THE ACQUISITION OF ROOT NN COMPOUNDS IN ROMANIAN

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Abstract: The paper investigates the comprehension and production of root NN compounds by Romanian children (mean age: 5;6) and adults. Given that endocentric root NN compounds are not productive in Romanian, a Romance language, the main goal of the study was to see to what extent children manage to ascribe an interpretation to or produce such compounds. The results show that, unlike in English, where head-final endocentric compounds are the most frequent ones, both Romanian monolingual children and adults tend to understand and produce much more blend compounds than endocentric ones (which, in Romanian, are head-first).

Keywords: root NN compounds, blends, Romanian, L1 acquisition

1. Introduction

Previous acquisition studies (Clark et al. 1985, Clark and Berman 1987, Berman 2009 a.o.) have shown that (i) NN compounds emerge early and are acquired early, but (ii) children go through a stage when they interpret the NN structure linearly. While these studies focused on languages in which NN compounds are productive, there are languages, such as Romanian, where NN compounds are not that productive. In this paper[1], we investigate the acquisition of root NN compounds in child Romanian by testing their comprehension and production.

The paper is organized as follows: in Section 2, we present the typology of root NN compounds in general and, more specifically, in Romanian. In Section 3, we focus on the acquisition of root NN compounds. Section 4 presents the experimental study on root NN compounds in child Romanian (a comprehension experiment and a production experiment). In Section 5, we provide possible accounts for the lack of productivity of NN compounds in Romanian, and in Section 6, we present the conclusion of the research.

Previewing the results, we show that just like adults, Romanian-speaking children tend to understand and produce blend compounds rather than endocentric ones and, if the root compounds are endocentric, adults and children tend to assign them different interpretations (head-first versus head-last).

2. On root NN compounds: The case of Romanian

In order for something to be considered a compound, it has to observe three criteria: (i) the semantic criterion, which presupposes that the meaning of the compound be not the sum of the meanings of the elements in its make-up, and that the compound

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[1] Many thanks go to the children and teachers from No. 203 Kindergarten in Bucharest. A previous version of the paper was presented at the 3rd Bucharest Colloquium of Language Acquisition (BUCLA 3) 2015, where it benefited from the comments and suggestions of the audience.

denote a new referent; (ii) the morphological criterion, which presupposes that the resulting compound behave like a unit, inflecting at the end in principle; (iii) the syntactic criterion, which presupposes certain syntactic relations among the elements making the compound (Coteanu 2007).

In this paper, we focus on a special kind of compounds, namely, root NN compounds, which are sequences of two bare Ns. Root NN compounds can be of two major types, depending on the number of syntactic heads: (i) root compounds with only one syntactic head, and (ii) root compounds with two syntactic heads (*dvandva*). Root compounds with only one syntactic head, in their turn, can further classify into two different kinds, depending on whether there is a relation of hyponymy between the entity denoted by the compound and the entity denoted by the second noun: (a) *tatpurusa* NN compounds (endocentric), in which case the whole compound denotes a hyponym of the element denoted by the second noun (Bloomfield 1933), e.g. *sunflower*, and (b) *bahuvrihi* NN compounds (exocentric), in which case no relation of hyponymy holds between the element denoted by the compound and the element denoted by the second noun: e.g, *straw head*, *butterfingers*. While in the *tatpurusa* NN compounds, the second noun is both a syntactic and a semantic head, in the case of *bahuvrihi* NN compounds, there is no semantic head. As for root compounds with two syntactic heads, according to Bauer (1978), Baciu (2004), there are two types of *dvandva* compounds: (a) one in which the two members making up the compound represent different individuals, as in *a mother-child relationship*, (b) one in which the two members of the compound represent two facets of the same individual (also called appositional compounds), as in *student-prince*. In both cases, there is a Same Semantic Category Requirement at work, operating such that the members of the compounds both belong to the same semantic category.

While root NN compounds are known to be quite productive in languages like English or German, they are much less frequent in Romanian. Within the class of *tatpurusa* NN compounds in Romanian, we encounter two patterns (Graur et al. 1966, Guţu Romalo 2008):

(i) Noun + Noun in the Genitive: *floarea-soarelui* ‘sun-the flower-GEN’, *gura-leului* ‘mouth-the-lion-GEN’, *laptele-cucului* ‘milk-the-cuckoo-GEN’, *limba-mielului* ‘tongue-the-lamb-GEN’, *piciorul-cocoşului* ‘leg-the-rooster-GEN’, *traista-ciobanului* ‘purse-the-shepherd-GEN’, *Poiana Ţapului* ‘Glade-the He-goat-GEN’;

(ii) Noun + preposition + Noun in the Accusative: *apă de plumb* ‘water of lead’, *bou-de-baltă* ‘bull-of-mire’, *brânduşă de primăvară* ‘crocus of spring’, *cimbrişor de câmp* ‘thyme of field’, *floare-de-colţ* ‘flower-of-rock’, *lapte-de-pasăre* ‘milk-of-bird’, *viperă cu corn* ‘adder with horn’, *Curtea de Argeş* ‘Court-the of Argeş’, *Malul cu Flori* ‘Bank -the with Flowers’.

Two essential differences can be noticed in comparison to English. Firstly, the noun representing the head of the compound occupies the first position, and not the second, as is the case in English. Secondly, the noun subordinated to the head is inflected, while this is not so in English.

