The Productivity of NN Compounds in English and Romanian

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A Few Introductory Remarks

The aim of this paper is to present the behaviour of NN compounds in English and Romanian, and to offer an account for the productivity of NN compounds in English versus their lack of productivity in Romanian. It is a general observation that NN compounds are productive in Germanic languages, but unproductive in Romance languages. In this paper, we will try to look at this contrast by examining NN compounds in English and Romanian.

The paper is structured as follows. In Chapter 1, we present the various types of NN compounds existing in English in Romanian, and we show that, while NN compounds are numerous in English, they are rather scarce in Romanian, where, instead of the NN pattern (*sunflower, rattle snake*), we find either the N+N in the Genitive pattern (*floarea soarelui* 'flower-the sun-GEN', i.e. 'sunflower') or the N+ *de/ cu* ('of/ with')+ N pattern (*şarpe cu clopoţei* 'snake with rattles', i.e. 'rattlesnake').

In Chapter 2, we discuss various syntactic representations that have been proposed for NN compounds in English. What these syntactic representations show very clearly is the fact that NN compounds are not linear strings of nouns, but they are hierarchically organized.

Chapter 3 deals with the acquisition of NN compounds in English and Romanian. In the case of English, we relied on longitudinal and experimental data as reported in previous studies, showing the productivity of NN compounds in child English. In the case of Romanian, we devised experiments in which we tested the comprehension of NN sequences by children and adults, and the production of NN compounds by children and adults. In the comprehension test, we asked the subjects to choose out of a range of four drawings that which they thought best fitted the NN sequence they heard (e. g. *broască porc* (lit. 'pig frog')*, câine măgar* (lit. 'dog donkey')). The drawings correspond to four possible interpretations of the NN sequence: both animals, a hybrid creature (half one animal, half another), the first animal with the attributes of the second, the second animal with the attributes of the first. Given the fact that there are few NN compounds in Romanian and that the other patterns take care of the endocentric interpretations, we would expect the hybrid creature interpretation to be the dominant one. Indeed, the prediction is confirmed by the results of the experiment. In the production experiment, we showed the subjects pictures made of halves (half an animal, half another), and we asked them to name the creature. While Romanian adults opted for NN compounds almost exclusively, very few children did so, unlike in English, where NN compounds are productive from early on. The experiments thus reveal that, although NN compounds do exist in child Romanian, they are not as productive as in child English.

Finally, in Chapter 4, we try to provide an account for the reason why NN compounds are productive in English, but not productive in Romanian. To this purpose, we have evaluated various accounts. On the Compounding Parameter account (Snyder (1995)), the reason for the lack of productivity of NN compounds in Romanian is the fact that Romanian has a negative setting for the Compounding parameter, a parameter which is responsible both for the occurrence of NN compounds and of complex predicate constructions (such as resultatives). On the Rich vs. Poor Morphology Account (starting from Di Sciullo (2005)), the reason for which Romanian has few NN compounds is related to the fact that it is a language with rich morphology, and so, its compounds are formed in the domain of syntax, escaping thus the NN pattern. On the Case Account, the reason is the fact that, in Romanian, there can be no caseless nouns. On the Noun Movement Account, the presence of the patterns N+N in the Genitive and N+ *de/ cu* ('of/ with')+ N can be explained by the fact that nouns always move out of the N^0 position in Romanian, while this is not the case in English. We have tried to show that, while the Compounding Parameter account is problematic (it assumes, for example, that more or less the same mechanism is at stake both in the formation of compounds and in the formation of resultatives), and there are serious counterarguments against the Rich vs. Poor Morphology account (German, for instance, is a language with rich morphology, but, in spite of this, it does have NN compounds), the accounts which seem to be more able to cope with the issue of productivity versus lack of productivity of NN compounds are the Case Account and the Noun Movement account. Moreover, the two accounts can be related given the fact that case assignment usually involves noun movement.

The paper thus brings experimental evidence in favour of the fact that Romanian NN compounds are not productive and tries to come up with an account for why this is so.

Chapter 1 Introduction

1. 1. What's in an NN Compound?

The object of the present study is NN compounds. But what exactly is an NN compound to begin with? A few remarks concerning the term "NN compound" are in order so as to delimit the exact area of our research. The term is used to refer to a compound made of two constituent nouns, but this is merely a description of the linear order of the elements in the compound, it specifies nothing whatsoever with respect to the actual (hierarchical) structure of the constituents within the compound. So the term "NN compound" simply says: we are dealing with a compound in which the first element is a noun, and the second element is also a noun. However, if we look at what language provides us with, we see that we encounter various kinds of NN compounds, each of which has a different structure, in spite of being made of the same elements.

There are two main types of NN compounds depending on the number of heads present in the compound (Fabb (1998) in Bisetto and Scalise (2005)): (a) NN compounds in which there is only one head (the second noun), and the first noun is in a relation of subordination to the second noun, such as the English *sunflower,* and (b) NN compounds in which both nouns represent heads of the compound, and they are in a relation of coordination, such as the English *student-prince*[1].

Due to the fact that the second element in an NN compound is subordinated to the first element, NN compounds of the first kind are considered to be endocentric, and they are given the Sanskrit label *tatpurusa* ('master of').

However, this seems to be a somewhat lax description. In order to achieve more accuracy, it is necessary to distinguish between two notions of headedness: syntactic headedness and semantic headedness:

(1) An element is the syntactic head of a compound if it gives us the lexical category of the whole compound.

(2) An element is the semantic head of a compound if it gives us the referent of the whole compound.

[1] Fabb (1998) also adds another category of compounds: those which have no head (exocentric compounds), such as the English *bottleneck.*

We can have compounds in which the second noun is both the syntactic and the semantic head: in a compound like *sunflower*, for example, the second noun *flower* is both the syntactic head and the semantic head, given the fact that *sunflower* denotes a flower, and not something else, like a tree or a kitty. On such an approach, the semantic headedness of a noun is given by whether that particular noun gives the reference of the whole compound or not. In case the second noun is both the syntactic and the semantic head of the whole compound, the compound is called 'endocentric'. However, not all NN compounds are such that the second noun has double function. In some cases, such as *butterfingers,* for example, the second noun represents the syntactic head of the whole compound, but it does not represent the semantic head, given the fact that *butterfingers* does not refer to *fingers*, but to a clumsy person, a person with fingers as if made of butter. In such cases, when the second noun is the syntactic head, but not the semantic head, the compound is considered to be exocentric[2]. From a syntactic point of view, however, both endocentric compounds (such as *sunflower)* and exocentric compounds (such as *butterfingers)* are endocentric[3].

To be more adequate, thus, we could say that NN compounds in which only one of the heads acts as a syntactic head can be split into two categories:

(i) *tatpurusa* NN compounds (endocentric), in which case the whole compound denotes a hyponym of the element denoted by the second noun (Bloomfield 1933 in Baciu 2004:160)- the second noun is also a semantic head

(ii) *bahuvrihi* NN compounds (exocentric), in which no relation of hyponymy holds between the element denoted by the compound and the element denoted by the second noun – the second noun is not a semantic head

It is generally assumed that *bahuvrihi* compounds have no head. However, we can clearly see that this cannot be argued in the case of NN compounds. NN compounds always have a syntactic head. What they sometimes lack is a semantic head. The compound may not denote a hyponym of the head. If we take a case like *straw head,* for example, we clearly see that the compound does not denote a head, but a person (with narrow views), with a head as if made of straw. Interestingly, we can see that, although the second noun does not act as a semantic head of the compound, the relation between the meaning of the whole compound and the elements of

[2] The label *exocentric* is also given to compounds where the second element is neither the syntactic head, nor the semantic head (e.g. *a must-have* refers to an object which one must have). However, for a compound to be labeled as exocentric, it seems to be enough that the second element be not a semantic head. Within the class of NN compounds, this actually seems to be the only possibility for a compound to be labeled as *exocentric.*

[3] Moreover, if one explains the reference of exocentric compounds by means of cognitive tools such as metaphor or metonymy, for instance, then it could be argued that in fact all exocentric compounds are actually endocentric. (Benczes 2004)

the compounds is not so opaque. There is a relation of metonymy holding between the element denoted by the compound ("person") and the element denoted by the second noun ("head"): *pars pro toto* metonymy (head for person), and there is a metaphor at stake in the relation between the element denoted by N_1 and the attribute of the kind of person denoted by the whole compound ("straw" for "narrowness, stupidity"). A *straw head* does not literally refer to a head made of straw:


straw head

Apart from this class of NN compounds, there is also another class of NN compounds, the *dvandva* class, in which case the elements making up the compound are of equal rank. Both the first and the second noun are heads, and the relation holding between them is that of coordination.

According to Bauer (1978) (in Baciu 2004), there are two types of *dvandva* compounds:

(i) one in which the two members making up the compound represent different individuals, as in "a *mother-child* relationship"

(ii) one in which the two members of the compound represent two facets of the same individual (also called appositional compounds), as in *student-prince*

Baciu (2004) remarks that compounds denoting human beings are predominantly of the appositional type (*composer-conductor)*,whereas compounds denoting inanimate entities belong to the *dvandva* proper (*silver-lead)*. A possible explanation for this could be that human beings are not legible to being split into two entities without ceasing to be human beings. We do not

conceive of an individual who is a *student-prince* as being divided into *a student* and *a prince.* Such a division, if possible, would lead to the annihilation of the individual. Instead, such attributes are conceived of as facets of the same individual. The same reasoning runs if what is at stake is not a human being, but an animal. We would like to suggest that the appositional type applies if we are dealing with a [+animate] entity. If, for example, we want to refer to a dog as being a *friend-servant,* we cannot conceive of the dog as being half friend and half servant. In other words, if the entity denoted by the whole compound is [+animate], the split between two elements is not to be taken in the literal sense, but in the figurative sense.

Nothing which is animate can undergo a split into two entities without becoming inanimate, unless, of course, we have in mind some sort of fantastic creature (such as *dog lion/ doglion,* or *lion dog,* for example[4]). Sometimes, in order to indicate this, a blend is used of the type *liog.* We could speculate upon an analogy between word blending and world blending. So as to suggest that the elements in the real world (*the lion* and *the dog*) blend together, yielding one single creature, the linguistic elements also blend, yielding one single word (*liog).*

At the level of spelling, what can be noticed in the case of *dvandva* NN compounds is the fact that there is usually a hyphen separating the two nouns, a sort of substitute for the conjunction *and,* indicating the fact that the elements in the compound are of equal rank (*mother-child, student-prince).* In this way, interesting oppositions are created, such as *mother-child (*as in "a mother-child relationship") versus *mother child* (as in "This fifteen-year old girl is a mother child."). Whereas the first case is an instance of a *dvandva* compound proper, the second can be interpreted as an instance of a *tatpurusa* compound, denoting a child who is a mother. While in the first case we have a hyphen, in the second case we do not. Of course, spelling is not in itself to be taken as a reliable indicator of whether a compound is *dvandva* or *tatpurusa.* The hyphen can be found in the *tatpurusa* case as well (*eye-balls)*, or it can be completely absent in *dvandva* (*comedy melodrama).* Coming back to the examples above, we can see that in the second case ("This fifteen-year-old girl is a mother child."), the compound can also be interpreted as a *dvandva* appositional type (lacking a hyphen in such case), denoting someone who is both a mother and a child. Nevertheless, *dvandva* compounds are usually hyphenated, and such oppositions as the ones above are interesting to note.

At the semantic level, it must be remarked that, in order for the two elements of a *dvandva* compound to be considered of equal rank, they must be interpretable as belonging more or less to the same semantic category (The Same Semantic Category Requirement). In the

[4] Of course, a compound like *dog lion* can have other readings as well, apart from the reading denoting a fantastic creature which is half dog half lion (the *dvandva* proper reading). It can also be interpreted as an endocentric compound, denoting a lion having some of the attributes of a dog. Or it can even be interpreted as an appositional NN compound referring, for example, to a person who is both courageous (like the lion) and loyal (like the dog), in which case *lion* and *dog* are taken figuratively, not literally.

compound *Austro-Hungary,* both *Austria* and *Hungary* denote countries, in the compound *comedy melodrama*, *comedy* and *melodrama* each denote a literary/ TV genre, in the compound *composer-conductor* both nouns denote a profession. If the two nouns do not belong to the same semantic category, then we have a problem, because a *dvandva* interpretation becomes awkward. While a compound like *frog pig* can be interpreted as a *dvandva* proper, denoting a fantastic creature which is half frog, half pig, given the fact that both nouns denote animals, a compound such as *frog prince* is less prone to a *dvandva* proper interpretation, given the fact that *frog* denotes an animal, whereas *prince* denotes the status/rank of a human being:

frog prince

An appositional interpretation is also possible, given that both entities are animate (there is hence a common semantic category), and that the noun *prince* can be interpreted as a certain position in the hierarchy, ascribable to humans and animals alike. Apart from this, *frog prince* can be interpreted as a *tatpurusa* NN compound, denoting a prince who is a frog.

If we take a compound like *beauty queen*, we notice that, given the fact that the nouns do not belong to the same semantic category, the *dvandva* interpretation is not possible. Instead, we get a *tatpurusa* (endocentric) interpretation.

In principle, therefore, in English, one should be able to assign NN compounds either one of the following three interpretations: the *tatpurusa* (endocentric) interpretation, the *dvandva* proper interpretation, or the *appositional* interpretation. Due to the tendency to interpret NN compounds that one hears as being somewhat transparent in reference, people do not usually assign the *bahuvrihi* (exocentric) interpretation to NN compounds. However, this interpretation is not excluded. And if there is a compound in the language with such an interpretation or a compound with a similar pattern, then the background knowledge will make one adhere to that interpretation. A speaker might simply know that *straw head* refers to a person with narrow views, and, hence, assign an exocentric interpretation to the compound, or he might not know, but he might infer it relying on similar patterns existent in the language, such as *pea head,* which refers to a stupid person.

So we actually have 4 possible interpretations: two in which there is only one head, two in which there are two heads. Within each interpretation, if any of the nouns is given a figurative rather than literal meaning, then what we end up with are even more interpretations.

If we produce a compound like *sky sheep,* for example, our hearer might interpret it in various ways:

(a) He might interpret it as a type of sheep, having a particularly fluffy wool (like the clouds in the sky), or a blue-shaded wool, or he might interpret it as a sheep living in the sky. In this case, *sky sheep* would qualify as a *tatpurusa* NN compound.

sky sheep

(b) However, if the hearer interprets *sky* as referring to the location (habitat) of the sheep, then, given the general knowledge that sheep do not live in the sky, the hearer is led to interpret *sheep* as referring to something else: a cloud, for example. In such a case, the compound *sky sheep* is thus assigned a *bahuvrihi* (exocentric) interpretation.

sky sheep

(c) Apart from the single-head interpretations, a *dvandva* proper interpretation should also be possible. However, as we very well know, in order for a *dvandva* proper

interpretation to obtain, the two nouns have to belong to the same semantic category. Although *sky* denotes something natural, [-animate], and *sheep* denotes a [+animate] entity, in the *sky sheep* case, the sameness of semantic category requirement can nevertheless be met if we think about "natural" as the common semantic class. One can imagine a wonderful creature that is partly clouds partly wool.

(d) An appositional reading is also possible if our hearer thinks that the compound *sky sheep* expresses different facets of the same individual. *Sky sheep* might, for example, refer to a girl who is peaceful (like the *sky*) and meek (like a *sheep*). In such case, both nouns are interpreted metaphorically.

