IDENTIFYING INDIRECT OBJECTS IN L1 FRENCH: AN ELICITATION TASK

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1.   Introduction

While considerable studies have analyzed the acquisition of direct objects, fewer studies have observed the acquisition of indirect objects and only for a handful of languages (e.g., Gavarró & Mosella (2009) for Catalan; Costa et al. (2008) for European Portuguese; Castilla (2008) for Spanish; and Babyonyshev & Marin (2006) for Romanian). Although children begin early to produce multi-word utterances (around 18 months of age) followed by structuring word order specific to their native language (by 24 months of age), they still struggle to produce fully grammatical sentences and use all elements appropriately, in an adult-like form, until 5 years of age (Bloom 1973; Ninio 1988; Tomasello 1992). One of the researcher's problems is attempting to explain the omission of direct objects (Tomasello 1992; Jakubowicz et al. 1996; Pérez-Leroux et al. 2006, 2008). According to these studies, for some languages such as French, children acquire direct object DPs early on, but continue to struggle with their production of clitics even after 3 years of age, evidence from the high omission rates found across languages (e.g., Jakubowicz and her colleagues (1996) observed omission rates up to 60% in children between the ages of 2-4).

Given the extensive and persistent need to understand the development of direct objects, it is also essential to take a closer look at the indirect object. Cross-linguistically, no conclusive patterns have emerged in terms of the acquisition of indirect objects, issues attributed to the variability across languages, the uncertainty for age of onset, and the inconsistency of omission rates. Essentially, further studies on the acquisition of indirect objects would be very useful for our understanding of several issues in child language acquisition, such as objet omission and the structure of internal arguments.

In French, there are three types of constructions that take indirect objects: indirect transitive verbs (1a), ditransitive relational verbs (1b), and ditransitive non-relational verbs (1c) (cf. Cummins et al. 2010).

(1)   a.   Le père parle à l'enseignante.
           'The father speaks to the teacher.'

      b.   Nicole donne une pomme à Jean.
           'Nicole gives an apple to John.'

      c.   Il écrit une lettre à Nicole.
           'He writes a letter to Nicole.'

These constructions are categorized based on the meaning and interpretation of each verb as well as the structural representations of the arguments. In other words, an indirect transitive construction (1a) involves only an animate subject performing or embodying an action towards a recipient. Both ditransitive constructions involve an animate subject transferring an inanimate object to a recipient with the relational verb selecting a relation that is explicit with that transfer (1b) while the non-relational verb (1c) does not demand it.

To our knowledge, there is no study to date on the acquisition of indirect objects in French. The main goal of this paper is to find out how French-speaking children produce indirect objects and to understand how the verb and the direct object come to play a role in facilitating their acquisition. The purpose of this research is also to establish a methodology that can investigate the production of indirect objects using specific types of verbs prompting their use.

2.   Research Questions and Hypothesis

This study aims at answering two research questions:

      (i)   Do children rely on semantic similarity to correctly produce verbs taking indirect objects?

      (ii) Do children rely on syntactic frames to correctly produce indirect objects in the appropriate contexts?

First, let us assume that the target verb is *ask.* A child can either produce it correctly or rely on semantic similarity to produce a communication verb like *say*. If the child does not rely on semantic similarity, as found in Ninio's (2005) analysis of indirect objects in L1 Hebrew, then the child may instead rely on a prototypical verb of the same verb frame such as the transfer verb *give*. Thus, we predict that French-speaking children will depend on syntactic patterns rather than semantic similarity to produce a target-like verb. Since the verb is prompted in each video and visual cues are available, children either produce the

target verb or a target-like verb of the same verb frame, assuming no delay in acquisition with respect to the use of the target verb.

Moreover, the two hypotheses are not mutually exclusive, but complement each other. Cummins and her colleagues (2010: 80-1) believe that the constructions exemplified in (1a-c) involve a relation between the constituents and the presence or absence of the indirect object depends on the type of verb used in the appropriate context. Therefore, we predict that children will use their knowledge of the verb frame in an obligatory context (e.g., [S V DO IO] for relational verbs and [S V IO] for indirect transitive verbs) to produce more indirect objects than expected in an optional context (e.g., [S V DO (IO)] for non-relational verbs), since the latter does not demand this relation to be exclusive.