As far as *dvandva* NN compounds are concerned, we encounter words such as: *puşcă-mitralieră* lit. 'gun-machine gun', *câine-lup* lit. 'dog-wolf', *redactor-şef* lit. 'editor-chief', *bloc-turn* lit. 'block-tower'; Coteanu (2007) argues that most of the *dvandva* NN compounds in Romanian are actually not compounds formed in Romanian, but they represent borrowings/adaptations from French.

All Romanian NN compounds can actually be considered phrasal compounds: nouns in Romanian NN compounds are either inflected (as in syntax) or preceded by a preposition (as in syntax). In consequence, Romanian NN compounds are completely different from English compounds, which are more minimal in their nature.

3. The acquisition of root NN compounds

Previous acquisition studies which investigated the acquisition of root NN compounds looked mainly at languages where root NN compounds are extremely productive (e.g. German, English, Hebrew).

In English, for instance, compounding is the most productive word-formation means in both child and adult English (Clark 1993). NN compounding is highly productive in child language, given the fact that 89% of the compounds produced by children up to age four are NN compounds (Clark 1993: 149, Avram 2002 and references therein).

In a study on Hebrew compounds (Berman 2009), it was suggested that one could trace various developmental phases in the acquisition of compounds, starting from a stage of unanalyzed lexical items (age 1 to 2) to a stage of NN juxtaposition (age 2 to 3) and, then, after two other stages of acquisition of relevant knowledge of morphosyntax, finally the stage of syntactic productivity (Berman 2009: 314). Interestingly, according to Berman (2009), in the acquisition of compounds in Hebrew, there is a passage from a linear order to a hierarchical order. This is extended to English: "at this stage, children may combine two nouns in a structurally unmarked string, analogously to English-speaking 2-year-olds, e.g. *fire-dog* for a dog found near a fire or *lion-box* for a box with a lion's head on the cover" (Berman 2009: 314). However, the claim is highly debatable. If the compound *lion-box* is indeed formed by mere juxtaposition of items, why can we not interpret it as referring to a lion and a box, or merely to a lion (given the fact that the two nouns should be equal in status)? Why is it that a *lion-box* is, nevertheless, a box?

Experimental data show that children interpret the compounds as having a head from early on. If asked to select the picture which best matches the meaning of a compound, they correctly choose the picture which depicts the object labeled by the head of the compound. For example, if shown three pictures – one depicting a round black bug, one a stick, and the third one a bug that looked like a stick – and asked to choose the picture where they saw a *stick-bug*, children correctly choose the third picture (Gottfried 1997). Children's spontaneous innovations and comments support the idea that compounds are interpreted as having a head:

(1) D (2; 11, 25, wearing a sun-hat): *I look like a little pony-kid.*
Mo: What's a pony-kid?
D: *A kid who rides poney.*

(Clark 1993: 50)

Several semantic relations may obtain between the elements of an NN compound: Possession (*a doll blanket*, i.e. 'a blanket that a doll has, the blanket of a doll'), Material (*a sand cake*, i.e. 'a cake that is made from sand, a cake from sand'), Container (*a button box*, i.e. 'a box that holds buttons, a box that has buttons in it'), Location (*mountain trees*, i.e. 'trees that grow in the mountains, trees in the mountains'), Purpose (*a baby chair*, i.e. 'a chair that a baby uses, a chair for a baby') (Clark and Berman 1987). Out of these possibilities, children seem to favour the Material interpretation:

(2) D (3; 4, 29, playing at "cook"): *What would you like, sir?*
Mo: Could you make me some angel-cake?
D: *I don't have any angels.*

(Clark 1993: 50)

Interestingly, children often produce compounds like *a fire-dog*, expressing a temporary property ('a dog found at the site of a fire'), whereas this is not the case with adults, whose compounds express permanent or essential properties.

4. Root NN compounds in child Romanian

While a lot of research on root NN compounds has focused on languages where root NN compounds are productive, languages such as Romanian where root NN compounds are not productive have received much less attention.

4.1 Aims and expectations

The current study aims to fill this gap in the acquisition literature by testing the comprehension and production of root NN compounds in child Romanian.

As far as comprehension is concerned, given that NN compounds are either head-first (*floarea-soarelui* 'sun-the flower-GEN') or double-headed in Romanian (*poet-pictor* 'poet-painter'), we expect subjects to provide either head-first (*tatpurusa*) or blend (*dvandva*) interpretations. By head-first interpretations, we mean interpretations where the root NN compound is interpreted as referring to the entity denoted by the first noun, but endowed with the properties of the entity denoted by the second noun. By blend interpretations, we mean interpretations where the root NN compound is interpreted as referring to an entity that is both the entity denoted by the first noun and the entity denoted by the second noun. Given that the NN compounds with head-first interpretation in Romanian seem to all involve either case-inflected nouns (*floarea-soarelui* 'sun-the flower-GEN') or nouns preceded by prepositions, and the NN compounds with blend interpretation seem to involve bare nouns, we expect subjects to assign mostly blend interpretations to the root NN compounds they are given. The head-first endocentric interpretation remains, nevertheless, another possible way in which they can understand the root NN compounds.

As far as production is concerned, given that root NN compounds are not very productive in Romanian, we expect subjects to produce other more complex nominal

expressions such ‘an entity that is both A and B’ or ‘A with the properties of B’ (or ‘half A half B’) instead. However, considering that, as we will see, the pictures which the subjects are presented with are pictures where a creature is made up of two halves of two other animals, i.e. pictures favouring a blend/*dvandva* interpretation, root NN compounds are actually expected as well. This expectation is strengthened even further by the fact that the *dvandva* NN compounds present in Romanian all seem to involve bare nouns.