Of course, the interpretations above are not the only ones which an interlocutor could come up with. The basic patterns in English are nevertheless these. The question is whether these patterns are universal. Are these interpretations also available in a Romance language like Romanian? When someone hears *oaie cer* what does he think about? Or, to be more accurate, what CAN he think about within his language? In order to answer such questions as the ones above, we have to look into NN compounding in Romanian.

1. 2. NN Compounds in Romanian or Much Ado about Nothing

Coteanu (2007) defines compounding as the internal word-formation means which presupposes the reunion of two or more words in a new lexical unit[5].

In order to determine whether a particular element is a compound or not, Coteanu brings to the fore three criteria: 1. the semantic criterion (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 denote a new referent) 2. the morphological criterion (presupposes that the resulting compound behave like a unit, inflecting at the end in principle). 3. the syntactic criterion (presupposes certain syntactic relations among the elements making the compound: either parataxis (coordination) as in *puşcă-mitralieră* ('gun- machine gun'), or hipotaxis (subordination) as in *ochiul-boului (*'eye-the-bull-Genitive marker', or *floare-de-colţ* 'flower-of-rock'*).*

In what follows, we shall focus on the issue of whether there are NN compound in Romanian. We shall proceed comparatively, asking ourselves which of the English NN compounds can also be found in Romanian. As discussed in the first part, in English, we basically find two types of NN compounds: *tatpurusa* (subordinative) and *dvandva* (coordinative).

[5] Please note the use of the word *words* in the definition of compounding. While a linguist studying compounding in English defines compounding as 'the formation of a new lexeme by adjoining two or more lexemes' (Bauer 2003: 40), Coteanu speaks about the reunion of words (thus including inflection). Inflection is thus not something ruled out when we are dealing with Romanian NN compounds.

Looking at *tatpurusa* NN compounds in Romanian, we encounter two patterns:

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

(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’).

What is to be noted in these cases is that the noun representing the head of the compound occupies the first position, and not the second, as is the case in English. Moreover, 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 argues that most of the *dvandva* NN compounds in Romanian follow a borrowed pattern. They are actually not compounds formed in Romanian, but they represent adaptations.

From a semantic point of view, such compounds denote an object having the characteristics of two entities, which can be indicated syntactically by means of coordination. A compound like *puşcă-mitralieră,* for example, denotes an object which is both *puşcă* (‘gun’) both *mitralieră* (‘machine gun’), *şi puşcă şi mitralieră.* But this does not seem to be always the case. In a compound like *zi-muncă* (‘day-work’), meaning *zi normată de muncă* (‘work day’), we can no longer argue in favour of the idea that the compound denotes an object borrowing characteristics from each of the two entities. Coteanu also lists compounds such as *mobilă-tip* (meaning ‘mobilă tipizată, lucrată conform unor repere catalogate pe anumite baze’, ‘furniture-pattern’) or *general-maior* (meaning ‘general aflat pe o anumită treaptă in corpul generalilor’, ‘general major’ meaning *major-general*).

Listing *zi-muncă, mobilă-tip* or *general-maior* as NN compounds of the coordinative type is not appropriate. An essential criterion in establishing whether an NN compound is coordinative is for the entity denoted by the entire compound to have properties belonging both to the entity denoted by the first noun and the entity denoted by the second noun. The two nouns must be equal in status and must have an equal semantic contribution to the meaning of the

compound as a whole. The two nouns must be on a par both syntactically and semantically. In the cases mentioned above, however, this does not seem to be the case. In particular, the first noun seems to act as the syntactic and semantic head of the compound (*zi-muncă= zi, mobilă-tip= mobilă, general-maior= general*). Because of this, such compounds should come under the label of "*tatpurusa* NN compounds". Moreover, as argued above, many of these compounds follow a borrowed pattern, presumably from French (*jour travail, generale maieur),* the pattern is not coordinative in nature.

Out of the compounds mentioned above, the only ones which seem to conform to the definition of a *dvandva* compound are *puşcă-mitralieră*, *câine-lup (*'dog-wolf') and *artist-cetăţean*[6]*(*'artist-citizen') . However, even these are highly debatable. The first compound noun has as its counterpart in English the compound *machine gun (*which is an endocentric compound'). In all of the cases above, the first noun is semantically prominent.

In addition, another possible argument against the idea that these are *dvandva* compounds comes from the position where the definite article is added. To be more precise, the definite article (which is enclitic in Romanian) is added at the end of the first noun (*puşca-mitralieră, câinele-lup, artistul-cetăţean).* But if we assume both the first noun and the second noun are heads, we might have expected the definite article to be added at the end of each of the two nouns[7], or perhaps, at the end of the second noun, marking thus the end of the unit[8]. It might thus be that these so-called *dvandva* compounds are in fact *tatpurusa* compounds. Their *tatpurusa* nature is cunningly hidden by the fact that the second noun is neither inflected (*ziua muncii*), nor preceded by a preposition (*zi de muncă).*

We will now come back to analyse the Romanian correspondent of English *tatpurusa* NN compounds, which is also represented by *tatpurusa* NN compounds. However, if we try to see what English compound would roughly be used instead of the Romanian one, we see that there are some differences to note between the Romanian compound and the English pseudo-translation:

(i) Noun + Noun in the Genitive: *floarea-soarelui, gura-leului, laptele-cucului, limba-mielului, piciorul-cocoşului, traista-ciobanului, Poiana Ţapului*

[6] The second case (*câine-lup)* is again debatable, because if the first noun is considered to be the head, then it can be said that the compound as a whole denotes a type/ breed of dog (*wolf dog)*.

[7] Counter to this, one might argue on economy grounds that it is not necessary to mark definiteness twice. But then what would make the first noun a more adequate candidate for definiteness marking.

[8] Please note that in the case of French this problem does not arise, given the fact that the definite article in French is proclitic, not enclitic (*le generale maieur).*

Romanian	floarea-soarelui	gura-leului	laptele-cucului	limba-mielului	piciorul-cocoşului	traista-ciobanului	Poiana Ţapului
English	sunflower	snapdragon	sun spurge	lamb's tongue	rooster leg	shepherd's purse	Ţapului Glade


lamb's tongue

(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-cliff'), *lapte- de-pasăre* ('milk-of-bird'), *viperă cu corn* ('viper with horn')

Romanian	apă de plumb	bou-de-baltă	brânduşă-de-primăvară	cimbrişor de câmp	floare-de-colţ	lapte-de-pasăre	viperă cu corn
English	sugar of lead	marsh bull/ mire drum	spring crocus	shepherd's/ wild thyme	Edelweiss	bird milk	horned viper

While in the Romanian compound, it is the first noun that is the head, and the second noun is subordinated to it, in the case of English, it is the second noun that represents the head of the compound, and the first noun is subordinated to it.

Apart from this very significant difference, in Romanian the noun which is subordinated appears either in the Genitive or preceded by the preposition *de* or *cu*, marking the Accusative. In contrast, in English, the noun which is subordinated usually appears as a bare form. Only

sometimes does it appear in the Genitive (*lamb's tongue, shepherd's purse, shepherd's thyme*), and in many cases it does so in order to create relevant oppositions (while *lamb tongue* is used to refer to the tongue of a lamb, *lamb's tongue* is used to refer to a plant whose leaves resemble a lamb's tongue).

The second pattern: Noun+ preposition+ Noun actually represents a noun followed by a PP, therefore it does not represent an NN compound proper. It is what has been labeled in the literature as 'phrasal compound' (as in *son-of-a-bitch).*

However, if we look very carefully, we can clearly see that 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). The functional (inflectional) or the lexical projections (PP) into which the nouns are embedded at the syntactic level and we would not expect at the morphological level are nevertheless present. This makes Romanian NN compounds completely different from English compounds, which are more minimal in their nature. If one were to exaggerate, one could say that Romanian seems to lack proper NN compounds altogether. The few ones which can be considered NN compounds are borrowed. And the remaining ones appear to be phrases rather than words.

Chapter 2 The syntactic representation of NN Compounds in English

2. 1. Di Sciullo (2003)

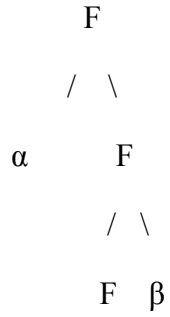
In order to account for the difference between Romance and Germanic compounds, Di Sciullo (2003) proposes that in these languages, compounds are formed in different domains. While in Germanic languages, compounds are formed in the morphological domain, in Romance languages, compounds are formed in the syntactic domain. When formed in the syntactic domain, compounds get transferred to the morphological domain. This is what makes one label them as *compounds*.

An important property of compounds is asymmetry. The order of the constituents is extremely important, it cannot be reversed without yielding either morphological gibberish (*a paper bag/ *a bag paper*) or a difference in interpretation (*a rail road≠ a road rail*). Moreover, one can clearly see that asymmetry is at stake given the fact that binding and control are observed word-internally (in *himself*, *him* binds the anaphor *self;* in reflexive compounds such as *self-respect*, *self* controls the internal argument of the derived nominal).

This asymmetry is also visible at the structural level: according to Di Sciullo (2003), compounds contain a functional projection within which the first constituent c-commands the second:

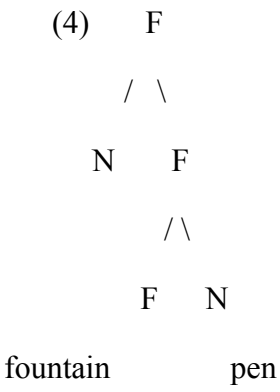
(3) The F-tree hypothesis

A compound includes a minimal functional (F) tree:



Di Sciullo (2003) brings two arguments in favour of this hypothesis. On the first argument, given the fact that a root compound includes a modification relation (by standard, a functional relation)[9], it has to include a functional projection:

(4)

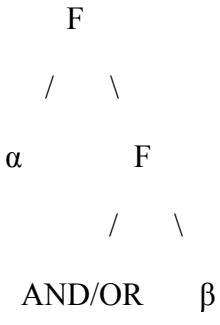


A second argument in favour of the F-tree hypothesis is that the F-tree must be part of the structure of compounds for PF and LF legibility. Di Sciullo (2003) brings evidence supporting this hypothesis coming from *dvandva* compounds:

(5) bed-and-breakfast, hit-and-run, truth-or-dare

In *dvandva* compounds, the conjunction must be present both for PF legibility (**bed-breakfast, *hit-run, *truth-or-dare)* and for LF legibility (AND and OR are operators expressing the semantic relation between the constituents forming the compound):

(6)



[9] Unlike the predicate-argument relation, the modifier-modifee relation is a functional relation. Modifiers occupy the specifier of functional projections.

In the case of *tatpurusa* compounds (such as *kitchen towel),* Di Sciullo argues that the F-head is occupied by the semantic head SORT. The F-tree is also required for phonetic interpretation. In Modern Greek, all compounds include a linking vowel (LV) *–o-*:

(7) pag**o**vuno

pag-**LV**-vun- -o

'ice mountain-NEU NOM-SG'

'ice-berg'

The LV is found in other languages as well: in Romanian, for example, we have *struţocămilă (*'ostrich-LV-camel').

The linear order of the constituents of a compound varies cross-linguistically:

(8) a. poisson chat (Fr.)

b. catfish

This difference follows if English compounds are derived in D_M, and French compounds are derived in D_S.

Such an analysis of *tatpurusa* compounds runs into difficulty when handling endocentricity, however. The head is none of the constituents making up the compound, but SORT. On the one hand, in a word like *catfish, fish* does not qualify as the head, which runs counter to our intuitions. On the other hand, SORT is considered by Di Sciullo a semantic operator, just like AND and OR. However, it seems to serve a fairly different function than these. Therefore, if we admit SORT as the head of the compound (which is rather debatable), is it really acceptable to put SORT on a par with AND and OR?

Moreover, the two constituents in a *dvandva* compound are supposed to be on an equal rank. But are they really so, given the fact that one is a specifier, and the other one is a complement? Doesn't the hierarchical difference make them unequal in rank?[10]

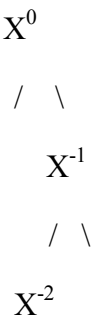
Di Sciullo's structural representantion of both single-headed and two-headed compounds thus runs into trouble, which is why another representation might be preferable, one which satisfies our intuitions. What we will nevertheless retain from Di Sciullo is the idea of different domains of compound formation: the morphological domain (in Germanic languages) and the syntactic domain (in Romance languages).

[10] This actually reduces to the problem of representing coordination structurally.

2.2. Cinque (1991)

According to Cinque (1991) (in Baciu (2004)), endocentric root compounds receive two distinct representations depending upon whether the element which is a non-head is a complement of the head or a modifier of the head. The head noun occupies the X^{-2} position:

(9)



(Cinque (1991))

In a root compound such as *diséase prone*, *disease* is the complement of *prone* (on the pattern *prone to disease*), while in a root compound like *lily white, lily* is the modifier of *white (white as a lily),* and it occurs in SpecX^0.

The fact that the non-head of a compound can occur in two distinct positions is supported by the presence of different stress patterns corresponding to the two distinct positions: stress falls on the non-head of a compound if this is a complement of the head; otherwise it falls on the head.

The question is how we can apply this to NN compounds in English. How can we tell whether the first noun is a modifier or a complement of the head? The criterion used by Cinque (1991) in order to determine whether the non-head found within a compound is a modifier or a complement is the syntactic counterpart of the compound. If the non-head is a complement of the head in the syntactic counterpart, then it will be considered a complement within the compound. If the non-head is a modifier of the head in the syntactic counterpart of the compound, then it will be considered a modifier.

In the case of NN compounds, establishing the syntactic counterpart of the compound is not so easy. We cannot say that the syntactic counterpart of a compound such as *apple cake* is 'cake of apple', because such a phrase is ungrammatical. We would instead have to say 'cake made of apples'. Again, if we take a compound like *heart ring*, however, we cannot say that its syntactic counterpart is 'ring as a heart', but we would rather say 'ring shaped as a heart'. We would thus reach the following representations:

(10)

X^{-1}

/ \

X^{-2}

cake apple

(11) X^{0}

/ \

X^{-1}

/ \

X^{-2}

heart ring

It therefore seems to be the case that, in order to establish whether an NN compound in English involves a modifier or a complement, what we need to look at is the semantic paraphrase of the compound. However, this would entail using a different criterion from the one used by Cinque (1991). It would imply shifting semantics into the realm of syntax. If we look at the data a bit more carefully, we see that it is not that clear that "apple" is the complement of "cake". This is because "apple" is actually the complement of "made of". As for "made of", it acts as a modifier of the noun "cake". So, actually, "made of apples" is a modifier of the noun "cake", in the same way in which "as a lily" is a modifier of the adjective "white".

There are, nevertheless, cases which do seem to have a syntactic counterpart. In the case of *sunflower,* for example, there seems to be a syntactic counterpart, namely, 'flower of the sun'. The question is whether "the sun" is a complement taken by the noun "flower", or a modifier.

Grimshaw (1990) (in Cornilescu (1993)) proposes that an important test distinguishing between complements and modifiers is that only the latter occur across copula:

(12) a. *The arrival is of the guests. (Agent)

b. *The betrayal is of the cause. (Theme)

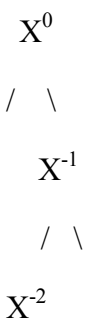
c. The book is John's. (Possessor)

d. The flower is of the sun. (Possessor)

On the basis of this test, we will assume “the sun” is a modifier, and not a complement.