To summarize, I hypothesize that French-speaking children will rely on their knowledge of syntactic patterns to produce the target verb or a target-like verb for each verb frame presented and also produce a higher percentage of indirect objects in an obligatory context rather than an optional context.

3.   Theoretical Approaches

In order to determine what facilitates the acquisition of indirect objects, we must first examine the acquisition of verbs. The argument structure of verbs is important to determine the types of verb frames that allow indirect objects and to consider if the complexity of certain frames may serve to explain the delay in children acquiring and producing indirect objects.

One stream of researchers believes that children are conservative learners, first producing prototypical verbs that are most frequently found in their input (cf. Osgood & Zehler 1981). A child relies on the input to learn the semantics of specific verbs and acquire new verbs that are semantically similar to these prototypes (Tomasello 1992; Goldberg 1995, 1999; Goldberg et al. 2004). For instance, the available naturalistic studies of English found that ditransitive verbs are beginning to be learned at 28 months with very minimal production due to their complexity and with a strong tendency for the prototypical relational verb *give* (Goldberg et al. 2004). They attribute its frequent use to the different types of situations in which it can be found. The idea is that a person *causes* another to receive an object. Once the verb is acquired, it serves as a cue to the child to elicit indirect objects in a given construction.

More recent proposals suggest that children not only depend on the meaning of verbs, but they also use their syntactic knowledge of a verb to determine the arguments it allows (Naigles 1992; Ninio 2005; Roberge and Troberg 2007). For example, Naigles and her colleagues (1992; 2002) proposed that children make use of syntactic bootstrapping to correctly produce newly acquired verbs and their arguments. They come to rely on both the meaning of a previously learned verb and the syntactic frame in which it belongs to correctly produce and categorize new verbs.

In this study, we will observe how semantic and syntactic mechanisms are both necessary to account for the acquisition of indirect objects in French.

3.1 Prototypicality and Semantic Similarity

Item-specific learning in syntactic development has been widely supported, specifying that children learn on a verb-by-verb basis, following Tomasello's (1992) Verb Island hypothesis. The idea is that children learn verbs individually, placing each one in its own island. Goldberg and her colleagues (1995; 1999; 2004) believe that children may start initially with a specific set of prototypical verbs, but quickly come to learn other semantically similar verbs that fit within the already-established argument structure constructions. She disputes the possibility that our brains are hard-wired for language and supports the idea that constructions, rather than individual lexical items, emerge during first language acquisition, facilitated particularly by the input.

Ninio (2005) also offers evidence for early prototypical tendencies and item-specific learning, but challenges Goldberg's idea of semantic similarity. She looked at whether a child relies on the semantic interpretation of one verb in a specific construction to learn another verb in a similar construction. Her research objective was to test if learning takes place due to semantic similarity by investigating 10 ditransitive verbs produced by children (21-28 months) in L1 Hebrew. The results suggest that children used their syntactic knowledge of ditransitive verbs to learn new verbs without relying on the semantic interpretation or meaning of the verb, since more than half of the new verbs were not related semantically to previously known verbs.

To summarize, Goldberg (1999) proposes that the semantics associated with a particular syntactic pattern emerges from the early use of that pattern (i.e., a ditransitive construction is a subcategorization frame that implies *causation* with a basic sense that involves a *transfer* from the agent to the recipient). In contrast, Ninio (2005) supports the idea that syntactic patterns emerge from generalizing the use of particular verbs (i.e., *give* is a verb used in a construction that involves an agent transferring an object to a recipient).

This study aims to determine whether children are choosing verbs taking indirect objects based on what is available in the input, based on semantic similarity or syntactic patterns acquired early on. It may be that children are limiting the production of indirect objects because they have only acquired a set of verbs that demand their use and are only able to formulate constructions found in their input.

3.2 Syntactic Frames

The knowledge of a syntactic frame (i.e., a frame shows the position of each element of a sentence, for instance [S V] presents a subject preceding a verb to form the intransitive frame) in which a verb and its arguments can be used must also play a role in the acquisition of indirect objects. Naigles, Fowler, and

Helm's (1992) description of a syntactic frame implies a syntactic structure that can be associated to a verb. For instance, an intransitive frame [S V] implicates a non-causative meaning with an agent performing an action. A transitive frame (whether direct or indirect) canonically signals a causative meaning that includes the agent as well as a theme/patient. Finally, by the same rationale, a ditransitive frame allows three specific arguments, an agent causing a theme/patient to be transferred to a recipient/experiencer.