4.2 Comprehension. The ‘broască-porc’ (‘frog-pig’) experiment

The comprehension task was a picture identification task. In order to see how Romanian children understand root NN compounds, we tested the comprehension of the nouns *broască porc* lit. ‘frog pig’, *porc broască* lit. ‘pig frog’, *iepure câine* lit.’rabbit dog’, *câine iepure* lit. ‘dog rabbit’, *prinţesă stea* lit. ‘princess star’, *stea prinţesă* lit. ‘star princess’, *câine măgar* lit. ‘dog donkey’, *măgar câine* lit. ‘donkey dog’, *vacă găină* lit. ‘cow hen’, *găină vacă* lit. ‘hen cow’, *elefant fântână* lit. ‘elephant fountain’, *fântână elefant* lit. ‘fountain elephant’, *leu măgar* lit. ‘lion donkey’, *măgar leu* lit. ‘donkey lion’. A group of 10 children and 10 control adults took part in the study.

4.2.1 Predictions

The few NN compounds present in Romanian (involving bare nouns) are either *dvandva* or endocentric. Hence, we expect subjects to choose either the blend/*dvandva* interpretation or the left-headed endocentric compound interpretation) as, in Romanian, endocentric compounds have their heads on the left. Moreover, given the fact that endocentric NN compounds (in the exact form NN) are not productive in Romanian, we expect the blend interpretation to be the predominant one. In the case of the NN compound *broască porc* lit. ‘frog pig’, for instance, we expect children to predominantly choose the interpretation corresponding to a hybrid, fantastic creature that is half frog, half pig.

The comprehension task does not offer the subject the possibility to choose an exocentric (headless) interpretation for the root NN compounds they hear, so such (creative) interpretation is ruled out in order to simplify the experimental task.

4.2.2 Participants

10 children[2] (age range: 4-7, mean age: 5;6) took part in the experiment, as well as 10 adults, who represented our control group.

4.2.3 Materials and procedure

For each pair of nouns (XY, YX), we used four pictures: one depicting both animals (Figure 1: A), one depicting a hybrid, fantastic creature (Figure 2: B), one depicting the first animal with attributes of the second (Figure 3: C), and another one

[2] The children were recruited from No. 203 Kindergarten.

depicting the second animal with attributes of the first (Figure 4: D) (see Appendix 1 for a full list of the drawings/pictures used in the experiment). The drawings below illustrate the readings which children could choose from in the case of the NN compound *broască porc* lit. 'frog pig'. Figure 1 and Figure 2 correspond to double-headed interpretations, whereas Figure 3 and Figure 4 correspond to endocentric interpretations. Figure 1 exemplifies the reading where the NN compound is double-headed (it has two nominal heads) and literally denotes two animals (a pig and a frog, in this case). Figure 2 represents the blend reading, where the NN compound is double-headed and it denotes a hybrid creature that is half the first animal, half the second animal, in this particular case, half pig half frog. Figure 3 exemplifies the head-first endocentric reading, where the NN compound denotes the animal denoted by the first animal with attributes of the animal denoted by the second noun. In the particular *broască porc* lit. 'frog pig' case, the drawing depicts a frog that is dirty like a pig. Figure 4 exemplifies the head-last endocentric reading, where the NN compound denotes the animal denoted by the second noun with attributes of the animal denoted by the first noun. In the case of *broască porc* lit. 'frog pig', the drawing shows a pig with some frog-like attributes: it has the colour green, it is sitting on a leaf in the water. For the sake of simplicity, the drawings/interpretations will often be referred to as A, B, C, D.

Figure 1. Drawing with both animals for *broască porc* lit. 'frog pig' (A)

Figure 2. Drawing with hybrid, fantastic creature for *broască porc* lit. 'frog pig' (B)

Figure 3. Drawing with the first animal with attributes of the second for *broască porc* lit. 'frog pig' (C)

Figure 4. Drawing with the second animal with attributes of the first for *broască porc* lit. 'frog pig' (D)

The same drawings were used in the reverse case (YX), with the only difference that what counts as the first animal in the XY case now counts as the second, and what counts as the second animal in the XY case now counts as the first. In other words, in the *porc broască* lit. 'pig frog' (D) case, the drawings in Figure 3 and Figure 4 correspond to the head-last endocentric interpretation and the head-first endocentric interpretation of the NN compound instead of the head-first and head-last interpretations, as in the *broască porc* lit. 'frog pig' case.

In the version of the experiment run on the adult controls, the subjects were simply asked to pick the picture that best exemplified the XY compound. In the version for children, however, asking the children to help Adina (one of the experimenters) was introduced, as an incentive for them to get engaged in the testing game more. The other experimenter asked the subjects whether they would like to help Adina, since she has to draw an XY and she does not know exactly how to draw it. The subjects are told that Adina has made some drawings, and that, in order to help her, they must choose the image they believe best illustrates XY. We avoided both the use of the indefinite article *un* 'a.M.SG'/ *o* 'a.F.SG' and the use of the definite article *-(u)l* 'the.M.SG'/ *-a* 'the.F.SG' before the NN sequence in order not to influence the subjects' choice by indicating to them the head by means of the agreeing phi-features on the article.