Given the fact that, in the cases in which the compound has a syntactic counterpart, the non-head noun acts as a modifier, and that in the other cases, semantics seems to indicate that the same status, we might be tempted to propose that the non-head noun is always a modifier in the case of NN compounds:

(13)

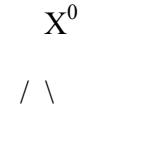


apple cake

2. 3. Lieber (1983)

According to Lieber (1983), root compounds can be represented in the following way:

(14)

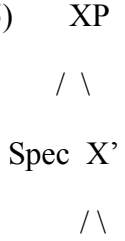


(Lieber (1983))

Such a representation is not hierarchical. It is, however, stipulated that it is the right-hand constituent that is the head. This is a consequence of the Feature Percolation Conventions, stating that the features of the right-hand constituent percolate to the upper node.

This view is more or less similar to the incorporation account, according to which, after Y incorporates into X, there is a rule which inserts X into the head position of the XP tree:

(15)



X Compl

X

/ \

Y X

2.4. Ackema (2004)

On the syntactic movement account of root compounds, Y moves from the lower head position of YP into the upper head position of XP:

(16) XP

/ \

Spec X’

/ \

X YP

/ \ / \

Y_i X Spec Y’

/ \

t_i Compl

The difference from the incorporation account is that while the incorporation account involves two trees connected by insertion, the syntactic movement account involves one single tree.

Due to the problems encountered in the case of the first two representations, the last two representations (provided by the incorporation account and the syntactic movement account) seem more adequate in handling root compounds.

Chapter 3. The Acquisition of NN Compounds in English and Romanian

3. 1. The Acquisition of Root NN Compounds in English

NN compounds represent the most commonly used means of forming new words in child English, but this is no surprise given the fact that compounding is the most productive word-formation means in adult English as well. In order to comprehend and use root NN compounds, children have to possess a vast amount of information: structural information (the modifier-head structure of a root NN compound in English), semantic information (the relation of hyponymy established between the entity denoted by the compound and the entity denoted by the head), morphological information (the constraint on plurals occurring in the modifier position of the compound), and phonological information (the main stress on the first noun, i.e. the modifier). And the incredible thing is that children embark on this Root NN Compound journey before the age of 2 years old. In this paper, however, we will not tackle all the aspects above mentioned, but we will discuss merely the structural and semantic aspects related to root NN compounds in child English. We will also discuss what makes NN compounds special in child English, as opposed to adult English, namely, the fact that they reveal something about the different way in which a child sees the world, the idea that it is the here-and-the-now that is important and special. Because of this, children come up with compounds which are not to be found in the language spoken by adults. What adult could possibly come up with a compound such as *fire dog,* meaning a dog found at the site of a fire? Or a compound such as *snow car,* meaning a car covered with snow*?* Children love the fleeting moment, they cherish it, and use language to capture it, to hold it in the palm of their hand. In a sense, language is their ode to perishing beauty.

3. 1. 1. Compounding-the Most Prevalent Means of Word Formation in Child Language.

As it is well known by now, there is a prevalence of compounding in child language (Clark 1993). Clark reaches this conclusion by analysing data from both spontaneous and elicited innovations.

Clark's main source for spontaneous innovations is represented by a corpus of lexical innovations found in her diary study of Damon's language development. What can here be noticed is that, before 2 years of age, all of Damon's innovative NPs were compounds, and, moreover, all the earliest compounds consisted of noun-noun combinations, where the second noun represents the head. From 2; 0 to 4; 11, however, the proportion of compounds within the class of innovative nominals decreased to 70% (with the rest of 30% being accounted for by derivation), and, in addition, other types of compounds began to be used apart from the noun-noun combinations. If, in the beginning, Damon only made use of bare nouns (and bare verbs) in

the creation of compounds, as he got older, he started to add affixes (like *–er* or *-ing)*, so that, from 5; 00 to 5; 11, he produced equal numbers of root and synthetic compounds.

Apart from Clark's diary data, there is also a second corpus that Clark relied on in making her claims, namely, a corpus of 276 innovative nouns produced by a number of English-speaking children aged two to six. The analysis of this corpus shows that compounding accounts for 70% of the innovative nouns overall. Moreover, if the children are divided by age, we can see that the younger ones (those under age four) relied on compounds 80% of the time, whereas the older ones (those between 4; 00 and 6; 00) relied on compounds less often (only 63%).

The fact that compounding is heavily used by children is also revealed in experimental studies. In an experiment designed to elicit labels for unnamed objects from children between 2; 00 and 3; 00 (Clark, Gelman, and Lane 1985, Gelman, Wilcox, and Clark 1989), children often relied on compound nouns to differentiate objects within categories. For example, when shown two pictures of trees, a tree with cups instead of leaves, and another one with pencils instead of leaves, they produced the compounds *cup-tree* and *pencil-tree.* This is not unexpected, however, if we think that compounds are largely used by adults as well so as to differentiate between items within a particular category (*vanilla- cake, chocolate cake* a. o.).

NN compounding is highly productive in child language, given the fact that 89% of the compounds produced by children up to age four are N-N compounds. (Clark 1993, 149)

Now the obvious question is: why are things so? (1) Why is it that compounding is used by children much more than derivation? (2) And why is it that, within the class of compounds, it is the NN compounds that prevail? According to Clark, the reasons for this are fairly simple: (i) transparency, (ii) simplicity, (iii) productivity. (i) Compounds are more transparent than derived nouns, since the latter also require the knowledge of the meaning of affixes, while compounds only require the knowledge of bare lexical elements. (ii) Moreover, it is simpler to form a new lexical item by means of combining bare elements together, rather than by adding affixes. (iii) And compounding is also used more than derivation in the very language that the child receives as linguistic input[11]. It therefore comes as no surprise that NN compounding is so much relied on by children.

[11] It is as if, in his quest for expressing himself by means of compounds, the child was guided by three general principles (Avram 2002): I. Use only the words you already know. II. Make the smallest changes possible. III. Use the forms preferred in the community speech.

3. 1. 2. Yes, There is Hierarchy.

Endocentric root NN compounds are structurally characterized by the fact that the first noun counts as the modifier of the second noun, which represents the head of the compound. The second noun counts both as a semantic and syntactic head of the whole construction. If we take a compound like *strawberry cake,* the second noun counts as the head of the whole construction. However, this is the way in which endocentric root NN compounds in adult English are analysed. But can we really extend the same analysis to the same type of compounds in child English?

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 reaching the stage of syntactic productivity (Berman 2009: 314). According to Berman (2009), therefore, in the acquisition of compounds in Hebrew, there is a passage from a linear order to a hierarchical order. Interestingly, Berman seems to extend this to English as well: "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 (Clark et al. 1985)." (Berman 2009: 314). However, this 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?

Moreover, 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, cited in Avram 2002). To top it all, as early as the age of 3, children even reject compounds which do not observe the appropriate word order, such as *bed-cat* for 'a kind of bed that cats sleep in' (Clark and Barron 1988, cited in Avram 2002).

The fact that the compounds are interpreted as having a head even from the very beginning is further more supported by children's spontaneous innovations and comments:

(17) 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 poneys.*

3. 1. 3. The Semantic Relations Within the NN Compounds

Semantically, the compound denotes an entity which is subordinate to the entity denoted by the head noun (hyponymy, class-inclusion). This is always so. What differs, nevertheless, from case to case are the semantic relations holding between the elements of a root NN compound. This is why Clark has argued that "semantically, compounds have meanings that are related to, but not fully inferable from, the meanings of their parts" (144).

In adult language, there are several semantic relations obtaining between the elements of an N-N 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'), and Purpose (*a baby chair*, i.e. 'a chair that a baby uses, a chair for a baby') (Bilev (1985), Clark and Berman (1987)). The question we would like to is whether all these semantic relations are be found in child language, or not (perhaps children show a preference for a particular semantic relation. If we take a look at some spontaneous analyses of word-parts from Clark's diary data, we notice that we pretty much find all the semantic relations listed above, and others in addition:

(18) D (2; 4, 3, looking at a toy car): *That a motor-car. It got a motor.* (Container, 'a car containing a motor').

(19) Mo (pointing at picture of lady-bug): What's that?

D (2; 4, 13): *A lady-bug! That like 'lady'.* (Similarity, though perhaps here it is rather a metalinguistic comment)

(20) D (2; 4, 18, to Mo, of toy-car painted white all over, including windows): *Eve, this is a snow-car.*

Mo Why's that a snow-car?

D *Cause it's got lots of snow on it. I can't see the windows.* (Cover 'car covered in snow, car with snow on it')

(21) Fa (to D, in the bath): You're making a cake?

D (2; 7, 1): *It's a water-cake.*

Fa: Why do you call it a water-cake?

D: *I made it in the water.* (Location, 'cake made in the water')

(22) D (2; 9, 24): *Does cornflakes have corn in it?* (Container)

(23) 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 poneys*

(24) D (2; 11, 25, asking about a road): *What's it called?*

Mo King's Mountain Road.

D *Do kings live in it?* (Possession, but the child seems to assign to it a Container reading)

(25) D (2; 11, 28, looking at flowering ice-plants): What's that called?

Mo That's ice-plant.

D *Does it grow ice?* (Result)

(26) D (3; 2, 15): *I'm going to build a monster-building. A monster-building has a lot of monsters in it.* (Container)

(27) D (3; 2, 15): *Egg-nog comes from egg!*

(28) D (3; 2, 20, as climbed into the car, holding both index fingers up to his head): *D'you know what head-lights are?*

Mo No.

D *They're lights that go in your head.* (Location)

(29) Fa (with D, looking at Zoo Guide from Durrell's Zoo in Jersey): And this is a wood-duck.

D (3; 3, 30): *So he's made of wood!* (Material)

(30) D (3; 4, 29): *You know what that is? It's a cannon-truck because it has cannons on it.*

(31) 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.* (Material)

(32) D (3; 5, 3, of cakes from a birthday treat at school): *They were candy-cupcakes because they had candy on top.* (Cover)

We find Container readings (*motor-car, cornflakes, monster building),* Material readings (*wood-duck, angel cake),* Cover readings (*snow car, candy cupcake*), and Location readings (*water-cake, headlights)*. Other nice Location examples include *fire-dog* (= dog found at the site of a fire), *plate-egg* (= fried egg) (Clark 1991: 50, cited in Avram 2009: 97), *cup-egg* (=boiled egg), and *sky-car* (= airplane) (Clark 1993: 117, cited in Avram 2009: 97).

Apart from this, we also encounter Resemblance readings, in which the child compares the object denoted by the head with the object denoted by the modifier, which gives rise to highly metaphorical compounds:

(33) *bird car* (= airplane)

ball- beads (= spherical beads)

butterfly- bugs (= dragon-flies)

flower- wheels (=car wheels shaped like flowers)

heart- fruit (= grape shaped like a heart) (Gottfried 1997a, cited in Avram 2009: 96)

No consensus has been reached as to which of the semantic relations present above is prevalent in child language. An experiment on Hebrew compounds reached the conclusion that none (although it is the Possessive reading that comes first), while another experiment on Swedish compounds (see Berman 2009: 310), in which children were presented novel compounds and were asked to interpret them, showed that the commonest interpretations were of Location and Material. Indeed, even in English, there seem to be many examples of Location and Material readings. If we look, for instances, at examples (29) (*wood-duck)* and (31) (*angel cake)*, we notice that the child's first instinct is to give them a Material interpretation[12]. Which of the readings above is to be preferred is, however, a matter of thorough research.

3. 1. 4. Temporary? Or Essential?

In adult English, compounds tend to express a permanent property of the head[13]. If, for example, we have a compound like *water bird,* this compound refers to a bird which lives near

[12] Note, however, that there may be a difference between comprehension and production. Although, during comprehension, children may be driven to interpret a compound by applying a particular reading to it (the most frequent one), in production, it may very well be the case that the child feels free to experiment with various readings and create at his own will.

[13] We thus leave aside the cases of nonce words (such as *apple-juice seat,* for instance*)*, where adults themselves behave childish.

water, not one which accidentally flies over water. Hence, in adult English, compounds do not express temporary properties.

The question is whether a similar claim can be made with respect to compounds in child English. If we take a look at the compound *water cake*, we notice that it indicates a temporary property, namely the fact that the cake was made in the water. If we take another compound, the compound *a fire-dog*, for example, we notice that it again expresses a temporary property ('a dog found at the site of a fire'). The same thing can be said about *snow car*. There are two very interesting cases, namely *a plate egg,* and *a cup egg.* The compound *a plate egg* is used to refer to a fried egg, which is usually served on a plate. A *cup egg*, on the other hand, is used to refer to a boiled egg, which is usually served in a cup. These again represent accidental properties, because a boiled egg can very well be served in a different fashion.

By looking at the compounds above, we could jump to the immediate conclusion that root NN compounds in child English express temporary properties, unlike root NN compounds in adult English. However, if we look at other examples, we see that this is not exactly how things stand. If we look at *heart fruit,* for instance, we notice that the child uses the compound to describe the shape of a particular object, which is a rather stable property. Or, if we take the compound, *motor car,* we again notice that the child uses it to express the idea that the car contains a motor, which is true at all times, not only at the moment of speech.

If we look at things from the temporary/ permanent distinction standpoint, we seem to end up with two opposing ideas about the way in which the child uses compounds to refer to objects. Perhaps a better way of looking at things would be to argue that what the child does when creating a compound of his own is try to capture what he considers to be essential of a particular object. Sometimes what he considers essential is something accidental, temporary (such as Location), other times, it is something permanent (Material or Shape)[14]. Nevertheless, it is what the child deems as essential. It is his way of looking at the world.

3. 1. 5. Experiment testing the interpretation of English NN compounds on Adult Romanian speakers

Unlike children, adults are more interested in that which is permanent. In order to see whether there is a Material bias in the interpretation of NN compounds by adult speakers, we tested Romanian adult speakers of English.

Subjects We used 10/ 11 subjects.

[14] We could tentatively establish a connection between the semantic relations that obtain between the elements in a compound and temporary/ permanent properties: Location readings seem to favor the expression of temporary properties, while Material readings seem to favor the expression of permanent properties.