To summarize, children should be relying on both the meaning of the verb and the syntactic frame in which it belongs to use it appropriately and produce the correct number of arguments within that given frame. It seems that children first start to produce prototypical verbs that are found most frequently in their input and used in a variety of situations. As their vocabulary grows, children associate the meaning and the function of verbs to produce acceptable constructions. As a result, syntactic frames are formed, each allowing a specific number of arguments that alternate depending on the context given. For instance, many ditransitive verbs belong to different classes that are not semantically similar (i.e., *give* is a verb of transfer whereas *say* is a verb of communication) or that can be used in various surface structures (relational vs. non-relational verbs), but they all belong to one syntactic frame that allows three arguments. Therefore, it is the meaning of a verb that classifies it, but it is the context and the syntactic representation of the argument structure that determine the number of arguments allowed in the surface structure.

4.   Previous studies in acquisition

The methodology used in most research on indirect objects stems from the elicitation task created by Babyonyshev and Marin (2006). They used stories which elicited indirect object clitics with three types of obligatory arguments: Goal, Benefactive and Possessive. As we can see in (2), the experimenter acted out a short story with props and the child had to tell the puppet what had happened in the story:

(2)   This girl has a birthday party and now this boy comes with a present.
         Look what happens now. The girl has a present.

         Ce   a   facut baietelul de   are fetita   un cadou?
         What has done boy-the that has girl-the a   present
         'What did the boy do so the girl has a present?'

         i-   a   dat   un cadou
         Him/her-D   has given a   present
         'He gave her a present.'

Previous studies on different languages have found that children behave differently from one language to the next. For instance, Lyczkowski (1999)

found that, in Spanish, direct and indirect objects are both produced systematically and without any difficulty around 19 months of age, including low omission rates of indirect objects in all three children (Table 1). When comparing spontaneous and elicited production of Spanish-speaking children, it was found that spontaneous production yields mostly clitics, whereas elicited production shows a low percentage of clitic use; this difference has been attributed to an elicitation task issue.

Low percentages of omissions are found for 2-4 year-olds in Romanian and Catalan using the same methodology; the proposal is that this is due to production limitations for children with MLU<2 (Gavarró & Mosella 2009). Finally, Costa and his colleagues (2008) found a large percentage of omission for both direct and indirect objects and suggest the reason is the acceptability of null indirect objects in European Portuguese and characterize the omission rates as evidence for the complexity hypothesis. It may be that children overgeneralize the null construction and find it more difficult to determine if an object can or cannot be omitted in a given sentence until they reach adult-like grammar.

Table 1. *Percentage overview of indirect objects*

Language	Age	Production		Null
		CL	DP	
Spanish Lyczkowski (1999) [*Spontaneous data]	1;8-3;11	93.8%	1.8%	0.4%
	2;4-4;11	77.3%	2.3%	2.3%
	1;7-2;11	72.7%	4.5%	-
Castilla (2008)	3;0	5.4%	-	-
	4;0	29.1%	-	-
	5;0	40.1%	-	-
Romanian Babyonyshev & Marin (2006)	2;7	82%	-	18%
	3;5	74%	-	26%
Catalan Gavarró & Mosella (2009)	2;7.28	65%	-	35%
	3;6.15	91%	-	8%
	4;6.17	97%	-	3%
	5;5.17	100%	-	-
European Portuguese Costa et al. (2008)	3;7	8.8%	5.1%	51.8%

Cross-linguistically, no universal patterns are found, although children between 2-5 years of age generally prefer producing, not omitting, indirect object clitics.

Omission rates were attributed to various factors depending on the language observed (e.g., methodological issues, contextual factors). No analysis of the acquisition of indirect objects in French has been performed yet.