4.2.4 Results

In the case of the control group, the 140 answers provided by the adults are 1 A answer (0.71%), i.e. both animals, 86 B answers (61.42%), i.e. hybrid, fantastic creature, 40 C answers (28.57%), i.e. the first animal with attributes of the second, 13 D answers (9. 28%), i.e. the second animal with attributes of the first, as can be seen in Figure 5:

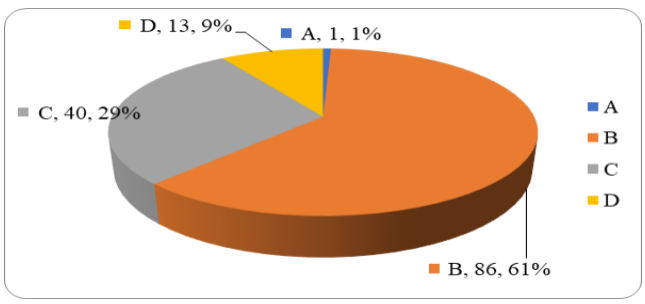

Figure 5. Comprehension of root NN compounds by adults

Our predictions were borne out by the results: the subjects predominantly chose the B interpretation (the hybrid, fantastic creature) and the C interpretation (the first animal with attributes of the second). Moreover, the preferred interpretation was B (seven or more than seven B answers per subject).

There were also some D answers (3 D answers in the case *câine măgar* 'dog donkey', and 3 D answers in the case *elefant fântână* 'elephant fountain'). A possible reason for this may be related to the drawings. The drawing corresponding to the B interpretation for *câine măgar* 'dog donkey' is not that clear, as a subject argues: "It takes me a lot to tell that it has the legs of a dog" (I. D.). The drawing corresponding to the D interpretation for *câine măgar* 'dog donkey' can be interpreted as B: "It has the head of a donkey and the body of a dog" (B. M.). The drawing corresponding to the D interpretation for *elefant fântâna* 'elephant fountain' can receive the C interpretation.

Another noteworthy fact is that the B interpretation is preferred in the first set of 7 NN sequences, while the C interpretation is preferred in the second set. A possible explanation could be that, when they were faced with the same drawings again, and they were asked to show the experimenter YX (instead of XY), some of the subjects had the tendency to choose something else (the choice of another answer may have been thus induced).

As for the group of children, the 140 answers which they provided are divided into 17 A answers (12. 14%), i.e. both animals, 82 B answers (58.57%), i.e. hybrid, fantastic creature, 18 C answers (12.85%), i.e. the first animal with attributes of the second, 23 D answers (16.42%), i.e. the second animal with attributes of the first.

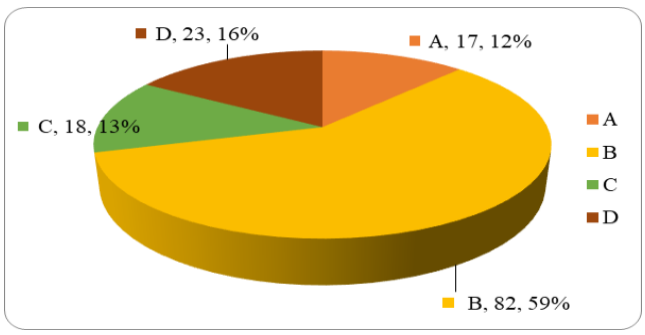

Figure 6. Proportion of A, B, C, D answers per child participants

Most of the answers given by children were B answers, with one exception *câine măgar* 'dog donkey', *măgar câine* 'donkey dog', where there were very few B answers; a possible explanation for this is that the drawing is not that clear.

Children very often chose the same drawing for both orders (XY or YX): one child chose the same drawing for *broască porc* 'frog pig', *porc broască* 'pig frog', as well as for *elefant fântână* 'elephant-fountain', *fântână elefant* 'fountain elephant', another child chose the same drawing for *câine măgar* 'dog donkey', *măgar câine* 'donkey dog', as well as for *vacă găină* 'cow hen', *găină vacă* 'hen cow'a.o. Children's choices were quite different from the adults, who very often chose another drawing when faced with

the same set of drawings, but a different requirement: were the adults more careful or were they simply more influenceable? Possible reasons for the same choice answers in the case of children are consistency, the unwillingness to make an effort to choose once again ("I have already chosen this"), and the lack of clarity of the drawing.

There are very few C answers (a number equal to or smaller than the number of D answers), contrary to our predictions. However, the number of D answers is quite large; sometimes, the child chooses C or D, bringing, nevertheless, arguments in favour of a B answer: the child chose the drawing corresponding to the D interpretation for *fântâna-elefant* 'fountain elephant', for example, because "it has the body of a fountain and the head and ears of an elephant" (M. 7), in the case *vacă găină* 'cow hen', the child says he chose D because "it has the head of a hen and the body of a cow" (C. 5).

If we are to compare the responses given by children and by adults, we see that children chose the D interpretation more often than adults did, and that adults chose the C interpretation more than children (see Table 1 for a more detailed presentation of the data). This suggests it may not be that clear to children what the head is in endocentric compounds.

The fact that only children chose A shows that adults have a clear understanding of the difference between coordination ('X and Y') and compounding ('XY'), whereas children do not at this point. Adults only allow compounds to refer to one single entity, not two, whereas children do not seem to observe this constraint

Table 1. Total number of answers

Group	Total number of answers	A (both animals)	B (hybrid creature)	C (1st animal with attributes of the 2nd)	D (2nd animal with attributes of the 1st)
Children	140	17	82	18	23
Adults	140	1	86	40	13

4.3 Production. The "half-half" experiment

Another aim of the current paper is to investigate the production of root NN compounds by Romanian monolingual children. To this purpose, we have devised an experiment inspired from the experiment conducted by Mellenius (1997) on the acquisition of compounding in Swedish (Berman 2009), where ten children aged 3;5 to 6;8 were asked to describe pictures depicting two halves from a memory game patched together in two-by-two random combinations and this elicited compound constructions from most of the children (Berman 2009).