Materials We chose five NN compounds (“flower girl”, “angel tree”, “apple cake”, “fire dog”, “headlights”), for each of them we made four drawings, exemplifying four of the most frequent readings of NN compounds (the Material reading, the Container reading, the Possession reading, the Location reading):

1) “Flower girl”

 Material

 Container

 Possession

 Location

2) “Angel tree”

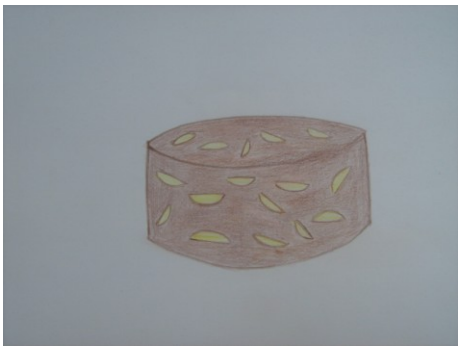
 Material

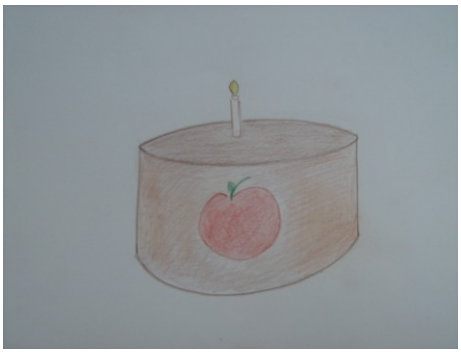
 Container

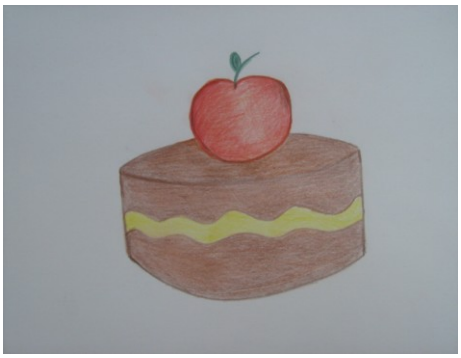
 Possession

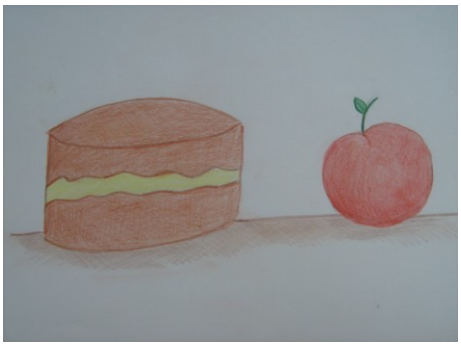
 Location

3) “Apple cake”

 Material

 Container

 Possession

 Location

4) “Fire dog”

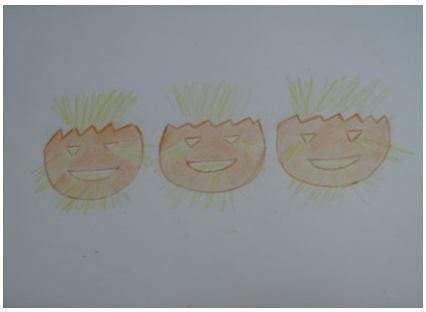
Material

Container

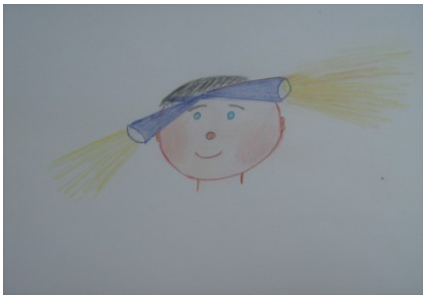
Possession

Location

5) “Headlights”

 Material

 Container

 Possession

 Location

Method The experimenter asked the subject “Show me an XY” (where *XY* stands for “flower girl”, “angel tree”, “apple cake”, “fire dog”, “headlights”), and then presented him with four drawings from which he had to choose.

Results The results of the experiment are as follows:

	I.Ş.	E.Cu	E.Ci	I.D.	C.M.	A.M.	S.R.	C.N.	I.I.	M.A.
flower girl	M	P	M	P	P	M	C	P	P	P
angel tree	C	M	M	M	M	M	C	M	M	M
apple cake	M	M	M	M	M	M	M	M	M	M
fire dog	M	M	M	M	M	M	M	C	M	M
headlights	M	P	L	P	L	P	P	L	L	L

M= Material

C= Container

P= Possession

L= Location

50 answers: 31 M answers (62%), 4 C answers (8%), 10 P answers (20%), 5 L answers (10%)

As we can see, except for "flower girl" and "headlights", for which most subjects chose the drawing corresponding to the meaning present on the market (possession in the first case, location in the second), in the case of the other compounds, subjects opted for the Material interpretation ('made of'). So the prediction that there is a Material bias in the interpretation of NN compounds in the case of Romanian adult speakers of English seems to have been borne out by the results of the experiment.

3. 2. The Acquisition of NN Compounds in Romanian

In what follows, we will look at NN compounds in Romanian and test the hypothesis that, unlike NN compounds in Germanic languages, NN compounds in Romance languages are not so productive.

3. 2. 1. The Experiment '*Broască porc'*

3. 2. 1. 1. Question

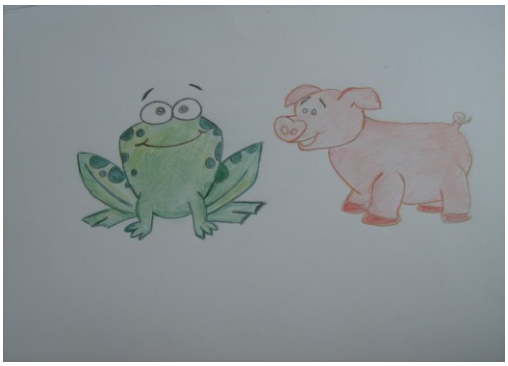
The question we would like to answer is what interpretation Romanian children/ adults assign to the NN sequence. In order to answer this, we have tested the comprehension of the following nouns: *broască porc (*lit. 'frog pig'*), porc broască* (lit. 'pig frog'*), iepure câine* (lit.'rabbit dog'*), câine 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').

3. 2. 1. 2. Experiment 1 (adults)

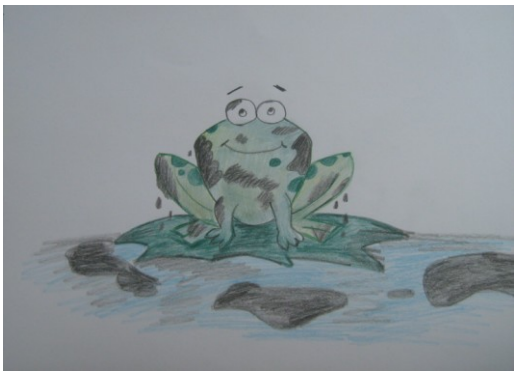
<u>Materials</u>

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

1) *broască porc* (lit. ‘frog pig’)

 A. both animals

 B. hybrid, fantastic creature

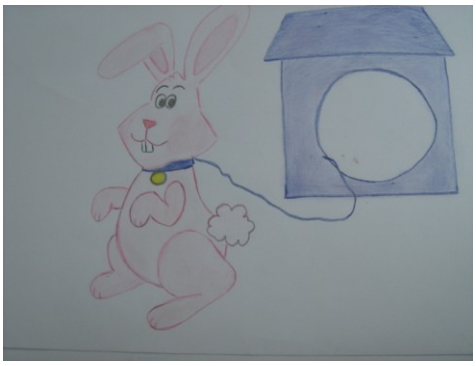
 C. the first animal with attributes of the second

 D. the second animal with attributes of the first

2) iepure câine (lit. ‘rabbit dog’)

 A. both animals

 B. hybrid, fantastic creature

 C. the first animal with attributes of the second

 D. the second animal with attributes of the first

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

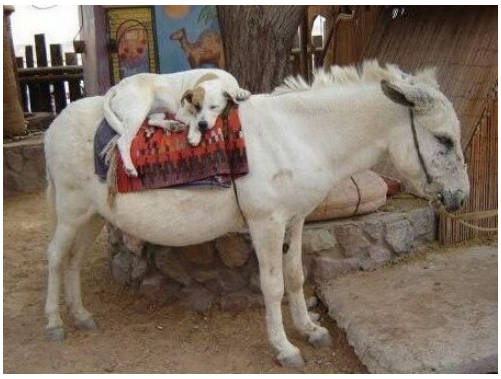
 A. both

 B. hybrid, fantastic creature

 C. the first with attributes of the second

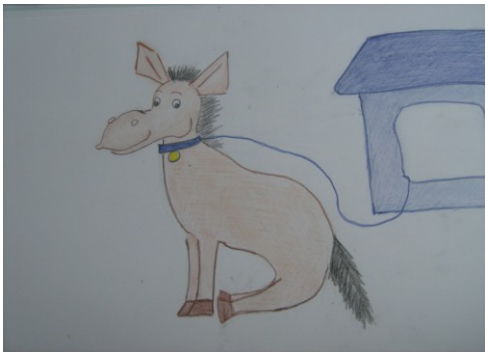
 D. the second with attributes of the first

4) *câine măgar* (lit. ‘dog donkey’)

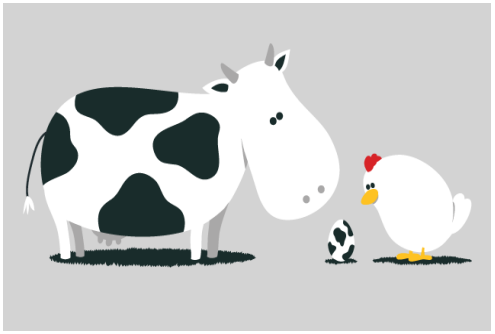
 A. both animals

 B. hybrid, fantastic creature

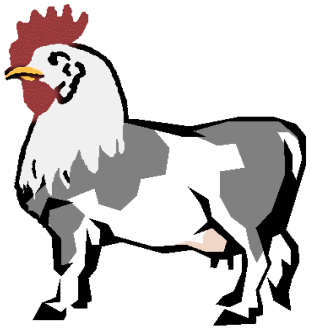
 C. the first animal with attributes of the second

 D. the second animal with attributes of the first

5) *vacă găină* (lit. ‘cow hen’)

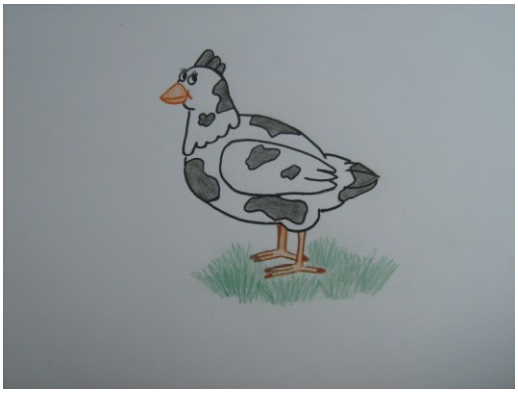


A. both animals



B. hybrid, fantastic creature

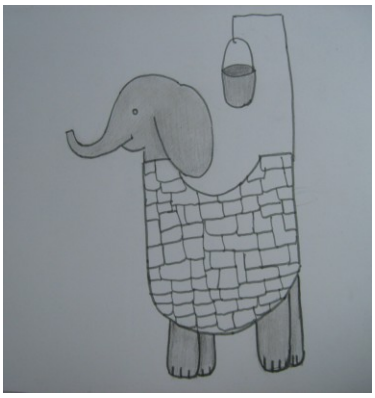
C. the first animal with attributes of the second



D. the second animal with attributes of the first

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

 A. both entitites

 B. hybrid, fantastic creature

 C. the first with attributes of the second

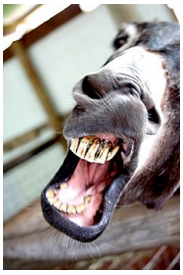
D. the second with attributes of the first

7) *leu măgar* (lit. ‘lion donkey’)

 A. both animals

 B. hybrid, fantastic creature

 C. the first animal with attributes of the second

 D. the second animal with attributes of the first

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.

Predictions

The few NN compounds present in Romanian (in the exact form NN) are either dvandva or endocentric. Therefore, we would expect subjects to choose either B (the dvandva interpretation (blends)) or C (the endocentric compound interpretation), given the fact that, in Romanian, endocentric compounds have their heads on the left.

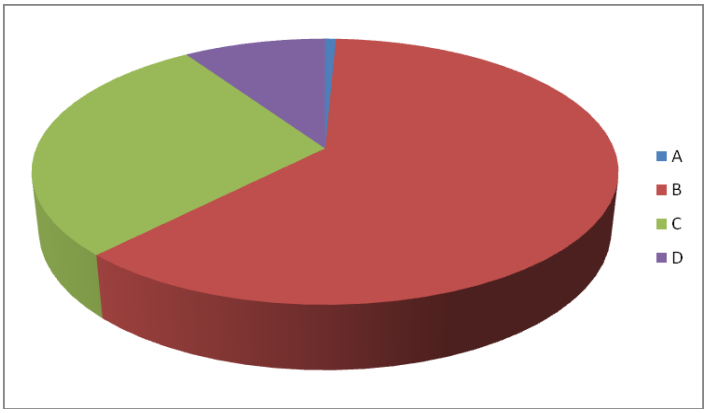
Given the fact that endocentric NN compounds (in the exact form NN) are not productive in Romanian, we would expect B, i.e. the blend interpretation to be the predominant one.

Before testing our predictions on children, we tested them on ten adults. The experiment proceeded in the following way: the experimenter showed the subject four drawings, asking him: "Arată-mi XY!" (e.g. *broască porc*), i.e. "Show me XY!". We avoided both the use of the indefinite article *un/* o, and the use of the definite article *–ul/* -a, in order not to influence the subject's choice by thus indicating the head. After seven N_1 N_2 sequences, the experimenter continued with the corresponding N_2 N_1 sequences (showing the reverse order). The same drawings were used in this case.

Results

	broască porc	iepure câine	prinţesă stea	câine măgar	vacă găina	elefant fântână	leu măgar	măgar câine	stea prinţesă	găină vacă	porc broască	fântână elefant	măgar leu	câine iepure
I.Ş.	B	B	B	B	B	B	B	C	C	C	C	C	D	D
E.Cu	C	C	B	C	B	D	C	B	B	B	B	B	B	B
E.Ci	B	C	B	D	B	D	B	C	C	B	B	B	C	C
I.D.	B	B	B	D	B	D	B	C	C	C	C	C	B	B
C.M.	B	B	B	B	B	B	B	B	C	C	C	C	D	D
A.A.	B	B	D	B	B	B	B	B	C	B	B	B	B	B
S.R.	B	B	B	B	B	B	B	C	C	B	C	B	B	C
A.M.	B	B	B	B	B	B	C	C	C	C	C	C	B	A
C.N.	D	B	B	D	B	C	C	B	C	C	B	B	B	B
M.B.	B	B	B	D	B	B	B	C	B	B	C	B	B	B

140 answers: 1 A answer (0.71%), 86 B answers (61.42%), 40 C answers (28.57%), 13 D answers (9. 28%)



Our predictions are borne out by the results: the subjects chose the B interpretation (the hybrid, fantastic creature) and the C interpretation (the first animal with attributes of the second). The preferred interpretation is B (seven or more than seven B answers in the case of each subject).

There were also some D answers (3 D answers in the case *câine măgar*, and 3 D answers in the case *elefant fântână*). A possible reason for this could be related to the drawings. The drawing corresponding to the B interpretation for *câine măgar* 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* 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* can receive the C interpretation.

Another interesting thing 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 is 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 forced).

3. 2. 1. 3. Experiment 1 (children)

Subjects : The experiment was performed on 10 children aged 4-7 from No. 203 Kindergarden.

