mettre* were excluded. The resulting list was compared to the verbs found in the transcriptions and yielded twenty matches (*accrocher* ('to hook on'), *attacher,* ('to attach to'), *coincer* ('to stick into'),

emballer (‘to wrap up in’), *enfoncer* (‘to stuff into’), *enlever* (‘to take away from’), *installer* (‘to install’), *jeter* (‘to toss’), *lancer* (‘to throw’), *ôter* (‘to take away from’), (*re)placer* (‘to place’), *planter* (‘to stick into’), *poser* (‘to put down on’), *(re)pousser* (‘to push away’), *ranger* (‘to put away’), *(re)monter* (‘to put up’), *renverser* (‘to spill out of’), *(re)sortir* (‘to take out’), *(re)tourner (*‘to turn over’), *verser* (‘to pour’)). All utterances in the transcripts containing *mettre* or one of the twenty other “putting event” verbs were extracted and examined for the semantic components of FIGURE, ACTION, RELATION, GROUND as outlined in Bowerman *et al*. (2002).

In their study Bowerman *et al.* (2002) did not consider word order variation in different constructions used to talk about “putting events”. Given the importance of word order variation in French, however, we did code order of the meaning elements in the constructions. As mentioned above, pronominalised objects are cliticized and move obligatorily to pre-verbal position (4b). In addition to this grammatically required variation, other variations in word order, in particular dislocations, are pragmatically motivated. Dislocation structures do not modify the syntactic relation between the verb and its arguments. They do, however, modify the information structure and play a major role in topicalisation and focus. These dislocation structures have received considerable attention in the literature (Barnes 1985, Lambrecht 1981, 1984, 1994, Berrendonner & Reichler-Béguelin 1997, Wunderli 1987, Cinque 1977). (6) shows typical variations encountered in “putting” events.

(6)a. *Jean met la tasse sur la table*. ‘John put the cup on the table.’

b. *Jean$_i$ il$_i$ met la tasse sur la table*. ‘Jean$_i$ he$_i$ put the cup on the table.’

c. *Il$_i$ met la tasse sur la table Jean$_i$*. ‘He$_i$ puts the cup on the table Jean$_i$’

d. *La tasse$_i$ Jean la$_i$ met sur la table*. ‘The cup$_i$ Jean puts it$_i$ on the table.’

e. *Jean la$_i$ met sur la table la tasse$_i$*. ‘Jean puts it$_i$ on the table the cup$_i$.’

f. *Sur la table il met la tasse*. ‘On the table he puts it.’

(6a) is a basic declarative utterance with no dislocation. (6b) is a left subject dislocation with a clitic trace (*il*). (6c) shows a right subject dislocation. (6d) and (6e) show, respectively, left and right dislocations of the object (*tasse*) with the clitic trace (*la*). Oblique arguments can be either dislocated, leaving a trace (*y, en*) or fronted as illustrated in (6f). Demonstrative proforms and disjunctive pronouns can be used instead of lexical items, as illustrated below.

(7) a. *Celui-là/Lui$_i$ il$_i$ met la tasse sur la table*.'That one/Him$_i$ he$_i$ puts the cup on the table.'

b. *Il$_i$ met la tasse sur la table celui-là/lui$_i$.* 'He$_i$ puts the cup on the table that one/him$_i$.'

c. *Ça/Celle-là/Elle$_i$ il la$_i$ met sur la table*. 'That/That one/Her$_i$ he puts it$_i$ on the table.'

d. *Il la$_i$ met sur la table ça/celle-là/elle$_i$*. 'He puts it$_i$ on the table that/that one/Her$_i$.'

Table 3 shows the construction types used by the mothers and children to encode the semantic components in "putting events".

<< Insert Table 3 about here >>

As can be seen from the list given on Table 3, there is considerable diversity in the constructions observed. The transitive constructions with a locative argument (VOL) are listed at the top of the table, followed by transitive constructions without a locative argument (VO) and by intransitive constructions with or without locative arguments (V and VL). In normative French these last two constructions would be considered ungrammatical. At the bottom of the list are two (SV(L)) constructions – resultative passive and middle voice. These two constructions differ from the others in that the inanimate object to be moved in the event is the grammatical subject, rather than the grammatical object.