5.   Current Study
5.1   Spontaneous data in French L1

A study in French using the York corpus data (MacWhinney 2000) allowed us to determine how indirect objects came to be produced and to observe how this language functions in a similar or different pattern from all other languages attested so far. The initial purpose was to find out what structures use indirect objects (i.e., we wanted to determine what constructions and verbs can appear with indirect objects as well as identifying the types of prepositions used with these objects). Eventually, it became relevant to identify and classify verb frames that take indirect objects and to compile a list of these verbs into different conditions and contexts.

Thus, an analysis from naturalistic data was made to document the production of indirect objects (Bello & Pirvulescu, GALA 2011). Specifically, we looked at three French-speaking children and focused on both ditransitive (relational and non-relational) and indirect transitive verbs. Results show that ditransitive verbs appear from the earliest recordings whereas indirect transitive verbs are extremely low in production. As seen in Table 2, this pattern closely follows the adult child-directed speech (CDS). Our findings suggest that verbs taking indirect objects are used in child and adult speech, but their frequency is very limited compared to verbs used in other verbal constructions. Also, two out of three children used mostly clitics throughout the recorded data. Although the findings were comparable to CDS, children still had many more omissions.

Table 2. *Percentage of indirect objects and rate of indirect verbal constructions*

	Max (1;9.19-3;2.23)		Ann (1;10.12-3;5.4)		Lea (2;8.22-4;3.21)	
Construction		CDS		CDS		CDS
Indirect TR.	1.03%	2.14%	0.22%	1.04%	0.66%	0.97%
Ditransitive	19.64%	15.78%	11.25%	10.58%	16.57%	10.97%
IO						
CL	43.40%	45%	18%	75%	59.20%	62.50%
PP	20.50%	41%	7.90%	12%	19.20%	20.20%
Null	28.90%	5%	66.20%	7%	17.30%	4.40%

We also considered Ninio's (2005) corpus-based experiment to see if learning French verbs taking indirect objects in natural conditions is mediated by semantic similarity. Indirect verbal constructions in child speech are found most frequently with the use of *parler* (talk to) for indirect transitives and *donner*

(give) appearing first at 2;0 for Max and 1;11.13 for Ann (in support for the prototypicality hypothesis).

Table 3. *Most frequent verbs inclined to appear in indirect verbal constructions*

Indirect Transitive Verbs		Ditransitive Verbs	
Interaction/communication		Transfer (goal)-recipient	
parler 'talk'	37.5%	donner 'give'	32.9%
Reflection		Communication-addressee	
penser 'think'	20.9%	dire 'say'	19.6%
Relation		Transfer (info)-addressee	
ressembler 'resemble'	12.5%	montrer 'show'	9.2%
Psych		Possession-recipient	
manquer 'miss'	12.5%	apporter 'bring'	7.7%
Interaction/submission		Communication-referent	
désobéir 'disobey'	8.3%	demander 'ask'	6.9%
Other verbs	8.3%	Other verbs	23.7%

However, the findings in Table 3 show no apparent link between the semantic type of first verbs and other produced verbs. Children seem to rely on their input to provide them with enough syntactic knowledge to learn a variety of verbs taking indirect objects that are not always semantically similar. This supports Ninio's (2005) study on Hebrew, further confirming that facilitation of learning of early syntax is not necessarily mediated by semantic similarity.

To sum up, children use various mechanisms to produce indirect objects:

(i) syntactic knowledge of the verb (i.e., awareness of the verb's argument structure and how its arguments are represented in the syntactic structure of a given construction);

(ii) semantic interpretation of each verb (i.e., rely on the meaning of the verb to recognize the number of arguments and the thematic roles assigned to them).

A study based on naturalistic data gives only a partial picture of the development of verbs taking indirect objects. We found that a controlled experiment with a robust design would serve to better understand production limitations and offer more insight into what constrains children's acquisition of indirect objects. Therefore, our elicitation task was designed to compare the findings with the naturalistic data in French and to offer further research in light of this phenomenon.

5.2   Elicited Production
5.2.1 Participants

The experiment was conducted in various preschools and elementary schools in Quebec. The participants included 60 monolingual French-speaking children from 3-6 years of age and 16 monolingual adults, involving parents and daycare providers from the same schools. Children were placed into four age groups as seen in Table 4.