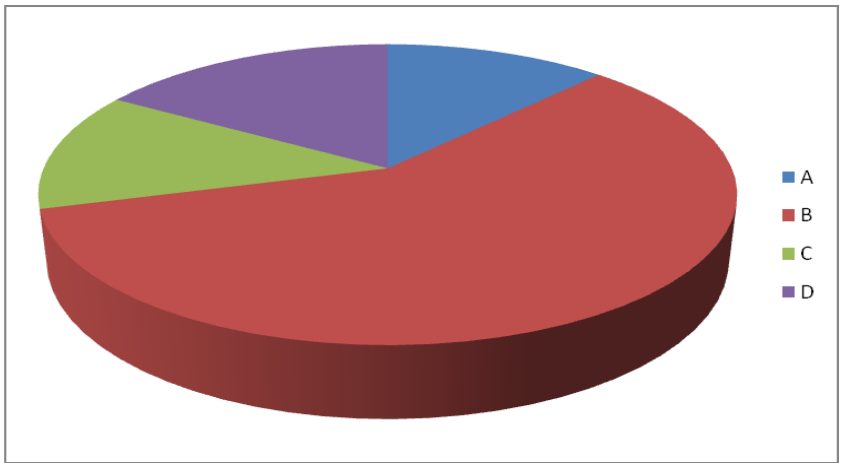
Method: The experimenter asked the child whether he would like to help Adina, since she has to draw an XY and she does not know exactly how to draw it. The child is told that Adina has made some drawings, and that, in some cases, she has taken pictures from the internet, and that, in order to help her, he must choose the image he believes is similar to *XY*. We again avoided both

the use of the indefinite article *un/ o* and the use of the definite article *–ul/ -a* before the NN sequence in order not to influence the child's choice (by thus indicating to him the head).

Results

	broască porc	iepure câine	prinţesă stea	câine măgar	vacă găina	elefant fântână	leu măgar	măgar câine	stea prinţesă	găină vacă	porc broască	fântână ele fant	măgar leu	câine iepure
David (6)	A	A	A	C	A	B	A	D	A	A	A	B	A	A
Ana	A	C	D	D	B	C	B	A	B	C	B	D	B	B
Catrinel (5)	B	B	B	D	D	B	B	C	B	C	B	B	B	D
Mihnea (6)	B	B	B	D	B	D	B	B	B	B	B	C	B	B
George (5; 9)	D	B	B	B	B	C	B	B	B	B	C	D	B	B
Maria (7)	B	B	B	B	D	B	B	B	B	B	C	D	B	B
Filip (5;6)	D	B	B	D	D	B	B	C	B	C	C	B	B	D
Bogdan (4)	A	B	A	B	A	B	D	D	B	A	A	C	B	B
Victor (5; 6)	B	B	B	D	B	B	B	B	C	B	B	B	B	D
Daria (5; 5)	B	B	B	D	B	C	B	C	C	B	B	B	B	D

140 answers: 17 A answers (12. 14%), 82 B answers (58.57%), 18 C answers (12.85%), 23 D answers (16.42%)



Remarks

Most of the answers given by children are B answers, but in the case "câine-măgar", "măgar-câine", we have very few B answers. A possible explanation for this is that the drawing is not that clear. The child very often chooses the same drawing (leaving aside the case in which the fantastic creature (B) is once again chosen), we notice that George chooses the same drawing for "broască porc", "porc broască" , as well as for "elefant fântână", "fântână elefant", Ana chooses the same drawing for "elefant fântână", "fântână elefant", David chooses the same drawing for "câine măgar", "măgar câine", Catrinel chooses the same drawing for "câine măgar", "măgar câine", Mihnea chooses the same drawing for "elefant fântână", "fântână elefant", Filip chooses the same drawing for "câine măgar", "măgar câine", as well as for "vacă găină", "găină vacă". We can here detect a difference from the adults, who very often chose another drawing when faced with the same set of drawings, but a different requirement. Are the adults more careful or are they simply more influenceable? Possible reason 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, given the fact that, in some cases ("câine măgar", "elefant fântână"), the drawings are not that clear, the child nevertheless makes a choice for lack of a better option.

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. This is because, sometimes, the child chooses C or D, bringing, nevertheless, arguments in favour of a B answer: he chose the drawing corresponding to the D interpretation for "fântâna-elefant", for example, because "it has the body of a fountain and the head and ears of an elephant" (Maria 7), in the case "vacă găină", the child says he chose D because "it has the head of a hen and the body of a cow" (Catrinel 5), or, in the case "câine măgar", because "it has the body of a donkey and the house of a dog" (Daria 5; 5), and in the case "câine-iepure", because "it has a dog house and it is a bunny" (Daria 5;5).

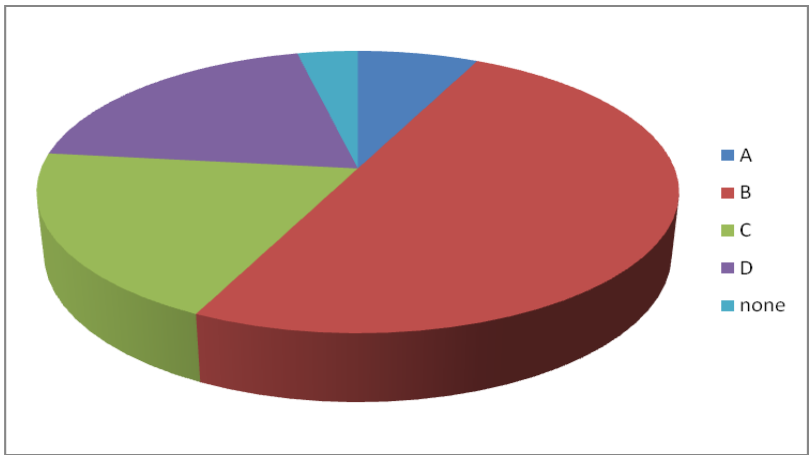
3.2.1.4. Experiment testing the effect of *un/o* over the children's choice

In the above experiments, we avoided the use of the indefinite article *un/ o* so as not to influence the child's choice by indicating a head and thus forcing an endocentric compound reading. However, it is not that clear that the indefinite article really has an effect upon the child's choice, as we would expect. In order to test this, we performed an experiment on seven children aged 4-6. The NN sequences we tested are "o broască porc", "un porc broască", "o vacă gainǎ", "o găină vacă", "un elefant fântână", "o fântână elefant", "un iepure câine", "un câine iepure". We thus have two pairs of NN sequences in which the indefinite article is the same both in the XY case and in the YX case (the pair "o vacă gainǎ", "o găină vacă", and the pair "un iepure câine", "un câine iepure"), and two pairs in which the indefinite article in the XY case is different from the indefinite article in the YX case.

The results we obtained are the following:

Children	o broască porc	un porc broască	o vacă gainǎ	o găină vacă	un elefant fântână	o fântână elefant	un iepure câine	un câine iepure
Alisia (5;5)	D	C	B	B	B	B	B	B
Mirela (5)	D	B	B	A	C	C	B	D
Alexandru (5; 6)	D	C	B	B	C	D	B	B
Mario (5)	B	C	B	A	B	D	B	C
Dora (4)	A	A	B	D	C	B	C	B
Ştefan (5)	B	B	B	none	B	D	B	none
Darius (5)	D	B	D	D	C	B	C	B

56 answers: 4 A answers (7.14%), 28 B answers (50%), 11 C answers (19. 64%), 11 D answers (19.64%), 2 none answers (3.57%)



When the answer is “none”, the child gave an explanation for why he considers none of the drawings are adequate. Ștefan says that, so as to have “o găină vacă”, there should have been an animal with the body of a hen and the head of a cow, and, so as to have “un câine iepure”, the creature should have had the body of a rabbit and the head of a dog. Therefore, his answers are actually B answers.

When the indefinite article is the same in both cases, three children out of seven chose the same drawing in the case “o vacă găină”, “o găină vacă”, two children out of seven chose the same drawing in the case “un câine iepure”, “un iepure câine”.

When the indefinite article differs in the two cases, four children out of seven chose the same drawing in the case “o broască porc”, “un porc broască”, two children out of seven chose the same drawing in the case “o fântână elefant”, “un elefant fântână”.

Since there is no obvious difference between the cases in which the article is the same and the cases in which the article is different, we can argue in favour of the view that the indefinite article has no effect upon the child’s choice. So it seems to be the case that, in the previous experiment we conducted, we need not have worried about any possible effect.

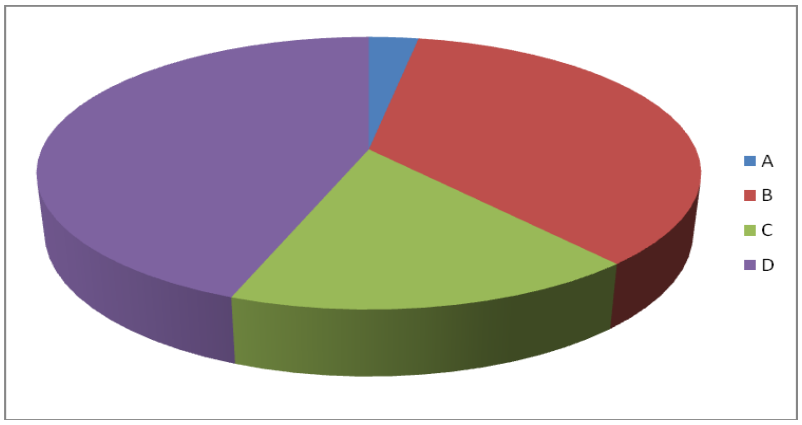
3. 2. 1. 5. Experiment 1 (adult Romanian speakers of English)

We performed the same experiment in English on adult Romanian speakers of English aged 20-25. Given the fact that, in English, in the case of endocentric compounds, the head is on the right, we would expect B and D to be the preferred readings.

The results of the experiment are the following:

	pig frog	dog rabbit	star princess	donkey dog	hen cow	fountain elephant	donkey lion	dog donkey	princess star	cow hen	frog pig	elephant fountain	lion donkey	rabbit dog
I.I.	B	B	B	B	B	C	B	D	D	D	D	D	B	B
A.A.2	B	D	B	C	B	B	B	C	D	D	D	D	D	B
M.A.	D	D	B	D	B	D	D	D	D	D	D	D	B	D
S.L.	B	B	C	C	B	B	B	D	A	D	D	D	B	B
M.S.	D	D	D	D	C	C	C	C	D	B	C	A	C	C

70 answers: 2 A answers (2.85%), 25 B answers (35.71%), 12 C answers (17.14%), 31 D answers (44.28%)



Our predictions are borne out by the experiment. Except for the last subject's answers, most of the answers are B and D.

When hearing an NN sequence, both adults and children interpret it as a compound: either as a dvandva (blend) or as an endocentric compound. The preferred interpretation in Romanian is dvandva (blend), given the fact that in Romanian endocentric NN compounds are not productive.

Tests involving the comprehension of NN compounds by children and adults are perhaps not so relevant for the productivity of NN compounds as tests involving the production of NN

compounds by children and adults. It is strongly debatable whether the fact that children and adults assign an interpretation to the NN sequences they hear really means that NN compounds are productive in the language under scrutiny. If we think that when one hears a sequence, there is always the tendency to assign it some sort of interpretation ('it must mean something'), and that, moreover, in the tests we devised, children and adults were actually given the task of assigning an interpretation to the NN sequences they heard, we realize that this does not necessarily imply the productivity of NN compounds in the language at stake.

If, for example, one hears a sentence like "Colourless green ideas sleep furiously" and assigns it an interpretation, this does not imply that such sentences are productive in English, but simply that, when hearing an odd utterance, the hearer nevertheless tries to make it acceptable by offering it an interpretation. The above is an example of a sentence which is grammatical, but semantically awkward. However, the same thing seems to apply if one hears a sentence like "his goed Travis yesterday to the party", which is ungrammatical, since it violates syntactic rules, not semantic rules. In spite of the fact that the sentence is ungrammatical, the hearer can still assign it an interpretation. It thus seems to be the case that not even violations of syntax can totally hinder interpretation.

When one hears an NN sequence, therefore, he may assign it an interpretation in the following situations: he may consider the sequence grammatical, but semantically awkward, he may consider the sequence ungrammatical, or he may consider the sequence both grammatical and semantically appropriate. The fact that the hearer assigns an interpretation to that NN sequence may therefore say nothing with respect to whether that sequence is productive in the language we are discussing[15].

However, given the fact that in Romanian, endocentric interpretations are taken care of by means of the patterns N+ preposition +N and N+ N in the Genitive, we do expect the blend interpretation to be the prominent one in the case of NN compounds. The results of the experiment seem to confirm our expectations. In a language in which NN compounds are not productive, and in which other patterns than NN are generally used for endocentric interpretations, a different interpretation is expected to obtain in the case of the NN pattern.

Since comprehension may nevertheless be argued to be not so revealing with respect to the productivity of NN compounds in a language, and it is productivity which is primarily a

[15] Moreover, it does not imply that the sequence is necessarily a compound, in the sense of a morphological compound (i.e. a compound formed in morphology). It may very well be the case that the NN sequence represents a syntactic phrase (e.g. "delfin-maşină" ('dolphin-car') following the pattern "delfin frumos" ('dolphin beautiful')).

matter of production, we decided to devise an experiment in order to test the production of NN compounds in the case of children and adults in Romanian.

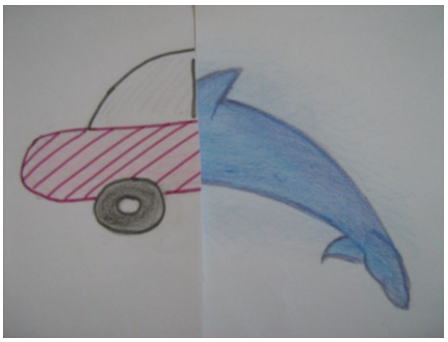
3. 2. 2. 'Half-Half' Experiment

We were influenced by the experiment conducted by Mellenius 1997 on the acquisition of compounding in Swedish (Berman 304). "Ten children aged 3;5 to 6; 8 were asked to describe picture depicting two halves from a memory game 'patched together in two-by-two random combinations' (1997:82). In keeping with findings for English (Clark, Gelman, and Lane 1985), most of the children provided more compound constructions than other types of labels, and overall more than two thirds of their responses took the form of compounds" (Berman 304).

3.2. 2.1. 'Half-Half' Experiment (adults)

Subjects We first tested a control group consisting of six adults aged 20-25.

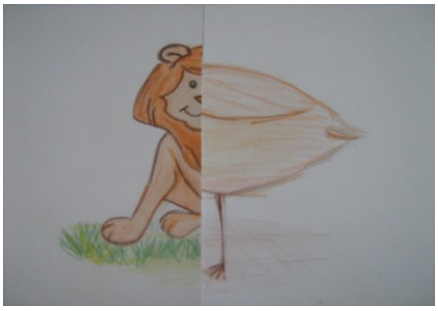
Materials After drawing ten objects/ animals: a car, a dolphin, a dog, a cat, a house, a fir-tree, a flower, a lion, a chicken, a doll, we cut the drawings into half, and we mixed the halves, thus obtaining strange creatures such as *maşină-delfin* ('car-dolphin'), *maşină-câine* ('car-dog'), *casă-brad* ('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').


maşină-delfin


maşină-câine

casă-brad

păpuşă-floare



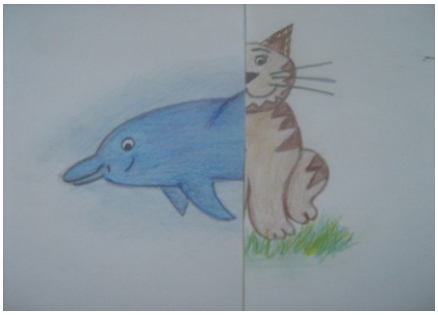
leu-pui

leu- câine

pisică-leu

pisică-câine

floare-brad



delfin-pisică

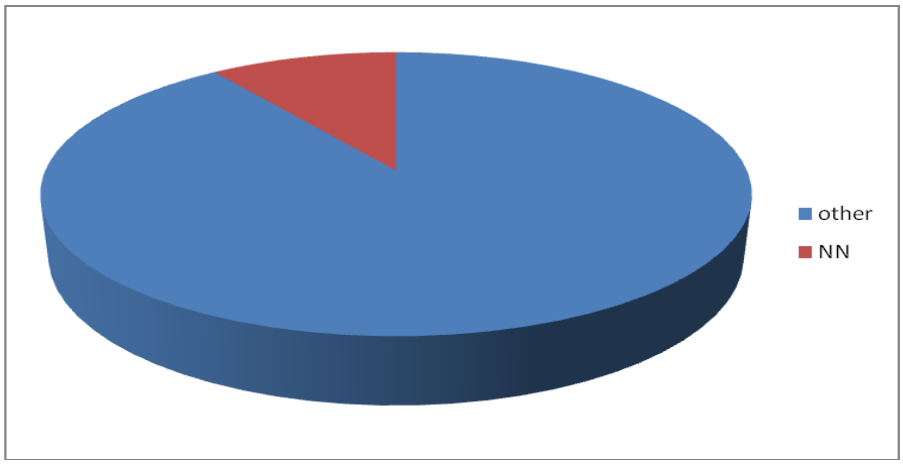
Method We showed these drawings to adults, and asked them to give a name to the creature they see.