Semantic components of putting events

ACTION, FIGURE and GROUND were coded following Bowerman *et al.* (2002). RELATION was coded in two different ways, either as being part of the verb's meaning and/or as being conveyed

by a preposition. For example, *poser la crèpe* (‘put down (on) the crèpe’), *poser la crèpe là* (‘put down (on) the crèpe there’) and *poser la crèpe sur la table* (‘put down (on) the crèpe on the table’) were coded as illustrated in (8a), (8b) and (8c). However, for the generic verb *mettre*, RELATION was specifically coded only if a spatial preposition was used.

(8)a. *poser* [ACTION + RELATION] *crèpe* [FIGURE]

b. *poser* [ACTION + RELATION] *crèpe* [FIGURE] *là* [GROUND]

c. *poser* [ACTION + RELATION] *crèpe* [FIGURE] *sur* [RELATION] *table* [GROUND]

RELATION, then, can be either conflated in the verb (8a) or distributed between the verb and a spatial preposition (8c). The GROUND argument can be either a deictic (8b) (*là*, ‘there’), a prolocative (*dessus*, ‘on top of’) or a prepositional phrase (8c). Examples from the data are given on Table 4.

<< insert Table 4 about here >>

In the majority of cases, the grammatical Object in the construction is the semantic FIGURE, the inanimate object that is moved in the event. For the resultative passives and the middle voice, however, the grammatical Subject refers to the FIGURE. The oblique argument L(ocative) corresponds to the GROUND.

Results

Table 5 shows the occurrences of generic *mettre* and other more specific verbs used in utterances encoding caused motion of an inanimate object. The generic verb *mettre* is more frequent than more specific verbs for both mothers. However, differences are observed in the children.

<< insert Table 5 about here >>

A somewhat higher proportion of caused motion events are encoded using generic *mettre* in the production of MAR’s mother (71%) as compared to that of THE’s mother (61%). This

difference in the mothers is reflected in the children's production. In her earliest productions MAR shows a very clear bias towards generic *mettre*. It is only at 29 months that MAR shows a more balanced distribution between the use of *mettre* and the other verbs. THE, in contrast, uses only conflated verbs at 18 months and throughout the entire period studied THE shows a preference for more conflated verbs. Like MAR, at 29 months THE shows a more balanced distribution between the use of *mettre* and the other verbs. Thus, the two children appear to enter the semantic domain of caused motion differently: MAR shows a clear preference for the generic verb *mettre*, while THE shows an early preference for other more conflated verbs.

The generic verb *mettre*, as described earlier, conveys less information about the RELATION between the FIGURE and the GROUND than do the other more conflated verbs. The figures on Table 2 indicate that MAR uses more VOL constructions for caused motion events than does THE, and that the majority of MAR's VOL constructions use *mettre*. It may be the case that the semantic generality of *mettre* invites MAR to use more arguments in general in order to convey information concerning the event, while THE uses more conflated verbs with fewer arguments.

Table 6 shows the distribution of verb phrase constructions using either the verb *mettre* or a more specific verb encoding caused motion. In this table V refers to constructions containing only ACTION (*mettre*) or ACTION + RELATION (conflated verbs). VO refers to constructions which mention an ACTION (*mettre*) or ACTION + RELATION (conflated verbs) and a FIGURE (O). VL refers to constructions which mention an ACTION (*mettre*) or ACTION + RELATION (conflated verbs) and a GROUND (L). VOL is used to refer to the family of constructions (SVOL, SoVL, OSoVL and LSVO) which contain a V mentioning an ACTION (*mettre*) or ACTION + RELATION (conflated verbs), a FIGURE (O) and a GROUND (L). Resultative passives and middle voice in which the FIGURE is the grammatical subject are very infrequent and will not be commented on any further.