4.3.1 Predictions

The aim of experiment was to find out to what extent Romanian-speaking children use root NN compounds in naming drawings of creatures that are half something half something else.

Our expectation was that children would use at least some root NN compounds, although they could very well choose other means of picture naming. We expected subjects to produce *dvandva* NN compounds, although, given the fact that compounds are not that productive in Romanian, speakers could find other ways to name the pictures.

4.3.2 Participants

13 children[3] (age range: 4-6, mean age: 5;2) took part in the experiment, as well as 6 adults, who represented our control group.

4.3.3 Materials and procedure

After drawing ten objects/ animals: a car, a dolphin, a dog, a cat, a house, a fir-tree, a flower, a lion, a chicken, a doll, we cut the drawings into half, we mixed the halves, thus obtaining strange creatures such as *pui-maşină* 'chicken-car', *leu-pisică* 'lion-cat', *brad-floare* 'fir-flower', *floare-păpuşă* 'flower-doll', *casă-brad* 'house-fir', *pisică-leu* 'cat-lion', *delfin-pui* 'dolphin-chicken', *maşină-delfin* 'car-dolphin', *maşină-câine* 'car-dog', *câine-maşină* 'dog-car' (see Figure 7, 8 and Appendix 2 for a list of all the drawings used in the experiment conducted on children).

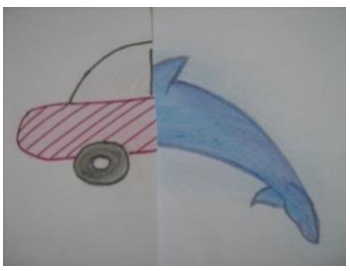

Figure 7. *maşină-delfin* 'car-dolphin'

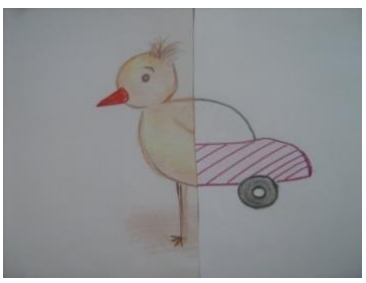

Figure 8. *pui-maşină* 'chicken-car'

[3] The children were recruited from No. 203 Kindergarten in Bucharest.

The pictures in the experiment conducted on adults differed slightly from the pictures in the experiment conducted on children. They depicted *maşină-delfin* (‘car-dolphin’), *maşină-câine* (‘car-dog’), *casă-brad* (‘house-(fir)tree’), *păpuşă-floare* (‘doll-flower’), *leu-pui* (‘lion-chicken’), *leu-câine* (‘lion-dog’), *pisică-leu* (‘cat-lion’), *pisică-câine* (‘cat-dog’), *floare-brad*(‘flower-tree’),*delfin-pisică* (‘dolphin-cat’).

We showed the drawings depicting the strange creatures to the adult control group and to the children and asked them to name them. Each adult and child saw a number of 10 pictures.

4.3.4 Results

In the case of the control group, we obtained 60 answers (10 per adult), 54 of which were NN answers (90%), and 6 were other kinds of answers (10%).

The few exceptions were *un brad cu floricele* ‘a fir-tree with flowers’ for *floare-brad* ‘flower-fir-tree’, *o pisică care se gândeşte la un delfin* ‘a cat thinking of a dolphin’ for *delfin-pisică* ‘dolphin-cat’, *floare de fată* ‘flower of girl’, i.e. ‘a flower of a girl’ for *păpuşă-floare* ‘doll-flower’, *leu şchiop* ‘lion cripple’ for *leu-pui* ‘lion-chicken’. Interestingly, the NN answers took into account which half was the first and which the second (the order of the nouns in the compound obeys the order in which the halves appear).

In the case of children, out of 130 answers (10 per child), 31 were NN answers (23.85%), and 99 were other kinds of answers (76.15%).

Only three children out of thirteen answered by using NN compounds; six children used only one of the nouns to name the strange creature, e.g, *floare* ‘flower’; two children used both nouns in coordination, e.g. *un leu şi o pisică* ‘a lion and a cat’, and two children used two nouns in coordination: one denoting half of the first animal, the other denoting half of the second animal, e.g. *o jumătate fetiţă şi o jumătate floare* ‘half girl and half flower’ (see Appendix 3 for a full list of the answers provided by children).

Hence, NN compounds are not so productive in child Romanian. Most children resorted to other means of referring to the creature represented in the drawing than NN compounding; in contrast, in Swedish (Mellenius 1997), for example, most of the children provided more compound constructions than other types of labels; the same productivity can be noticed in the case of English as well.

Unlike children, Romanian adults did use NN compounds in order to refer to the creatures represented by the two halves. We know that NN compounds in Romanian may be either *dvandva* (coordinative) or endocentric, but, in this particular experiment, the creature requiring a name is made up of two halves, thus, the best (most economical and semantically adequate) label for it is a *dvandva* NN compound (a blend). Therefore, although not as productive as in English, NN compounds do exist in Romanian (as blends) and they are more frequent in the language of adults than in child Romanian.

4.4 Discussion

Both the comprehension experiment and the production experiment show that root NN compounds are not completely absent from Romanian. However, most of the interpretations ascribed to root NN compounds, as well as most of the root NN

compounds produced seem to be blend rather than endocentric. There seems to be an interesting difference between adults and children. As far as interpretation is concerned, just like adults, most children interpret root NN compounds as blends referring to fantastic, hybrid creatures. However, in the case of the few endocentric root NN compound interpretations provided both by adults and children, it seems to be the case that adults interpret some root NN compounds as head-first endocentric more than children. This may suggest that the headedness parameter for compounds is still setting its value.