Results The results of the experiment are the following:

Drawings	I. Ş.	E. Cu	E. Ciu	I.D.	C.M.	S. I. R.
maşină-delfin ‘car-dolphin’	maşină-delfin ‘car-dolphin’	maşină-delfin ‘car-dolphin’	maşină-delfin ‘car-dolphin’	maşină-delfin ‘car-dolphin’	maşină-delfin ‘car-dolphin’	maşină-delfin ‘car-dolphin’’
maşină-câine ‘car-dog’	maşină-căţel ‘car-dog’	maşină-câine ‘car-dog’	căţel-maşină ‘dog-car’	maşină-câine ‘car-dog’	maşină-căţel ‘car-dog’	maşină-căţel ‘car-dog’
casă-brad ‘fir-house’	casă-brad ‘fir-house’	casă-brad ‘fir-house’	casă-brad ‘fir-house’	-	casă-brad ‘fir-house’	casă-brad ‘fir-house’
păpuşă-floare ‘doll-flower’	fetiţă-floare ‘little girl-flower’	fată-floare ‘girl-flower’	floare de fată ‘flower of girl’	fetiţă-floare ‘little girl-flower’	fetiţă-floare ‘little girl-flower’	fetiţă-floare ‘little girl-flower’
leu-pui ‘lion-chicken’	leu-pasăre ‘lion-bird’	leu-găină ‘lion-hen’	o gâscă-leu ‘a goose-lion’	leu şchiop ‘lion cripple’	leu-puiuţ ‘lion-little chicken’	leu-pasăre ‘lion-bird’
leu-câine ‘lion-dog’	leu-căţel ‘lion-dog’	leu-câine ‘lion-dog’	căţel-leu ‘dog-lion’	leu-câine (fără jumătate de cap) ‘lion-dog’ (without half a head)	leu-căţel ‘lion-dog’	leu-căţel ‘lion-dog’
pisică-leu ‘cat-lion’	pisică-leu ‘cat-lion’	pisică-leu ‘cat-lion’	pisică-leu ‘cat-lion’	-	pisică-leuţ ‘cat-little lion’	pisică-leu ‘cat-lion’
pisică-câine ‘cat-dog’	pisică-căţel ‘cat-dog’	pisică-câine ‘cat-dog’	pisică-câine sau câine-pisică ‘cat-dog or dog-cat’	pisică-câine (fără jumătate de cap) ‘cat-dog’ (‘without half a head)	pisică-căţel ‘cat-dog’	pisică-căţel ‘cat-dog’
floare-brad ‘flower-fir’	floare-brad ‘flower-fir’	floare-brad ‘flower-fir’	un brad cu floricele ‘a fir with small flowers’	floare-brad ‘flower-fir’	floare-brăduţ ‘flower-small fir’	floare-brad ‘flower-tree’
delfin-pisică ‘dolphin-cat’	delfin-pisică ‘dolphin-cat’	delfin-pisică ‘dolphin-cat’	pisică-delfin/ delfin-pisică	o pisică care se gândeşte la un	delfin-pisicuţă ‘dolphin-kitie’	delfin-pisică

			‘cat-dolphin’/ ‘dolpin-cat’	delfin ‘a cat that is thinking of a dolphin’		‘dolphin-cat’

60 answers: 54 NN answers (90%), 6 other answers (10%)



With a few exceptions (*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’)), the adults’ answers were NN compounds (blends). Moreover, the 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).

Given the fact that some of the creatures obtained by combining the halves looked odd (in some cases, one animal was represented horizontally, while the other was represented vertically: *pisică-câine (*‘cat-dog’), *leu-pui* (‘lion-chicken’), *leu-câine* (‘lion-dog’), *delfin-pisică* (‘dolphin-cat’)), so what resulted was a creature without half a head, we decided to mix the halves again so as to obtain more ‘normal creatures’.

3.2.2.2. ‘Half-Half’ Experiment (children)

Subjects We tested 13 children aged 4-6 from No. 203 Kindergarden.

Materials We combined halves of drawings so as to obtain: *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’).

pui-maşină

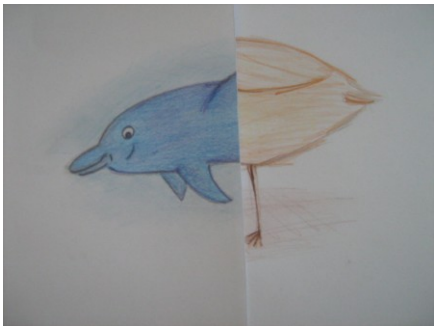
leu-pisică

brad-floare

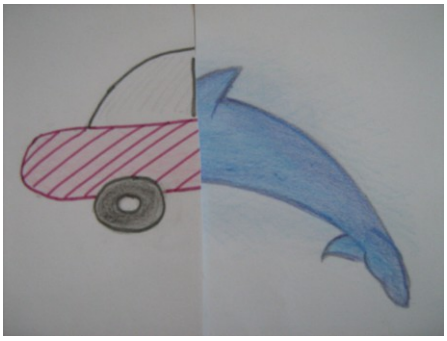
floare-păpuşă

casă-brad

pisică-leu



delfin-pui


maşină-delfin


maşină-câine


câine-maşină

Method We showed the drawings depicting the strange creatures to the children and asked them to name them.

Results The results of the experiment are as follows:

Drawings	Dana (5; 6)	Edi (4)	David (5-6)	Ştefan(5)	Bianca (5; 5)	Daria	Ştefan (6)
pui-maşină	păsărică	o păsărică şi o	găină	găină	maşină	pui-maşinuţă	o maşină şi un pui ‘a car and a

'chicken-car'	'birdie'	maşinuţă 'a birdie and a car'	'hen'	'hen'	'car'	'chicken-little car'	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 half fir'
floare-păpuşă 'flower-doll'	prinţesă 'princess'	o floricică şi o păpuşică 'a small flower and a small doll'	păpuşă 'doll'	floare 'flower'	fetiţă 'little girl'	floare-fetiţă 'flower-little girl'	o jumătate fetiţă şi o jumătate 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	maşină 'car'	maşină 'car'	-	delfin-maşină 'dolphin-car'	o jumătate delfin şi o jumătate maşină 'half dolphin and half

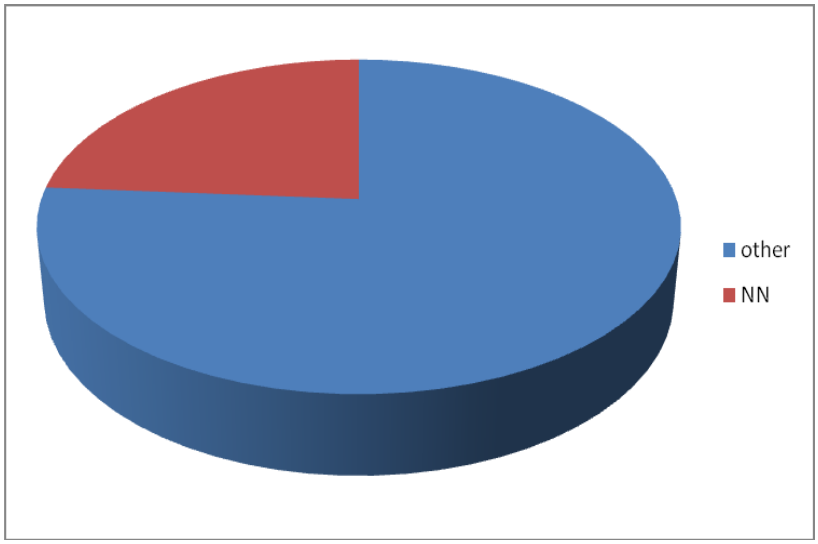
		tail and a little car'					car'
maşină-câine 'car-dog'	câine 'dog'	un câine şi o maşinuţă 'a dog and a little car'	delfin 'dolphin'	maşină 'car'	câine 'dog'	căţel-maşină 'dog-car'	o jumătate câine şi o jumătate maşină 'half dog and half car'
câine-maşină 'dog-car'	urs-maşină 'bear-car'	un căţel şi o 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'

Drawings	Ali (5; 6)	Alisia (6)	Daria (5)	Ana (5; 5)	Victor (5; 6)	Dora (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	un cap de pisică şi un cap de leu ("împreunaţie") 'a cat head and a lion head/ the head of a cat and the head of a lion'	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	un cap de floare şi un cap de brad 'a flower head and a fir head/ the head of a	brad 'fir'	un brad şi o floricică 'a fir and a flower'	floare 'flower'	pom-floare 'tree-flower'	brad-floare 'tree-flower'

	flower and the head of a fir'					
floare-păpuşă	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	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	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	un cap de delfin şi o coadă de pui ("împreunaţie") '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 chicken'	un delfin 'a dolphin'	delfin-raţă 'dolphin-duck'	coada puiului şi rechin 'the tail of the chicken and a shark'
maşină-delfin	un cap de maşină şi coada de delfin 'the head of a car and the tail of a dolphin'	maşină 'car'	o maşină şi corpu' lu' delfin 'a car and the body of a dolphin'	coada delfinului 'the tail of a dolphin'	delfin-maşină 'dolphin-car'	maşină cu coadă 'car woth a tail'
maşină-câine	un cap de maşină şi un cap de căţel ("domnii care merg pe	câine (după culoare) 'dog'	corpu' pisicii şi o maşină 'the body of the cat and a	căţeluş 'puppy'	maşină-pisică 'car-cat'	câine-maşină 'dog-car'

	stradă") 'the head of a car and the head of a dog' ('the gentlemen who walk on the street')		car'			
câine-maşină	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'

130 answers: 31 NN answers (23.85%), 99 other answers (76.15%)



Only three children out of thirteen (Daria, Victor (5;6), and Dora (4)) answered by using NN compounds. Six children (Dana (5; 6), David (5-6), Ştefan (5), Bianca (5; 5), Alisia (6), Ana (5;5)) used only one of the nouns to name the strange creature. Two children (Edi (4), Daria (5)) used both nouns in coordination, and two children (Ştefan (6), Ali (5; 6)) used two nouns in coordination: one denoting half of the first animal, the other denoting half of the second animal.

It thus seems to be the case that NN compounds are not so productive in Romanian child language, given the fact that 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.

However, we notice that, unlike children, Romanian adults did use NN compounds in order to refer to the creatures represented by the two halves. This clearly shows that, although not as productive as in English, NN compounds do exist in Romanian. NN compounds in Romanian are either dvandva (coordinative) or endocentric. Given the fact that, in this particular experiment, the creature requiring a name is made up of two halves, the best (most economical and semantically adequate) label for it is a dvandva NN compound (a blend).

What this experiment therefore shows is that NN compounds do exist in Romanian. However, they are not as productive as NN compounds in other languages (like Swedish or English), and their spontaneous production is triggered in particular cases (such as the one above). The question we would like to answer is why this is so. In what follows we will try to come up with accounts for the lack of productivity of NN compounds in Romanian.

Chapter 4 Possible Accounts for the Productivity of NN Compounds in English and their Lack of Productivity in Romanian

4. 1. The Compounding Parameter Account

One way to account for the productivity of NN compounds is to say that there is a Compounding Parameter which has a positive setting in certain languages and a negative setting in others. This Compounding Parameter is responsible both for the productivity of NN compounds and of complex predicate constructions. In *Language Acquisition and Language Variation: The Role of Morphology* (1995), Snyder remarks that there is a correlation between the presence of complex predicate constructions and the presence of compounds. By 'complex predicates', he means resultatives, verb-particle combinations, and double object constructions:

(34) a. John hammered the metal flat.

b. Mary picked the book up/ picked up the book.

c. Sue sent Alice a letter.

In all the constructions above, we find two elements making up a constituent. 'Hammer flat', 'pick up', 'send a letter' seem to form a constituent in their own right. Semantically, they form a unit. Syntactically, they select an object: 'hammer flat' selects the object 'the metal', 'pick up' selects the object 'the book', 'sent a letter' selects the object 'Alice'. What we see happens is that, in all the above cases, there is a unit made up of two elements (lexical words). Interestingly, Snyder notices that, in languages where this happens at the level of syntax, the same thing happens at the level of morphology (compounds). It thus seems to be the case that a correlation between resultatives and N-N compounding obtains regularly across languages:

Language	**Resultatives**	**N-N Compounding**
English	YES	YES
Dutch	YES	YES
German	YES	YES
Khmer	YES	YES
Hungarian	YES	YES
French	NO	NO

Spanish	NO	NO
Russian	NO	NO
Serbo-Croatian	NO	NO
Japanese	NO	NO
ASL	NO	NO
Mandarin	NO	NO
Modern Hebrew	NO	NO
Palestinian Arabic	NO	NO

(Table 2.1: Resultatives and NN-compounding across languages in Snyder (1995))

On the basis of such empirical data, Snyder makes the claim that the syntax of a language permits complex predicate constructions if, and only if, the morphology of the language freely permits compounding of open-class lexical items. Snyder (1995) proposes the existence of a Compounding Parameter which receives a positive value in certain languages, and a negative value in other languages:

(35) Compounding Parameter: The grammar does (not) freely allow open-class, non-affixal lexical items to be marked [+Affixal].

Snyder thus accounts for the intuition that there is a similarity between compounds and complex predicates. Both involve the formation of a unit by means of putting two lexical items together. Of course, there is a difference between compounds and complex predicates: while (true) compounds involve the putting together of stems, complex predicates involve the putting together of words. What Snyder means by saying that there are no NN compounds in French or Spanish is not that there are no NN sequences, but that the process of NN compounding involving two bare stems is not productive in these languages.

As we can see in the table above, in Germanic languages, we find both resultatives and NN compounds, while in Romance languages, we find none. In other words, Germanic languages have a positive setting for the Compounding Parameter, while Romance languages have a negative setting for the Compounding Parameter.