<< insert Table 6 about here >>

A contrast between the two children is observed in the utterances in which only a verb is used to convey the caused motion event. Of the 54 caused motion events expressed by THE, 40 (74%) are V utterances (4 with *mettre* and 36 with conflated verbs), while out of the 111 caused motion events expressed by MAR only 14 (13%) are V utterances (7 with *mettre* and 7 with conflated verbs). A second contrast is observed in the expression of the GROUND. Of the 111 caused motion events expressed by MAR 64 (58%) show an L argument (63 with *mettre* and 1 with a conflated verb). Of the 54 events expressed by THE only 6 (11%) contain an L argument (4 with *mettre* and 2 with a conflated verb). Finally, the children contrast in the expression of the FIGURE component. For MAR 51 (50%) of caused motion utterances show an O argument (40 with *mettre* and 11 with conflated verbs), while only 14 (26%) of THE's caused motion utterances express a FIGURE explicitly (5 with *mettre* and 9 with conflated verbs).

Both of the two mothers produce caused motion verb phraseconstructions encoding the action (V) only: THE's mother 10% (12/116, 1 with *mettre* and 11 with other verbs); MAR's mother 6% (11/175, 1 with *mettre* and 10 with conflated verbs). For both mothers these constructions are more typical with conflated verbs. In the discourse of THE's mother GROUND components are encoded in 47 of the 116 (40%) caused motion constructions (42 with *mettre* and 5 with conflated verbs). For MAR's mother the proportion of caused motion utterances explicitly mentioning a GROUND component is somewhat higher: 90 of the 175 (51%) caused motion constructions show an L argument (83 with *mettre* and 7 with conflated verbs). Given that all of the verbs examined are transitive in normative French, the explicit mention of a FIGURE component is very similar for the two mothers: THE's mother 81% (95/116, 62 with *mettre* and 33 with conflated verbs) and MAR's mother 84% (148/175, 111 with *mettre* and 37 with conflated verbs).

Two acquisition profiles

This study was undertaken to examine the role of frequency, verb semantics and constructions in the acquisition of verbs. It has been argued that high frequency verbs are acquired early and that generic verbs, being both high frequency and semantically transparent, are also acquired early (Theakson, *et al*. 2004). A stable syntactic construction frame has also been suggested to play a role in acquisition (Goldberg, *et al. to appear*).

The semantic domain of caused motion events was selected for this study because French has, on the one hand, a high frequency generic verb *mettre* (‘to put’) which often calls for more verb satellite constructions, and on the other, a host of less frequent, more specific verbs which conflate information about the action as well as the relation between the object to be moved and the ground to which the object is moved. Thus, for this semantic domain French shows two somewhat different typological patterns, one with a high frequency generic verb and the other with less frequent conflated verbs.

These two patterns are reflected in the two children’s early expression of caused motion events. From early on MAR shows a clear generic verb bias and a related bias towards the use of constructions which express the ground component. In contrast, THE shows a conflated verb bias in his early expression of caused motion events and mentions a ground component very infrequently. Despite the fact that THE’s mother uses a larger proportion of conflated verbs to express caused motion events, both mothers use generic *mettre* more frequently. Thus, frequency may explain why MAR uses the generic verb, but can not explain why THE does not.

For both mothers, constructions containing a verb, an object and a locative expression (VOL) reliably convey a caused motion meaning and the majority of the VOL constructions produced contain *mettre*. In contrast to English, however, pronominalised objects of transitive verbs appear as preverbal clitics in French and dislocation structures are not infrequent. Thus “VOL” in French

is actually a family of diverse constructions. And, here again the children differ somewhat in their early expression of caused motion. At 24 months MAR produces VOL constructions which only convey caused motion and only use the verb *mettre*. THE uses very few VOL constructions altogether. At 24 months he produces only one such construction which neither conveys caused motion nor uses the generic verb. The hypothesis that a stable construction frame with a high frequency generic verb facilitates acquisition fits well with MAR's early production of VOL constructions, but does not capture the pattern of THE's first expressions of caused motion.

In addition *mettre*, as well as the other more conflated verbs, appear in many constructions other than VOL (i.e., V, VO, VL) in the child-directed speech. And this is also reflected in the children's production. At 22 months, MAR's first uses of *mettre* appear in constructions other than VOL. The vast majority of THE's uses of caused motion verbs, including *mettre*, appear throughout the period studied in constructions other than VOL.