Table 4. *Age group data, means, and standard deviations*[1]

Age Group	N	Range	Mean	SD
3 year-olds	16	3;04-3;11	3;07	.022
4 year-olds	17	4;00-4;11	4;06	.037
5 year-olds	16	5;01-5;10	5;05	.036
6 year-olds	11	6;04-6;11	6;08	.023
Adults	16	19-51	33	.095

5.2.2 Experimental design

A video elicitation task was used with a specific set of verbs taken from the naturalistic study conducted in French to make sure that children had prior knowledge of those verbs. These verbs, as seen in Table 5, were categorized by verb frame using relational and indirect transitive verbs in an obligatory context and non-relational verbs in an optional context.

Table 5. *List of verbs used in video elicitation task*

Verb Frame	Verbs
Relational	donner (give), montrer (show), enseigner (teach), demander (ask), envoyer (send), apporter (bring)
Indirect Transitive	parler (talk to), désobéir (disobey), obéir (obey), ressembler (resemble)
Non-Relational	écrire (write), raconter (tell), lancer/jeter (throw)

In addition, the visual aspect of transfer of an object was the key in minimizing ambiguous answers or uncertainty that may be found when looking at a picture. The action was acted out by various actors and the transfer object was shown visually. The child had to observe the scene, listen to the pre-recorded audio and answer the question prompting a response with an indirect object. In total, 11

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[1] More 6-year-olds will be observed to offer comparative means across all age groups. Our findings suggest that no statistical difference exist between 6 year-olds and adults.

verbs and 7 distractors were used in a randomized order and the script was designed following scenarios employed in previous studies.[2] Examples of each verb frame used in our elicitation task are presented below:

(3) a. <u>Verb Frame 1</u> [V-DO-IO] (Relational verbs)

Dans cette vidéo, on a Jean et Nicole. Jean a faim, mais il n'a rien à manger. Nicole veut donner quelque chose à Jean.
Regarde ce qui se passe.

'In this video, we have John and Nicole. John is hungry, but he has nothing to eat. Nicole wants to give something to John.
Look what's happening.'

Dis-moi, qu'est-ce que Nicole fait pour que Jean n'ait plus faim?
'Tell me, what does Nicole do so that John is no longer hungry?'

R: *Nicole lui donne une pomme.* / 'Nicole gives him an apple.'

b. <u>Verb Frame 2</u> [V-IO] (Indirect transitive verbs)

Dans cette vidéo, on a François, son père et l'enseignante. Le père veut parler à l'enseignante; un soir, François regarde par la fenêtre. Regarde ce qui se passe.

'In this video, we have Francis, his father, and the teacher. The father wants to talk to the teacher; one night, Francis looks out the window. Look what's happening.'

Dis-moi, qu'est-ce que le père fait avec l'enseignante?
'Tell me, what does the father do with the teacher?'

R: *Il lui parle.* / 'He talks to her.'

c. <u>Verb Frame 3</u> [V-DO-(IO)] (Non-relational verbs)

Dans cette vidéo, on a Jean et Nicole. Jean vient de finir son livre et il s'ennuie. Nicole décide de raconter quelque chose à Jean. Regarde ce qui se passe.

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[2] Initially, 15 verbs were examined, but *enseigner* (teach), *désobéir* (disobey), *obéir* (obey), and *jeter* (throw) were excluded from the analysis as children and adults did not produce them. This is due to methodological issues (i.e., finding the proper context to prompt their use) or situational limitations (i.e., the complexity or rare instances in which these verbs are used with indirect objects).

'In this video, we have John and Nicole. John just finished his book and he is bored. Nicole decides to tell something to John. Look what's happening.'

Dis-moi, qu'est-ce que Nicole fait pour que Jean ne s'ennuie plus?
'Tell me, what does Nicole do so that John is no longer bored?'

R: *Nicole (lui) raconte une histoire.* / 'Nicole tells (him) a story.'

The main objective is to observe between-age group differences in terms of the development of indirect objects and to monitor the effect of each verb frame condition with a restricted set of verbs.

5.2.3 Results

To test our first prediction (i.e., children should either produce the target verb or a target-like verb of the same verb frame, assuming no delay in acquisition with respect to the use of the target verb), the data was coded in terms of the verbs used in each verb frame condition. If a child used a verb within the same verb frame, regardless of the fact that it was not the actual target verb for that video, then the frame was deemed acceptable across all ages. In Figure 1, we observe the percentages of each verb frame produced across all age groups.