Being a Romance language, Romanian is expected to have a negative setting for the Compounding Parameter. We thus expect to find neither resultatives nor NN compounds. NN compounds in Romanian are not at all productive. The few examples of NN compounds we have involving bare stems (*câine-lup, bloc-turn, general-maior, zi-muncă)* are not enough to make Romanian count as a language where NN compounding is productive. As far as resultatives are concerned, the question we would like to answer is whether resultatives are really absent from Romanian. In this pursuit, we will start from examples of AP resultatives in English:

(36) a. He painted the house red.

b. He wiped the table clean.

The counterpart of these under the resultative reading may actually be found in Romanian:

(37) a. A vopsit casa roşie.

'pro-3rd sg. painted house-the red [fem., sg.]'

b. A şters masa curată.

'pro-3rd sg. wiped table-the clean [fem., sg.]'

If we look at examples such as:

(38) a. He painted the barn red.

b. He wiped the chair clean.

we see that they also seem to have a counterpart in Romanian:

(39) a. A vopsit hambarul roşu.

'pro-3rd sg. painted barn-the red [neuter, sg.].'

b. A şters scaunul curat.

'pro-3rd sg. wiped chair-the clean.'

A very important fact about Romanian is that there is agreement between the noun and the adjective following it. Because of this, sentences like those in (38) and (39) are ambiguous between a resultative and a non-resultative reading. (39) (a), for instance, is ambiguous between a reading in which "roşu" is understood as an attribute of "hambarul" ("A vopsit hambarul roşu în albastru.", i. e. 'pro-3rd sg. painted barn-the red in blue', meaning 'He painted the red barn in blue.'), and a reading in which "roşu" ('red') is interpreted as indicating a resulting state ("A vopsit hambarul până l-a făcut roşu.", i.e. 'He painted [kept painting] the barn until he made it

red'). It is therefore not that clear that there are no AP resultatives in Romanian. Moreover, we even encounter resultatives in which the resulting state is expressed by means of a noun (Baciu and Crăiniceanu 2010):

(40) a. Băiatul a ars hârtia scrum. ("până a făcut-o scrum")

'Boy-the burnt paper-the ash'

Meaning: 'The boy burnt the paper to ashes.'

b. Mama a pisat piperul pulbere.

'Mother pounded pepper-the powder.'

Meaning: 'Mother pounded the pepper to a powder.'

c. Miruna a tăiat pâinea felii.

'Miruna cut bread-the slices.'

Meaning: 'Miruna cut the bread into slices.'

Therefore, it may be the case that the idea that there is a strict correlation between the presence of resultatives in a language and the productivity of NN compounding may not be that correct, after all[16].

Even if it were so, even if there were a correlation between resultatives and NN compounding, it is still not clear that one could stipulate a Compounding Parameter which could account for both constructions. Please note that the Compounding Parameter does not imply that resultatives and NN compounds are formed in the same domain (syntactic). We might, however, think that it implies that they are generated by the same rule. If we assume that resultatives are formed in syntax, whereas NN compounds are formed in morphology, we might be tempted to assume that the same rule is responsible for their formation.

In *Beyond Morphology,* Ackema (2004) argues that there are two different systems which are responsible for the formation of syntactic and morphological complex heads. Ackema remarks numerous differences existing between syntactic and morphological complex heads. A first difference between syntactic and morphological complex X^0 categories concerns the position of their heads (Hoeksema 1992). The head may appear in one place in the case of

[16] It could nevertheless be argued that the correlation between resultatives and NN compounding holds in Romanian, given the fact that, although possible, resultatives and NN compounds are not productive in Romanian. It is therefore a matter of productivity versus lack of productivity, and not a matter of presence versus total absence of resultatives and NN compounds.

syntactic complex categories (e. g. on the left) and in another place in the case of morphological complex categories (e.g. on the right), as is the case in Dutch:

(41) $[_N$ rood$_A$ vuur$_N]$

red fire

'disease by which wood turns red'

(42) dat Cecilia de kraanvogels $[_V$ kan $[_V$ zien vliegen]]

that Cecilia the cranes can see fly[17]

A second difference between syntactic and morphological complex X^0s regards a restriction on the internal structure of their heads. Complex predicate formation is non-recursive, as we can see in Dutch:

(43) a. dat Jan en Piet [samen werken]

that John and Pete together work

'that John and Pete cooperate'

b. dat Jan en Piet zich [kapot werken]

that John and Pete themselves to-pieces work

'that John and Pete work themselves to death'

c. *dat Jan en Piet zich [kapot [samen werken]]

that John and Pete themselves to-pieces together-work[18]

Furthermore, there is a difference in the kind of elements that can appear as non-heads in syntactically and morphologically complex categories. While long infinitives, i.e. infinitives

[17] This could, of course, be related to the fact that syntactic complex predicates involve verbal heads, whereas morphological complex predicates may involve non-verbal heads. Moreover, in the examples given, the non-head has a different status: it is a modifier in one case and a complement in another. It may thus be the case that the order head-non-head in the examples above is not different because we are dealing with morphological complex predicates versus syntactic complex predicates, but because the head belongs to a distinct lexical category (noun versus verb) and the non-head has a distinct status (modifier versus complement).

[18] The difference between morphological and syntactic complex predicates with respect to recursivity is not that neat, however. Not all morphological complex predicates are recursive. One might thus have difficulty arguing that exocentric VN compounds (belonging to the nominal category) such as *cutthroat*, for instance, are recursive.

marked with *te* 'to' can appear as non-head in verb clusters, they cannot function as the non-head in Dutch morphological complexes:

(44) a. [[(*te) staan] plaats]

(*to) stand place*

'standing room'

b. [[(*te) verstaan] baar]

(to) understand able

'audible'

c. dat hij daar [schijnt te staan]

that he there appears to stand

'that he seems to stand there'

d. dat hij haar [heeft [proberen te verstaan]]

that he her has try to understand

'that he has tried to understand her'

In Dutch, in morphological complex categories, verbs appear in their stem form[19], while in complex syntactic heads, verbs must be inflected and can never appear in the stem form:

(45) a. [[fonkel (*en)] nieuw]

twinkle (INF) new

'brand-new'

b. [[lees (*en)] baar]

read (INF) able

c. dat hij de diamante [ziet [fonkel *(en)]]

that he the diamond sees sparkle (INF)

[19] Of course, there are languages in which verbs appear inflected even in compounds (e.g. in Romanian, in a compound like *papă-lapte* ('eats-milk', meaning 'softie'). This might perhaps suggest that compounds in such languages are actually syntactic heads.

'that he sees the diamond sparkle'

d. dat hij de krant [wil [lees *(en)]]

that he the newspaper wants read (INF)

'that he wants to read the newspaper'

A final difference between syntactic and morphological complex heads is that constituent parts of complex words cannot be moved, whereas movement of parts of syntactic complex heads is unproblematic:

(46) a. Bernard heeft een mooie [[oue munten] verzameling].

Bernard has a beautiful old coins collection

'Bernard has a beautiful collection of old coins.'

b. *Marie heeft een prachtige postzegelcollectie, maar

Mary has a beautiful stamp-collection, but

[oude munten]$_i$ heeft ze niet zo'n beste [t_i verzameling].

old coins has she not such-a good collection

'Mary has a beautiful collection of stamps, but she does not have a very impressive collection of old coins.'

c. Angola voert veel goederen in. Uit$_i$ voert$_i$ het alleen koffie [t_i t_j].

Angola moves many goods in. Out moves it only coffee

'Angola imports many goods. It only exports coffee.'

d. Jan verft altijd alles rood. Blauw$_i$ verft$_j$ hij alleen de deur [t_i t_j].

John paints always everything red. Blue paints he only the door.

'John always paints everything red. Only the door does he paint blue.'

The above examples serve as evidence that there are two different types of complex X^0s: one generated in morphology, the other in syntax. Moreover, it suggests that they are derived in different ways.

The Compounding Parameter (Snyder 2001) does not elaborate upon the means of formation of syntactically complex categories or morphologically complex categories. It simply

states that such categories result from treating a lexical, non-affixal item as [+affixal]. Although we would perhaps be tempted to think that they are both formed in the same way, the evidence above suggests that this is not exactly so[20]. A clearer formulation of the Compounding Parameter would thus be needed.

4. 2. The Rich vs. Poor Morphology Account

Another possible way to account for the productivity of NN compounds in English and their lack of productivity in Romanian is to say that NN compounds in English are formed in the domain of morphology, whereas there is no corresponding device in Romanian. NN compounds in Romanian are formed in the domain of syntax. Of course, this obviously presupposes that there is something special in the domain of morphology in English[21], which makes NN compounding possible and productive. What is it then about the domain of morphology in English which makes it different from the domain of morphology in Romanian?

A first tentative answer could be that English is a language with poor inflection, whereas Romanian is a language with rich inflection. We could thus tentatively establish a correspondence of the type:

(47) poor morphology……NN compounds in morphology

rich morphology……..NN compounds in syntax

However, if we look at a language such as German, which has rich morphology, but, nevertheless, has NN compounding, we realize that the correspondence poor morphology-NN compounds in morphology does not hold for all Germanic languages, and so, the correspondence in (47) does not seem to account for the difference between NN compounding in Germanic languages versus NN compounding in Romance languages.

Moreover, there is another point which requires further clarification. Di Sciullo (2005) argues that compounds in Romance languages (NN compounds including) are formed in syntax. Perhaps the main argument in favour of this claim is that NN compounds in Romance language

[20] Rizzi and Roberts (1986) (in Ackema (2004): 36), for example, put forth the hypothesis that, if the higher head selects for an incorporated element, head-to-head movement gives rise to a morphological complex, whereas, if the head does not select for an incorporated element, head-to-head movement results in a syntactic complex (we have adjunction to X^0).

[21] In this respect, the rich versus poor morphology account resembles the Compounding Parameter account. While the Compounding Parameter account handles both morphological complex heads and syntactic complex heads, the rich versus poor morphology account only handles morphological complex heads. If we could translate this account into a Compounding Parameter, we would have to restrict the parameter to the domain of morphology.

resemble syntactic phrases both in what concerns the head-non-head order and in the fact that inflectional markers (definite articles, case markers) are allowed. Does this mean that NN compounds are mere syntactic phrases? If NN compounds in Romanian were mere syntactic phrases, we would expect the same distribution for NN compounds and the corresponding syntactic phrases. However, we clearly see that this is not the case. Although in the NN compound "floarea-soarelui" ('flower-the sun-GEN), the first noun, which is the head of the compound, is inflected with the definite article, it can, nevertheless, be preceded by an indefinite article:

(48) a. Am desenat o floarea-soarelui.

'pro-1st sg drew a flower-the-sun-GEN.'

Meaning: 'I drew a sunflower.'

b. Vreau sa cumpăr o floarea-soarelui.

'pro-1st sg want CONJ buy a flower-the sun-GEN.'

Meaning: "I want to buy a sunflower'.

This is predicted as impossible on a reading in which the NN sequence represents a syntactic phrase, because then we would have two conflicting articles with the same noun: a definite article ("-a", i. e. 'the-FEM, SG'), and an indefinite article ("o", i.e. 'a-FEM, SG). The fact that we can, nevertheless, utter sentences like (48a) and (48b) shows that "floarea-soarelui" is not a syntactic phrase in Romanian, but a word, and, hence, it can be preceded by an article other than the one appearing on the head. When a speaker wishes to refer to an entity which is familiar to his interlocutor, however, he cannot use the definite article "-a" once again:

(49) a. *Mi-a plăcut mult floarea-soarelui-a pe care mi-a dat-o Tiberiu.

'Me-DAT liked a lot flower-the- sun-GEN-the that me-DAT gave Tiberiu.'

Meaning: 'I liked the sunflower that Tiberiu gave me a lot.'

b.? Mi-a plăcut mult floarea-soarelui pe care mi-a dat-o Tiberiu.

'Me-DAT liked a lot flower-the- sun-GEN that me-DAT gave Tiberiu.'

Meaning: 'I liked the sunflower that Tiberiu gave me a lot.'

c. Mi-a plăcut mult acea floarea-soarelui pe care mi-a dat-o Tiberiu.

'Me-DAT liked a lot that flower-the- sun-GEN that me-DAT gave Tiberiu.'

Meaning: 'I liked that sunflower that Tiberiu gave me a lot.'

Instead, he either uses no article[22], or he uses a demonstrative adjective. The sequence "acea floarea soarelui" ('that flower-the sun-GEN') should be ungrammatical if "floarea soarelui" were interpreted as a syntactic phrase. However, it is not ungrammatical. This leads to the conclusion that "floarea-soarelui" represents a word in its own right.

Apart from these, there are a number of other reasons for which "floarea-soarelui" should be considered an atom. Di Sciullo and Williams (1987) (in Kornfeld 2009) argue that compounds in Romance languages exhibit a number of formal properties, which make them count as syntactic words, and not as syntactic phrases. For example, one cannot separate the constituents making up a compound. None of the constituents (neither the head, nor the non-head) can be modified independently, as we can see in the following examples:

(50) a. *floarea aceea soarelui

'flower-the that one sun-GEN'

b. ?? floarea aceea a soarelui

'flower-the that one A sun-GEN'

(51) a. *floarea minunată soarelui

'flower-the wonderful sun-GEN'

b.?? floarea minunată a soarelui

'flower-the wonderful A sun-GEN'

(52) *floarea soarelui acela

'flower-the sun-GEN that-MASC, SG'

(53) a. * floarea soarelui minunat

'flower-the sun-GEN wonderful'

[22] The fact that the article "-a" need not show up at the end of the NN compound "floarea-soarelui" is quite peculiar. One explanation could be the fact that the article "-a" is already present (in "floarea"), so using it again would be redundant. This, however, runs counter to the idea thar "floarea-soarelui" is syntactically opaque. Syntax should not be able to look inside the word. Another explanation could be related to the fact that, attaching the proclitic article "-a" at the end of a word would yield a sequence which is very hard to pronounce: "floarea-soarelui-a".

b. *floarea soarelui de vară

'flower-the sun-GEN of summer'

c. floarea soarelui$_i$ care$_i$ este arzător

'flower-the sun-GEN which is scorching'

A further proof in support of the atomicity of compounds is that, if some kind of lexical substitution is made, the referential value of the compound is lost completely:

(54) ??floarea astrului zilei (where "soarele" is "astrul zilei")

'flower-the star-GEN day-GEN'

'the daylight star flower'

Such evidence clearly points to the fact that compounds in Romanian are words. Di Sciullo and Williams (1987) (in Kornfeld 2009) argue that, although compounds in Romance languages are formed in syntax, they nevertheless represent words. In order to suggest the domain of their formation, Di Sciullo and Williams (1987) propose the notion of *syntactic word*. What is therefore meant by saying that compounds are formed in syntax is not that they are syntactic phrases, but that they are syntactic words, created by the rule XP-> X^0.

The notion of syntactic word is not uncontroversial. In the paper "IE, Romance: Spanish", Kornfeld objects to the notion of syntactic word. Compounds can contain phrases, which, she argues, makes it unlikely that they really occupy an X^0 position:

(55) a. *un [[lava y limpia] faros]*

a washes and cleans headlights

'an [artifact that] washes and cleans headlights'

b. *un [cubre [piletas y carpas]]*

a covers swimming-pools and tents

'a [fabric that] covers swimming-pools and tents' (examples from Kornfeld 2009: 447)[23]

[23]None of the examples she gives involve NN compounds, but phrases can also appear within NN compounds ('These are cat and dog beds').