This analysis hightlights the role of the child in acquisition. French offers two possibilities – a high frequency generic verb which often patterns with satellite constructions and a set of conflated verbs which pattern with verb-framed constructions. Despite remarkable similarity in maternal speech, MAR and THE adopt different options. High verb frequency, semantic generality and a stable syntactic frame can explain MAR's developmental trajectory. THE's production, however, resembles more closely that of children acquiring verb-framed languages. It would appear, then that children acquiring the same language can adopt different options when their language offers a choice. Future research is needed to understand why.

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	MAR	MAR's mother	THE	THE's mother
Age in months	18		18	
Total utterances	399 334	748 -	384 528	731 -
MLU	1.3		1.3	
Age in months	22		22	
Total utterances	448 696	809 -	603 675	937 -
MLU	1.7		1.7	
Age in months	24		24	
Total utterances	707 442	698 -	500 486	836 -
MLU	2.68		2.18	
Age in months	29		29	
Total utterances	704 565	786 -	740 638	823 -
MLU	3.7		2.9	

Table 1. Description of the corpus at each recording: MLU of children, and total utterances of children and mothers.

	Total VOL constructions	Verb types in VOL constructions	Total VOL constructions encoding caused motion (%)	Caused motion VOL constructions with *mettre* (%)
THE's Mother	92	19	51 (55%)	40 (78%)
THE 18 months	-	-	-	-
22 months	-	-	-	-
24 months	1	1	0	0
29 months	6	4	3 (50%)	2 (66%)
MAR's Mother	130	26	88 (68%)	72 (81%)
MAR 18 months	-	-	-	-
22 months	-	-	-	-
24 months	11	1	11 (100%)	11 (100%)
29 months	21	7	8 (38%)	6 (75%)

Table 2. Constructions containing a Verb, an Object and a Locative oblique in maternal and child speech

VOL	
SVOL	
Il met le livre/ça sur la table/là/où	'He puts the book/that on the table/there/where?'
SoVL	
Il le met sur la table/là/dessus	'He puts it on the table/there/on top'
OSoVL	
Le livre/ça$_i$ il le$_i$ met sur la table/là/dessus	'The book/that$_i$ he puts it$_i$ on the table/there/on top'
SoVOL	
Il le$_i$ met le livre$_i$ sur la table/là/dessus	'He puts it$_i$ the book$_i$ on the table/there/on top'
LSVO	
Sur la table/là/dessus/où il met le livre	'On the table/there/on top/where he puts the book'
Extraction of L	
C'est là qu'il met le livre	'It's there that he puts the book'
OSVL What questions	
Qu'est-ce qu'il met sur la table/là/dessus	'What he puts on the table/there/on top'
VO	
(S)VO	
Il met le livre/ça	'He puts the book/that'
Mets le livre/ça/le!	'Put the book/ça/it !'
SoV	
Il le met	'He puts it'
OSoV	
Le livre/ça$_i$ il le$_i$ met	'The book/that$_i$ he puts it$_i$'
SoVO	
Il le$_i$ met le livre$_i$	'He puts it$_i$ the book$_i$ '
V*	
SV	
Il met	'He puts'
VL*	
SVL	
il met sur la table/là/dessus	'He puts on the table/there/on top'
Passive / middle voice	
Resultative passives	
Le livre est mis sur la table/là/dessus/où	'The book is put on the table/there/on top/where'
Middle voice (se)	
Le livre se met sur la table/là/dessus/où	'The book puts on the table/there/on top/where'

Table 3. Syntactic coding of constructions for caused motion events

[*] In normative French *mettre* is a strictly transitive verb and excludes this construction.