Figure 1. *The realization of each verb frame produced across all age groups.*
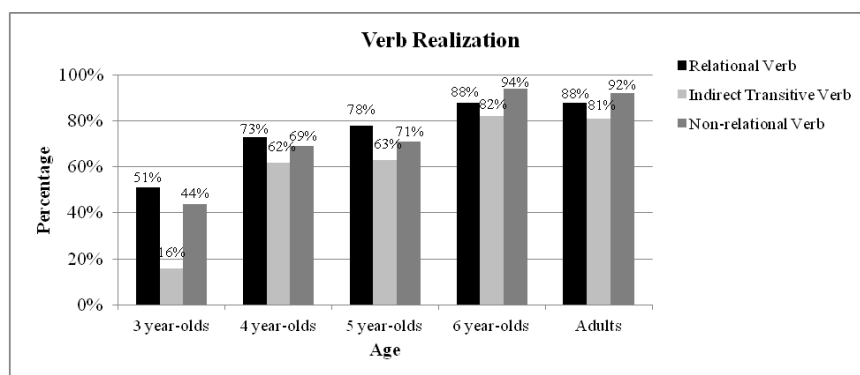
A mixed-design Analysis of Variance (ANOVA) revealed main effects of verb production for all 3 conditions, $F(2, 142) = 9.49$, p $<$ .001 and for age of participants, $F(4, 71) = 35.56$, p $<$ .001. However, there was no significant interaction between age and verb production, $F(8, 142) = 1.30$, p $=$ .246.

However, a paired-samples t-test indicated that the production of verbs was significantly higher for relational verbs ($M = 74.6$, $SD = 20.9$) compared to

indirect transitive verbs (*M* = 59.2, *SD* = 35.3), *t*(75) = 3.96, *p* < .001, *d* = 0.45 and for non-relational verbs (*M* = 72.4, *SD* = 30.1) compared to the latter (*M* = 59.2, *SD* = 35.3), *t*(75) = 3.34, *p* = .001, *d* = 0.38. No significant difference was found in comparing relational and non-relational verbs.

Finally, no significant difference was found for relational verb production or indirect transitive verb production between 4-6 year-olds and adults. However, 3-year-olds produced significantly less relational verbs than 4- (*p* = .031), 5- (*p* = .003), 6-year-olds (*p* < .001), and adults (*p* < .001) and the same difference was found for indirect transitive verbs of 3-year-olds compared to 4- (*p* < .001), 5- (*p* = .001), 6-year-olds (*p* < .001), and adults (*p* < .001). For the third verb frame condition, 6-year-olds produced significantly more non-relational verbs than 3- (*p* < .001), 4- (*p* = .026), and 5-yos (*p* = .029) as did adults in contrast to 3-year-olds (*p* < .001), with a slight difference to 4- (*p* = .042) and 5-year-olds (*p* = .049).

To summarize, findings suggest that 3-6 year-olds revert to the prototypical verb *donner* (give) when the target verb is unknown or unclear to the child. In addition, non-target verb frames are preferred for indirect transitive verbs, for instance using *être* (to be) for *ressembler* (resemble), but this could be due to the complexity of the verb used in this specific frame.

To test our second prediction (i.e., children will use their knowledge of the verb and the appropriate verb frame to correctly produce the number of arguments it can take and based on the context presented), the accepted data was then coded in terms of the type of indirect object produced. Statistically, we identified the correct use of indirect object clitics compared to the production of a prepositional phrase or omission.

A mixed-design ANOVA revealed main effects of clitic production for all three conditions, $F(2, 142) = 6.060$, p = .003 and for all ages, $F(4, 71) = 12.146$, p < .001. That is, 3-5 year-olds produced less clitics than 6 year-olds and adults. Also, the predicted interaction was significant between clitic production and age, $F(8, 142) = 6.79$, p < .001. Finally, an analysis of variance showed a main effect of clitic production between groups for relational and non-relational verbs (*p* < .001), but not for indirect transitive verbs (*p* = .108).