As far as production is concerned, adults produce considerably more root NN compounds than children in association with the blend interpretation. Children prefer other ways of referring to hybrid creatures than root NN compounds.

The results from comprehension and production seem to be consistent: both adults and children associate root NN compounds with blend readings both when they are asked to pick a picture, revealing their interpretation, as well as when they are asked to name a picture.

5. Possible accounts for the lack of productivity of endocentric NN compounds in Romanian

In both the comprehension and the production experiment, there was a clear association between a root NN compound and a blend interpretation. Very few root NN compounds were given an endocentric reading in the comprehension task, and the compounds produced in the production task matched the picture which clearly exemplified the blend reading.

There are several possible accounts for the lack of productivity of endocentric NN compounds in child Romanian and in Romanian, in general, for that matter.

One possible account is in terms of the Compounding Parameter (TCP) (Snyder 1995, 2001), which has a positive setting in certain languages ([+TCP]) and a negative setting in others ([−TCP]). Compounds occur in languages where there are resultatives and verb-particle combinations, such as English or Japanese. In contrast, languages like Spanish or Romanian seem to lack resultative or verb-particle combinations, and, in consequence, they will display lack of productivity in compounding.

(3) a. John wiped the table clean.
b. Mary pulled the lid off.

(4) a. */???Ion a şters masa curată.
Ion has wiped table-the clean
'Ion wiped the table clean.'
b. ?Maria a tras capacul jos.
Maria has pulled lid-the down
'Maria pulled the lid off.'

Romanian does not have verb-particle constructions, using adverbs instead to convey the meaning of the particle. In (2b), *a trage jos* 'draw down' does not act like a syntactic unit,

as *jos* 'down' can be independently modified by *foarte* 'very', while the particle *off* is not open to *very* modification. This is because, unlike in Romanian, verb + particles act as a syntactic unit in English (Snyder 1995, 2001).

As far as resultatives are concerned, while a cursory glance at Romanian might give the impression that there are no resultatives in Romanian, Farkas (2011) draws our attention to examples such as in (5), where the nominals convey a resultative meaning:

(5) a. Ion a șters masa lună.
Ion has wiped table-the moon
Ion wiped the table clean.'

b. Ion l- a bătut pe Marius măr.
Ion CL.3SG.M has beaten PE Marius apple
'Ion beat Marius black and blue.'

On the other hand, whereas English is very productive, allowing for a wide variety of resultatives, there are only a few such constructions in Romanian, as also argued in Drăgan (2012), who considers them frozen phrases.

Another account is in terms of the distinction the Rich Morphology vs. Poor Morphology, according to which, in languages with poor morphology, compounds are formed in morphology. In languages with rich morphology, on the other hand, compounds are formed in syntax (Di Sciullo 2005). Since Romanian is a language with rich morphology, it forms its compounds in syntax, unlike English, which forms them in morphology. Such an explanation would be further supported by the behavior: some languages allow caseless nouns within compounds, while others do not. English, for instance, allows caseless nouns within compounds. In *sun flower*, there is no need for the Genitive as *sun* is [−animate], in *baby pram*, there is no need for Genitive case, as *baby* expresses the purpose (*for babies*). However, there are exceptions even in those languages which allow caseless nouns within compounds, e.g. *shepherd's purse* (which is a kind of flower). In contrast, Romanian relies a lot on case in the formation of compounds: *floarea soarelui* 'flower-the sun-GEN' is just one example, but see Section 2 for a more comprehensive list.

The difference in compound productivity between Romanian and English can also be discussed in terms of N-to-D Movement: NN compounds are productive in languages where there is no N-to-D movement, and unproductive in languages in which there is N-to-D movement. This could again be correlated to the idea of poor morphology versus rich morphology.

While the Compounding Parameter seems to generalize across quite different data (and it may be quite a challenge to explain in what way verb-particle constructions/ resultatives and compounds are the same), the Rich vs. Poor Morphology account links productivity to the available morphological resources a language may make use of. Given the presence of many complex/ inflected compounds but the near-absence of root ones in Romanian, the Rich vs. Poor Morphology account seems a more plausible explanation for the lack of productivity of root NN compounds in Romanian. In addition, the blend interpretation ascribed to the root NN compounds produced by adults and children in the

experiments presented above can be explained by the fact that the few root NN compounds present in Romanian are associated with such a reading.

6. Conclusions

In conclusion, there seems to be a notable difference between children and adults with respect to the production of root NN compounds: while in the comprehension task, children performed more or less like adults, understanding the root NN compounds as blends most of the time (although adults gave some endocentric answers as well), in the production task, children produced considerably fewer blends than adults. Nevertheless, they produced some blends (a significant number of 31 NN compounds), and this fact, together with the presence of numerous blends in adult language shows that root NN compounds are not completely absent from Romanian, but they are blends rather than endocentric words, as in English. These results show that there are root NN compounds in Romanian, although they are not very productive, a fact which can be explained (among other possible explanations) on the basis of Romanian being a language with rich morphology, unlike English. Speakers can understand and produce root NN compounds, but the preferred interpretation is that of blend.