Verb	Occurrence	Situation	Semantic information
Accrocher (‘hook onto’)	MOT: *accroche ton petit* (‘hang on your little one’)	CHI and MOT putting Legos together	Action + relation: *accrocher* Ground: inferred (lego) Figure: *ton petit*
Attacher (‘attach together’, ‘attach to’)	CHI: *attaché* (‘hooked’, ‘attached’)	CHI tries to attach a cup to a pair of pliers	Action + relation: *attaché* Ground: inferred (pair of pliers) Figure: inferred (cup)
Emballer (‘put into a package’, ‘wrap up’)	MOT: *ils ont tout emballé* (‘they wrapped everything up’)	MOT describes a picture	Action+relation : emballer Ground : inferred (leaves) Figure : *tout*
Enfoncer (‘stick into’, ‘stuff into’)	MOT: *tu peux enfoncer* (‘you can stuff into’)	CHI trying to stuff puzzle piece into place	Action + relation: *enfoncer* Ground: inferred (puzzle) Figure: inferred (puzzle piece)
Enlever (‘take out of’, ‘move away from’)	MOT: *je vais essayer de l’enlever avec la cuillère* (‘I’ll try to take it off with the spoon’)	CHI trying to move puzzle piece from its place	Action + relation: *enlever* Ground: inferred Figure: puzzle piece
Mettre (‘put’)	MOT : *allez, la miette, tu la mets dans la pelle* . (‘Go ahead, the crumb, you put it in the dustpan’)	CHI trying to put a crumb in a dustpan	Action : *mettre* Relation : *dans* Ground : *pelle* Figure : *la miette*
Placer (‘place’, ‘put into place’)	MOT: *il y a le chien que tu as pas placé encore* (‘there’s the dog that you haven’t placed yet’)	CHI and MOT playing with a picture association game.	Action + relation: *placer* Ground: inferred Figure: *le chien*
Poser (‘put down on’, ‘let go of’)	MOT: *pose la crèpe* (‘put the crèpe down’)	MOT wants CHI to put a crèpe down on the table	Action + relation: *poser* Ground: inferred (table) Figure: *crèpe*
Ranger (‘put away”, ‘put up’)	MOT: *on les a rangées les photos* (‘we put them away, the photos’)	MOT and CHI putting things away	Action + relation: *ranger* Ground: inferred Figure: *les*, *les photos*
Verser (‘pour into’, ‘pour onto’)	CHI : *ça va tout verser* (‘That’s gonna pour out on’)	CHI is pouring pencils out of a cup onto a table	Action + relation: *verser* Ground: inferred (table) Figure: *crayons*

Table 4. Examples of the semantic coding of puting events.

		Total caused motion events expressed	Generic *mettre* ('put on') (%)	More specific caused motion verbs (%)	More specific caused motion verbs (types)
THE's Mother		116	70 (60%)	46 (40%)	15
THE	18 months	4	0	2 (100%)	2
	22 months	21	2 (10%)	19 (90%)	4
	24 months	17	5 (30%)	12 (70%)	3
	29 months	15	7 (47%)	8 (53%)	5
MAR's Mother		175	124 (71%)	51 (29%)	15
MAR	18 months	1	1 (100%)	0	
	22 months	12	11 (92%)	1 (8%)	1
	24 months	71	67 (94%)	4 (6%)	1
	29 months	27	14 (52%)	13 (48%)	5

Table 5. Verb diversity in caused motion events

	V		VO		VL		VOL		Passive & middle voice	
	mettre (‘put’)	others	*mettre* (‘put’)	others	*mettre* (‘put’)	others	*mettre* (‘put’)	others	*mettre* (‘put’)	others
THE’s Mother	1	11	24	28	4	0	38	5	3	2
THE 18 months	-	2	-	-	-	-	-	-	-	-
22 months	1	19	-	-	-	-	-	-	1	-
24 months	2	12	1	-	-	-	-	-	2	-
29 months	1	3	2	3	2	1	2	1	-	-
MAR’s Mother	1	10	36	30	8	-	75	7	4	4
MAR18 months	1	-	-	-	-	-	-	-	-	-
22 months	3	1	8	-	-	-	-	-	-	-
24 months	2	3	13	1	41	-	11	-	-	-
29 months	1	3	2	9	5	-	6	1	-	-

Table 6. Syntactic constructions for encoding caused motion in maternal and child speech