Table 6. *Production of indirect objects with target-like verbs*

Group	RV			ITV			NRV		
	CL	PP	Null	CL	PP	Null	CL	PP	Null
3 year-olds	16%	8%	76%	40%	-	60%	10%	-	90%
4 year-olds	24%	12%	64%	29%	28%	43%	14%	6%	80%
5 year-olds	52%	5%	43%	58%	21%	21%	32%	-	68%
6 year-olds	69%	10%	21%	39%	39%	22%	55%	13%	32%
Adults	84%	7%	9%	36%	44%	20%	89%	2%	9%

As seen in Table 6, no significant difference in clitic production was found for children 3-5 years of age with both relational and indirect transitive verbs.

However, 6-year-olds produced more clitics with relational verbs than 3- (p = .009) and 4-year-olds (p = .016). The same was found for adults compared to 3- ($p < .001$), 4- ($p < .001$), and 5-year-olds (p = .045). Finally, no significant difference was found between-groups of children for clitics produced with non-relational verbs. However, adults produced significantly more clitics than 3- ($p < .001$), 4- ($p < .001$), and 5-year-olds ($p < .001$).

To summarize, high omission rates were found for 3 and 4 year-olds while high clitic rate was observed for 5 and 6 year-olds with relational verbs. No significant differences were found for indirect transitive verbs, although no 3-year-olds were able to produce the verb *ressembler* (resemble), once again due to the complexity of the verb at such an early age. Finally, children preferred omitting the indirect object clitic with a non-relational verb, except for 6-year-olds that patterned like adults.

6.   Conclusion

Our first research question was to consider if children rely on semantic similarity to correctly produce verbs taking indirect objects. We found that children rely on the verb frame for each condition rather than semantic similarity. For instance, children revert to the prototypical relational verb *donner* (give) when the target verb is unknown or unclear to the child. They used this verb with both a transfer verb (e.g., *prêter* 'lend') and a communication verb (e.g., *demander* 'ask'). It the child had relied on semantic similarity, we would have expected a communication target-like verb (e.g., *dire* 'say') to be used in place of our communication target verb (e.g., *demander* 'ask'). Although 3-year-olds had a lower rate of acceptable verb frames for all three conditions (i.e., either due to a development constraint or lower vocabulary size), 4-6 year-olds do not seem to have a problem recognizing verb frames and using the appropriate verbs.

The second question was to observe if children rely on syntactic frames to correctly produce indirect objects in the appropriate contexts. As explained, children had no problem using syntactic frames to produce correct verbs for each verb frame condition presented. Also, by restricting the contexts in our elicitation task, we were able to examine the effect of these frames on the production of indirect objects. As predicted, children make use of their knowledge of the syntactic patterns associated with a verb frame to produce indirect objects when prompted in an obligatory context. In addition, children preferred omitting the indirect object with non-relational verbs whereas 6-year-olds and adults preferred producing them. This difference may be due to a formal non-spontaneous response given by 6-year-olds and adults, both groups taking their time to respond rather than simplifying or producing quick answers as found in younger children. Finally, when comparing our data cross-linguistically, we found that French-speaking children do not reach adult-like pattern of producing indirect objects until age 6.

To conclude, when children are unable to produce the target verb in one of the three constructions taking indirect objects in French, they produce a target-like verb within the correct verb frame, instead of relying on semantic similarity. As for the production of indirect objects, children do produce more clitics in the obligatory contexts compared to the optional context as expected. Therefore, we have found that French-speaking children rely on the meaning of the verb to produce target-like verbs taking indirect objects and use their knowledge of the syntactic frames to correctly produce the number of arguments allowed for each condition presented.

References

Babyonyshev, Maria and Stefania Marin. 2006. Acquisition of Pronominal Clitics in Romanian. *Catalan Journal of Linguistics* 5: 17-44.

Bello, Sophia and Mihaela Pirvulescu. 2011. Verbs taking indirect objects in L1 French. Unpublished paper presented at the Generative Approaches to Language Acquisition Conference, Thessaloniki, GRE, September 6-8.

Bloom, Lois. 1973. *One word at a time: The use of single word utterances before syntax*. The Hague, The Netherlands: Mouton.

Castilla, Anny P. 2008. Developmental Measures of Morphosyntactic Acquisition in Monolingual 3-, 4-, 5-year-old Spanish-speaking Children. Doctoral dissertation, University of Toronto.

