Synopsis
The goal of this work is to replicate the experiment of Casenhiser and Goldberg (2005) with French speaking children aged 3 to 4.

Casenhiser and Goldberg demonstrated that English-speaking children aged 3 to 4 were able to learn to associate a new grammatical construction (NVC) with an abstract meaning (apparition). This was done using nonce verbs. Different nonce verbs were used for training and testing.

The age of the children and the different between French and English were accounted for by replicating the experiment in two different syntactic contexts:
1) Use of word order only
2) Use of a prepositional element

Training phase: Children see 2 x 5 films with a related new construction. All verbs used in the construction are nonce verbs, so children cannot rely on lexical information to memorize the meaning of the construction.

Testing phase: Children see 12 new films which include two films side by side. They hear a sentence that describes one of the two films and must choose which is the film that corresponds. New nonce verbs are used for testing.

Learning a new construction
Form:
Before the apparition: Le singe va la table va ferer (the ape the table is going to ‘ferer’)
After the apparition: Le singe va la table a ferer (the ape the table ‘ferer’)

Function:
Before and after the Apparition of an element

A single film clip is played.

Tests the training
Two film clips are played side by side

Before and after apparition
No apparition (transitive construction)

Participants
Eighty-nine French-speaking children were recruited in kindergarten. They had normal language development as indicated by a standardised test battery (Évaluation du langage oral – ELO: Khotim, 2001).

Exp. 1: W ord order construction
Targets: NG NG VG construction
Le nounours le tabouret a voucér (the teddy bear the stool has ‘voucér’)
Le train le canapé a voucér (the train the sofa has ‘voucér’)

Distractors: (transitive constructions)
Le monstre a malade le bonnet (the monster has ‘malade’ the cap)

Exp. 2. Construction with a nonce proposition
Targets: NG VG PrepNG construction
Le nounours a ‘vécé’ dom le tabouret. (the teddy bear has ‘vécé’ dom the stool)
Le train a ‘vécé’ dom le canapé. (the train has ‘vécé’ dom the sofa)

Distractors: (transitive constructions)
Le chien a rude le panier. (the dog has ‘rude’ the basket)

Experiments and material
The same films were used in the two experiments, only the sounds changed.

Results
For both experiments, no significant differences were found on training orders (two versions), on testing orders (four versions) nor on side designation (left vs. right).

Experiment 1 (abstract word order).

For both conditions (apparition film clips or transitive film clips), the results were at chance level (respectively, t(45)=-1.68, p =.10 and t(45)=-0.94, p =.36). An ANOVA was conducted on the subjects’ scores (dependent variable) including age as a between-subjects independent variable (2-year-olds vs. 4-year-olds) and the presenting condition (apparition vs. transitive) as within-subject independent variable. There was no significant effect of age (F(1,44)=3.612, p=.06).

For the transitive condition, the results were at chance level (t(45)=-1.75, p =.09). For the apparition condition, they were significantly different from the chance level (respectively, t(45)=3.24, p <.001). An ANOVA was conducted on the subjects’ scores (dependent variable) including age as a between-subjects independent variable and the presenting condition (apparition vs. transitive) as within-subject independent variable. There was an effect of condition (apparition vs. transitive), F(1,44)=6.07, p=.02. There was also an effect of age, F(1,44)=0.46, p=.82. There was no interaction (condition by age effect).

Experiment 2 (prepositional construction)

For the transitive condition, the results were at chance level (t(45)=-1.53, p =.13). For the apparition condition, they were significantly different from the chance level (respectively, t(45)=3.612, p =.001).

Discussion
Using only a few learning examples, four-year-old French-speaking children:
- are not able to learn an association between a new syntactic form (word order construction) and a new function (apparition), contrary to what was demonstrated in Casenhiser and Goldberg (2005) for five-year-olds (see Exp 1)
- are able to learn an association between a new syntactic form (nonce proposition) and the same new function (apparition) (see Exp 2).

At this age, for French-speaking children, association between abstract meaning and form seems to require the existence of an explicit lexical or morphosyntactic element (the nonce preposition). It remains to test whether the position of this element in the utterance is or is not a critical feature for the children’s performance.

Differences with the Casenhiser and Goldberg study could be due to language difference (English versus French) or to children age difference (5-7 versus 3-4). So, the experiment 1 has to be replicated with older children.

Nonce verbs
Real verbs were extracted from lexical databases (Clemetson & Westbury, 2004 and Manuel & Quellard, 2000, and matches for table keeping, as the verbs requiring a plural in a sentence (e.g., the table is going to ...) are important for the current experiment. 

Construction grammar (Goldberg 1995): C is a construction if C is a form-meaning pair (F/S) such that some aspect of F or some aspect of S is not strictly predictable from C’s component parts or from other previously established constructions. Within this approach, any language form that has an interpretation (any linguistic behaviour) is a construction (more precisely an occurrence of a construction). Constructions cover a wide range of size and complexity, from the most simple (islands), to the most complex (discourse organisation). In the middle, there are the syntactic constructions. Syntax is not just a way to order properly the elements of a phrase or a sentence (the form part F), it also adds additional meaning to the elements (other constructions) if links together (the meaning part S).

Examples of constructions

Noun
Verb
Suffix

References