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Appendix 1
A: both animals
B: hybrid, fantastic creature
C: the first animal with attributes of the second animal
D: the second animal with attributes of the first animal

(1) *iepure câine* lit. ‘rabbit dog’

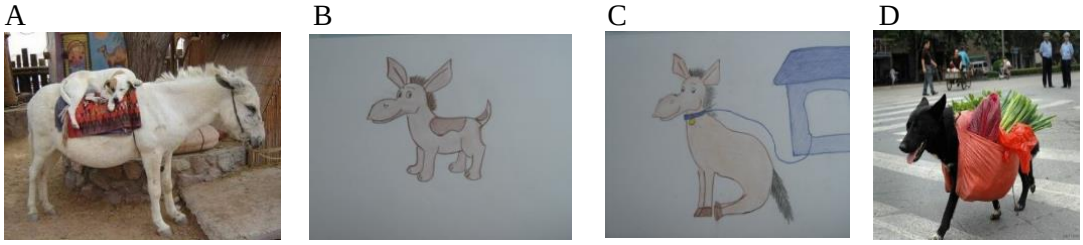
A B C D

(2) *prinţesă stea* lit. ‘princess star’

A B C D

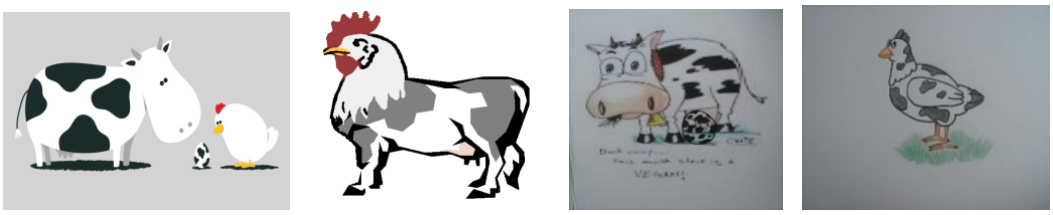
(3) *câine măgar* lit. ‘dog donkey’

A B C D



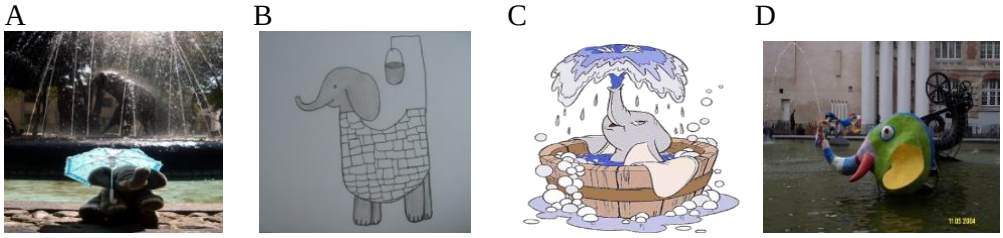
(4) *vacă găină* lit. ‘cow hen’

A B C D



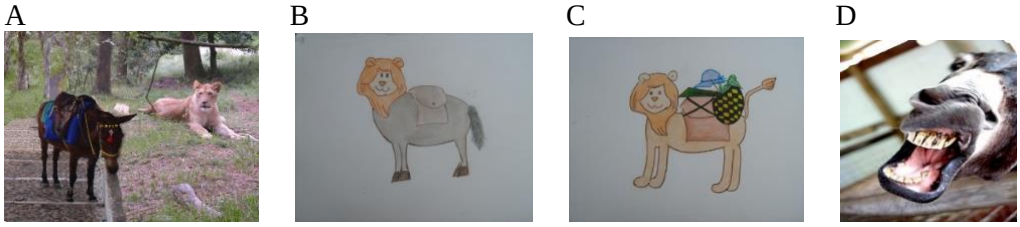
(5) *elefant-fântână* lit. ‘elephant fountain’

A B C D



(6) *leu măgar* lit. ‘lion donkey’

A B C D



Appendix 2

maşină-câine ‘car-dog’ *casă-brad* ‘house-fir tree’ *păpuşă-floare* ‘doll-flower’

leu-pui ‘lion-chicken’

leu-câine ‘lion-dog’

pisică-leu ‘cat-lion’

pisică-câine ‘cat-dog’

floare-brad ‘flower-fir tree’

delfin-pisică ‘dolphin-cat’

Appendix 3

Root NN compounds (I Series: Child 1-Child 7)

Drawings	Child 1 (5; 6)	Child 2 (4)	Child 3 (5; 6)	Child 4 (5)	Child 5 (5; 5)	Child 6 (5)	Child 7 (6)
pui-maşină ‘chicken-car’	păsărică ‘birdie’	o păsărică şi o maşinuţă ‘a birdie and a little car’	găină ‘hen’	găină ‘hen’	maşină ‘car’	pui-maşinuţă ‘chicken-little car’	o maşină şi un pui ‘a car and a chicken’
leu-pisică ‘lion-cat’	Pisicuţă ‘kitty’	un leu şi o pisică ‘a lion and a cat’	leu ‘lion’	leu-pisică ‘lion-cat’	pisică ‘cat’	leu-pisică ‘lion-cat’	o jumătate pisică şi jumătate leu ‘half cat and half lion’
brad-floare ‘fir-flower’	brăduţ ‘little fir’	o floricică şi frunze ‘a small flower and leaves’	floare ‘flower’	floare-brad ‘flower-fir’	brad ‘fir’	brad-floricică ‘fir-small flower’	o jumătate floare şi o jumătate brad ‘half flower and and half fir’
floare-păpuşă ‘flower-	prinţesă ‘princess’	o floricică şi o păpuşică ‘a small	păpuşă ‘doll’	floare ‘flower’	fetiţă ‘little girl’	floare-fetiţă ‘flower-	o jumătate fetiţă şi o jumătate