Costa, João, Maria Lobo, Jacqueline Carmona, and Carolina Silva. 2008. Clitic Omission in European Portuguese: Correlation with Null Objects? In *Language Acquisition and Development : Proceedings of GALA 2007*, eds. Anna Gavarró and M. João Freitas, 133-143. Newcastle: Cambridge Scholars Press.

Cummins, Sarah, Yves Roberge, and Michelle Troberg. 2010. L'objet indirect en français: sens, représentations et évolution. In *Vues sur le Français du Canada*, eds. Carmen Leblanc, France Martineau, and Yves Frenette, 77-112. Laval, QUE: Presses de l'Université Laval.

Gavarró, Anna and Marta Mosella. 2009. Testing Syntactic and Pragmatic Accounts of Clitic Omission. In *Proceedings of the 3rd Conference on GALANA 2008*, eds. Jean Crawford, Koichi Otaki, and Masahiko Takahashi, 25-35. Somerville, MA: Cascadilla Proceedings Project.

Goldberg, Adele E. 1995. *Constructions: A construction grammar approach to argument structure.* Chicago: University of Chicago Press.

Goldberg, Adele E. 1999. The Emergence of the Semantics of Argument Structure Constructions. In *Emergence of Language*, ed. Brian MacWhinney. Hillsdale, NJ: Lawrence Earlbaum Associates.

Goldberg, Adele E., Devin M. Casenhiser, and Nitya Sethuraman. 2004. Learning argument structure generalizations. *Cognitive Linguistics* 15(3): 289-316.

Hale, Ken and Samuel J. Keyser. 2002. *Prolegomenon to a Theory of Argument Structure*. Cambridge, MA: MIT Press.

Jakubowicz, Celia, Natascha Müller, Ok-Kyung Kang, Beate Riemer, and Catherine Rigaut. 1996. On the acquisition of the pronominal system in French and German. In *BUCLD 20*, eds. Andy Stringfellow, Dalia Cahana-Amitay, Elizabeth Hughes, and Andrea Zukowski, 374-385. Somerville: Cascadilla.

Lyczkowski, David. 1999. Adquieretelo: On the Acquisition of Pronominal Object Clitics in Spanish. Undergraduate thesis, Harvard University.

MacWhinney, Brian. 2000. The CHILDES project: Tools for analyzing talk. Third Edition. Mahwah, NJ: Lawrence Erlbaum Associates.

Naigles, Letitia G., Anne Fowler, and Atessa Helm. 1992. Developmental Shifts in the Construction of Verb Meanings. *Cognitive Development* 7: 403-327.

Naigles, Letitia R. and Nadine Lehrer. 2002. Language-general and language-specific influences on children's acquisition of argument structure: a comparison of French and English. *Journal of Child Language* 29: 545-566.

Ninio, Anat. 1988. On formal grammatical categories in early child language. In *Categories and processes in language acquisition*, eds. Yonata Levy, Izchack M. Schlesinger, and Martin D.S. Braine, 99-119. Hillsdale, NJ: Erlbaum.

Ninio, Anat. 2005. Accelerated learning without semantic similarity: indirect objects. *Cognitive Linguistics* 16: 531-556.

Osgood, Charles E. and Annette M. Zehler. 1981. Acquisition of bi-transitive sentences: pre-linguistic determinants of language acquisition. *Journal of Child Language* 8: 367-383.

Pérez-Leroux, Ana T., Mihaela Pirvulescu, and Yves Roberge. 2006. Early Object Omission in Child French and English. In *New Perspectives on Romance Linguistics*, eds. Jean-Pierre Montreuil and Chiyo Nishida, Vol. I, 213-228. Amsterdam: Benjamins.

Pérez-Leroux, Ana T., Mihaela Pirvulescu, and Yves Roberge. 2008. Null Objects in Child Language: Syntax and the Lexicon. *Lingua* 118: 370-398.

Roberge, Yves and Michelle Troberg. 2007. Thematic indirect objects in French. *French Language Studies* 17: 297-322.

Tomasello, Michael. 1992. *First verbs: A case study of early grammatical development*. Cambridge: Cambridge University Press.