doll’		flower and a small doll’				little girl’	floare ‘half girl and half flower’
casă-brad ‘house-fir’	căsuţă ‘small house’	un brăduţ şi o căsuţă ‘a little fir and a small house’	brad ‘fir’	casă ‘house’	casă ‘house’	brad-casă ‘fir-house’	o jumătate casă şi o jumătate brad ‘half house and half fir’
pisică-leu ‘cat-lion’	pisicuţă ‘kitty’	un leuţ şi o pisicuţă ‘a little lion and a kitty’	leu ‘lion’	pisică ‘cat’	tigru ‘tiger’	leu-pisică ‘lion-cat’	o jumătate leu şi o jumătate pisică ‘half lion and half cat’
delfin-pui ‘dolphin-chicken’	delfinaş ‘little dolphin’	o raţă şi un delfin ‘a duck and a dolphin’	delfin ‘dolpin’	delfin ‘dolphin’	delfin ‘dolphin’	pui-delfin ‘chicken-dolphin’	o jumătate pui şi o jumătate delfin ‘half chicken and half dolphin’
maşină-delfin ‘car-dolphin’	maşină ‘car’	o coadă de balenă şi o maşinuţă ‘a dolphin tail and a little car’	maşină ‘car’	maşină ‘car’	-	delfin-maşină ‘dolphin-car’	o jumătate delfin şi o jumătate maşină ‘half dolphin and half car’
maşină-câine ‘car-dog’	câine ‘dog’	un câine şi o maşinuţă ‘a dog and a little car’	delfin ‘dolphin’	maşină ‘car’	câine ‘dog’	căţel-maşină ‘dog-car’	o jumătate câine şi o jumătate maşină ‘half dog and half car’
câine-maşină ‘dog-car’	urs-maşină ‘bear-car’	un căţel şi o maşinuţă ‘a dog and a little car’	câine ‘dog’	câine ‘dog’	urs ‘bear’	urs-maşină ‘bear-car’	o jumătate câine şi o jumătate maşină ‘half dog and half car’

Root NN compounds (II Series: Child 8-Child 13)

Drawings	Child 8 (5; 6)	Child 9 (6)	Child 10 (5)	Child 11 (5; 5)	Child 12 (5; 6)	Child 13 (4)
pui-maşină 'chicken-car'	un pui 'a chicken'	pui 'chicken'	un puiuţ cu maşină/ o maşină care merge 'a little chicken with a car/ a car that walks'	maşină 'car'	maşină-raţă 'car-duck'	pui-maşină 'chicken-car'
leu-pisică 'lion-cat'	un cap de pisică şi un cap de leu 'a cat head and a lion head'	pisică ("pentru că-mi plac pisicile") 'cat' "because I love cats")	un leuţ şi o pisică 'a little lion and a cat'	pisică 'cat'	tigru-pisică 'tiger-cat'	pisică-leu 'cat-lion'
brad-floare 'fir tree-flower'	un cap de floare şi un cap de brad 'a flower head and a fir head'	brad 'fir'	un brad şi o floricică 'a fir and a flower'	floare 'flower'	pom-floare 'tree-flower'	brad-floare 'tree-flower'
floare-păpuşă 'flower-doll'	un cap de fetiţă şi un cap de floare 'a girl's head and the head of a flower'	fată 'girl'	o fetiţă şi o narcisă 'a girl and a daffodil'	o fetiţă 'a little girl'	fetiţă-floare 'little girl-flower'	floare-fetiţă 'flower-little girl'
casă-brad 'house-fir tree'	un cap de casă şi un cap de brad 'the head of a house and the head of a fir'	casă 'house'	un brad şi o căsuţă 'a fir and a little house'	un brad 'a tree'	copac-casă 'tree-house'	brad-casă 'fir-house'
pisică-leu 'cat-lion'	un cap de pisică şi un cap de leu 'the head of a cat and the head of a lion'	leu 'lion'	o pisică şi un leu 'a cat and a lion'	leu 'lion'	tigru-pisică 'tiger-cat'	leu-pisică 'lion-cat'
delfin-pui 'dolphin-chicken'	un cap de delfin şi o coadă de pui 'the head of a dolphin and the tail of a chicken'	delfin 'dolphin'	un delfin şi corpul lu' un puiuţ 'a dolphin and the body of a little chicken'	un delfin 'a dolphin'	delfin-raţă 'dolphin-duck'	coada puiului şi rechin 'the tail of the chicken and a shark'
maşină-delfin 'car-dolphin'	un cap de maşină şi coada de delfin 'the head of a car and the tail of a	maşină 'car'	o maşină şi corpu' lu' delfin 'a car and the body of a	coada delfinului 'the tail of a dolphin'	delfin-maşină 'dolphin-car'	maşină cu coadă 'car with a tail'

maşină-câine ‘car-dog’	dolphin’ un cap de maşină şi un cap de căţel (“domnii care merg pe stradă”) ‘the head of a car and the head of a dog’ (“the gentlemen who walk on the street”)	câine (“după culoare”) ‘dog’ (“judging by the color”)	dolphin’ corpu’ pisicii şi o maşină ‘the body of the cat and a car’	căţeluş ‘puppy’	maşină-pisică ‘car-cat’	câine-maşină ‘dog-car’
câine-maşină ‘dog-car’	un cap de câine şi un bot de maşină (“arc”) ‘the head of a dog and the muzzle of a car’ (“arch”)	câine (după bot) ‘dog’	o maşină şi un urs ‘a car and a bear’	o maşină ‘a car’	câine-maşină ‘dog-car’	maşină-câine ‘car-dog’