However, if we assume that the compounds above are formed in syntax, we can simply say that the noun in (55a.) combines with a CoordP (*lava y limpia)* whose head is represented by the conjunction *y* ("and"), and that the verb in (55b.) selects a CoordP (*piletas y carpas)* headed by *y* ("and"). After the resulting XP (NP in both of the above cases) has been formed, the rule XP-> X^0 applies, thus yielding a word. No problem thus seems to arise. Problems would arise though for a theory of incorporation which only allows head incorporation. But in this case (XP-> X^0), there is no reason why phrases should not be allowed within compounds.

Moreover, it seems to be the case that compounds in Romance are not that syntactically opaque, since, Kornfeld argues, coordination between the non-head constituent of the compound and the non-head constituent of a syntactic phrase headed by the same element is admitted:

(56) *dientes permanentes y de leche*

teeth permanent and of milk

'permanent and milk teeth' (example from Kornfeld 2009: 447)

However, we might question the relevance of this example as representative for the whole range of NN compounds in Romance languages. We will look at some examples in Romanian:

(57) a. Îmi plac mult florile de iris şi de colţ.

'Me-DAT like a lot flowers of iris and of cliff.'

Meaning: 'I like iris and edelweiss flowers a lot.'

b. *Îmi plac mult florile de iris şi soarelui.

'Me-DAT like a lot flowers of iris and sun-GEN'

Meaning: 'I like sunflowers and iris flowers a lot.'

c.* Îmi plac mult florile soarelui şi de iris.

'Me-DAT like a lot flowers sun-GEN and of iris.'

'I like iris (flowers) and sunflowers a lot.'

(58) a. ??/ *Îi e frică de şerpii de casă şi cu clopoţei.

'Him-DAT is fear of snakes-the of house and with rattles.'

Meaning: 'He is scared of house (snakes) and rattle snakes'

b.* Îi e frică de şerpii neveninoşi şi cu clopoţei.

'Him-DAT is fear of snakes-the poisonless and with rattles.'

Meaning: 'He is scared of rattle snakes and poisonless snakes.'

It may be the case that not all compounds are equally transparent from a syntactic point of view. Apart from (57 a.), which is grammatical, all the other sentences above count as ungrammatical. Nevertheless, a different explanation could be adduced to account for the grammaticality of (57 a.) versus the ungrammaticality of the other sentences. It could be that the compounds are equally transparent from a syntactic point of view, but not all kinds of non-heads can be coordinated. The only grammatical sentence is (57 a), in which coordination occurs between two similar PPs "de iris", "de colţ", both headed by the same preposition ("de"). All the other sentences, in which coordination occurs either between an NP and a PP ("florile de iris şi soarelui", "florile soarelui şi de iris"), between two different PPs, i.e. PPs headed by different prepositions ("şerpii de casă şi cu clopoţei"), or between an AP and a PP ("şerpii neveninoşi şi cu clopoţei")[24], count as ungrammatical. It may thus be that the ungrammatically arises precisely because syntax is able to look within words, and there is a constraint against coordinating elements which are too dissimilar[25].

Further evidence in favour of the fact that syntax CAN look inside words comes from ellipsis phenomena:

(59) Am desenat o floare$_i$ de colţ, nu una$_i$ de iris.

'pro-1st sg drew a flower of cliff, not one of iris'

Meaning: 'I drew an edelweiss, not an iris.'

(60) Am strivit un şarpe$_i$ cu clopoţei , nu unul$_i$ de casă.

'pro-1st sg squashed a snake with rattles, not one of house.'

Meaning: 'I squashed a rattle snake, not a house snake.'

The presence of the anaphoric pronoun "una" in (59), and the anaphoric pronoun "unul" in (60) indicates that syntax looks at the head of the compound nouns. There is agreement of phi-features between the pronoun and the head of the compound.

[24]We might, of course, wonder why (10) (*dientes permanentes y de leche)* is grammatical, considering the fact that coordination occurs between an AP and a PP. A possible reason is that the two phrases belong to the same semantic category: there are only two types of teeth (permanent teeth and milk teeth). Thus, *de leche* counts as the opposite of *permanentes*.

[25] They belong to a different lexical category, they represent different syntactic phrases, or they belong to a different semantic category.

In addition to this, we would like to discuss an interesting case: that in which we try to force coindexation between the head of an exocentric compound and the head of a nominal phrase, in spite of the fact that we are dealing with the same element ("traista", "gura"):

(61) *El a privit traista$_i$ ciobanului si a_i fetei de lânga el.

'He looked at purse-the shepherd-GEN and PRONOUN A girl-GEN near him.'

(62) *Doctorul s-a uitat la gura$_i$ leului şi a_i copilului.

'The doctor looked at mouth-the lion-GEN and PRONOUN A child-GEN.'

In spite of the fact that we are dealing with the same element ("traista", "gura"), "a" cannot refer back to the head of the exocentric compound. The reason is that the pronoun and the head do not denote the same entity. While "traista ciobanului" ('shepherd's purse') refers to a flower, "traista fetei" ("the girl's purse") refers to a bag (the girl's bag). In the same way, while "gura leului" ("snapdragon") refers to a flower, "gura copilului" refers to a mouth (the mouth of the child). The question which arises is how the pronoun "a" knows that it cannot refer back to the head of the exocentric compound. A first possible answer is that it is because the compound represents an anaphoric island, and its parts cannot be referred back to. The syntactic opacity of the compound thus explains the ungrammaticality of (61) and (62). However, from (59) and (60), we can clearly see that not all compounds are that syntactically opaque. Is it the case that only exocentric compounds are syntactically opaque, whereas endocentric compounds are syntactically transparent? Such a view might seem perfectly tenable[26]. A second answer is that, on the contrary, syntax looks inside exocentric compounds, but it discovers a head which does not have the same denotation as the pronoun.

Whether or not syntax is able to look inside compounds is, however, irrelevant for establishing the status of compounds as words. If syntax is able to look inside compounds (which seems to be the case, at least in the case of endocentric compounds), this does not mean that

[26] However, if we look at an example such as:

(i) ??/ *I love sun and moon flowers.

we see that, although both "sunflower" and "moon flower" are endocentric compounds, the non-head nouns within the compounds cannot be coordinated. A possible explanation for this could, of course, be the fact that endocentric NN compounds behave differently across languages. Unlike endocentric NN compounds in Romanian, endocentric NN compounds in English are not syntactic words, but morphological words. They are therefore syntactically opaque.

compounds are not words: it only means that, unlike prefixed or suffixed words, compounds are words which are not syntactically opaque. This goes against LIH, i.e. the Lexical Integrity Hypothesis (Borer 1998 in Neef 2009), according to which syntax has no access to parts of words. Syntax does seem to have access to parts of words. The only requirement which seems to hold is that the parts of the compound be nevertheless treated as forming a unit. The notion of "syntactic word" thus implies that the two units of the compound are to be taken together, but that syntax is nevertheless able to look inside it. Although able to look inside it, syntax cannot interfere by tearing the compound apart and attaching modifiers to either one of the constituents making up the compound.

Leaving aside the discussion concerning the notion of syntactic word, we come back to the poor morphology versus rich morphology account of NN compounding. The idea that there is a correlation between languages with poor morphology and NN compounds as morphological words, and between languages with rich morphology and NN compounds as syntactic words does not seem to hold, given the presence of morphological NN compounds in languages with rich morphology (e.g. German, Dutch). Moreover, we seem to find syntactic NN compounds even in languages with poor morphology (e.g. *shepherd's purse, bull's eye).* We therefore have to come up with some other account able to handle NN compounding.

4.3. The Case Account

It seems to be the case that English compounds allow caseless nouns within them, while Romanian compounds do not:

(63) The Case Parameter within compounds:

Some languages allow caseless nouns within them, while others do not.

Given that case is related to interpretation at LF (Chomsky's Visibility Condition (1981)), we would expect there to be differences in interpretation between those compounds which allow caseless nouns within them and those compounds which do not. More exactly, we would expect compounds which allow caseless nouns within them to be more semantically opaque or harder to identify at LF, while we would expect compounds which require case-marked nouns to be more semantically transparent. This expectation is borne out by the empirical data in English and Romanian. While English NN compounds seem to allow any interpretation (Material, Container, Location, Possession, Instrument a.o.), Romanian NN compounds are a bit more particular about the readings they allow. It thus appears that the compounds formed on the pattern noun+ noun in the Genitive case are associated with the possession reading, while the compounds formed on the pattern noun+*de/cu*+ noun are associated with the Material/ Container/ Location a. o. readings.

While in English, all NN compounds look more or less the same (the second noun acts as the head of the compound, and the first noun acts as the modifier of the second noun), in Romanian,

we find three different types of NN compounds: N+N in the genitive, N+ *de/cu* +N ('N+ of/ with + N), and, finally, NN compounds proper. The readings possession, material, container, location or blend interpretations, which are expressed in English by means of the same type, are distributed in Romanian among different types of compounds: the possession reading in the case of N+N in the genitive, the material, container, and location readings in the case of N+ *de/cu* +N compounds (*prăjitură de mere* 'cake of apples'(i. e. 'apple cake'), *şarpe cu clopoţei* 'snake with rattles' (i.e. 'rattlesnake'), *cocoş de munte* 'rooster of mountain'(i.e. 'grouse'), blend readings and subtype readings in the case of NN compounds proper (*struţocămilă* 'ostrich-camel', *câine-lup* 'dog-wolf' (i.e. 'wolf dog').The question is why this is so. Why is it that Romanian makes use of a wider variety of NN compounds than English? The tentative answer that we propose is that Romanian uses a wider variety of NN compounds because it has to find various ways to case-mark the non-head noun within the compound.

We will first start with the N+N in the genitive in Romanian versus NN compounds in English. How can we explain the fact that in English we have something like *sunflower,* while in Romanian we have something like *floarea soarelui (*'flower-the sun-GEN')*?* What is it in the make-up of a language that allows the formation of a compound like *sunflower*, but disallows the formation of a compound like *soare floare* ('sunflower')?

First and foremost, we know that in Romanian, at the level of syntax, modifiers come after heads (*fată frumoasă* 'girl beautiful', *casă roşie '*house red', *omul acesta* 'man-the this', *fata căpitanului '*daughter-the captain-GEN'*).* And, according to Di Sciullo (2005), compounds in Romance languages are formed in syntax, and later on transferred in morphology. This would explain the order N+N in the genitive in the Romanian compounds.

In English, however, we know that modifiers come before heads (*beautiful girl, red house, this man, the captain's daughter)* at the level of syntax. According to Di Sciullo (2005), compounds in English are formed in the domain of morphology. Although inflectional markers are left out, we find the same order modifier-head as in syntax. Morphology and syntax thus seem to obey the same ordering principles.

English makes use of two different morphological ways of expressing the genitive: the '*s* genitive (which is pronominal), and the *of*-genitive (which is postnominal). Various accounts can be proposed in an attempt to explain the distribution of the two types of genitive.

The distribution of the two types of genitive can be explained syntactically. According to Chomsky (1986) (in Jeong 2003), the genitive can be assigned either to the subject of a noun phrase or to the complement of a noun:

(63) John's refusal of the offer

John is assigned the *'s* genitive, while *offer* is assigned the *of* genitive. The *'s* genitive is assigned to the subject of the deverbal noun *refusal*, while the *of*-genitive is assigned to the object of the deverbal noun *refusal*. We might be tempted to reach the generalization that the subject of a noun takes the *'s* genitive, while the object of a noun takes the *of*-genitive. However, drawing such a conclusion for all nouns is too rash, given the fact that the above case exemplifies a particular type of noun: *refusal* is a noun derived from a verb. The genitive occurs not only with deverbal nouns, but with all sorts of nouns:

(64) a. Betty's house (object-denoting noun)

b. Dorian's sister (relational noun)

In such cases, the noun to which the *'s* genitive is added cannot be argued to be a subject. It thus seems to be the case that the syntactic account (according to which the *'s* genitive is attached to the subject of a noun, while the *of*-genitive is attached to the object of a noun) can only hold for deverbal nouns. However, if we look more attentively at the data, we see that the syntactic account does not fully explain the distribution of the two types of genitive either:

(65) Betty's rape

In sentence (65), *Betty* is not the subject of the rape, but the object, but, in spite of this, it gets the genitive marker *'s*. Therefore, the genitive marker *'s* can attach both to the subject of the noun, and the object of the noun. A revision of the syntactic account is thus required: the *of*-genitive is assigned to the object of the noun, while the *'s* genitive attaches to the subject of the noun, but it may also attach to the object of the noun (if the subject of the noun is not present). Nevertheless, this only seems to work for deverbal nouns.

It is also possible to explain the distribution of the two types of genitive by way of semantics. The genitive marker *'s* attaches to [+animate] entities, while the *of*-genitive can attach both to [+animate] and to [-animate] entities:

(66) a. Mary's beauty

b. ?? the car's beauty

c. ?? the book's worth

d. ?? the table's legs

(67) a. the beauty of the queen

b. the beauty of the car

c. the worth of the book

d.? the legs of the table

In many cases, however, when an inanimate object is at stake, the speakers may choose to express possession by placing the modifier before the noun:

(68) table legs

We would like to make the claim that NN compounds of the type *sunflower* appear in those languages which allow genitive prenominal modifiers. NN compounds receiving the possession reading appear if there is a prenominal genitive. Such is the case in English and German, unlike Romanian, which has a postnominal genitive (*fata doctorului* 'girl-the doctor-GEN', **doctorului fată* 'doctor-GEN girl'*)*.

In the case of English, for example, we have a clear difference between:

(69) a. I saw a beautiful flower of the sun. It was a daffodil.

b. Tabby saw a beautiful sunflower.

While "flower of the sun" in (69 a.) is a syntactic phrase which need not denote a sunflower (as it actually seems to refer to a daffodil), "sunflower" in (69b.) is a compound NN which refers to a sunflower. A sentence like:

(70) ??I contemplated a sun's flower, and I wrote a poem entitled 'You Make the Sky Happy'.

is felt as awkward, given the fact that the prenominal noun "sun" is [-animate]. Syntax discards such a phrase as ungrammatical.

If we were to interpret the NN succession "sun's flower" as a compound, it would also count as ungrammatical. If we assume that in English compounds are formed in the domain of morphology (Di Sciullo (2005)), we might think that the reason for which such a compound is disallowed by morphology is the fact that inflectional markers are disallowed from compounds. However, in some cases at least, we see that inflectional markers are allowed:

(71) a. shepherd's purse

b. bull's eye

At this point, we are facing a problem. We might be forced to admit the fact that, although many of the English compounds are indeed formed in the domain of morphology, there are some compounds which are formed in syntax, or, at least, they allow some inflectional markers within compounds. This shows that there are exceptions even in those languages which allow caseless

nouns within compounds. The Case Parameter is thus not able to account for the full range of empirical data.

If we look deeper at the examples in (71), we see that the nouns to which the marker *'s* is added denote [+animate] entities, while the same marker *'s* cannot attach to [-animate] entities:

(72) *sun's flower

For this reason, we will claim that the same constraint which holds in syntax also holds within compounds: the marker *'s* cannot attach itself to nouns which denote [-animate] entities. Although the genitive marker *'s* may attach itself to nouns which are [+animate], it may be missing, nevertheless, as it is in the following examples:

(73) a. baby pram

b. cat food

However, it may very well be that in such examples, the relationship between the head and the modifier is not that of possession, but that of purpose ('pram for babies', 'food for cats'). We could thus tentatively put forth the claim that, when the modifier of the head of the compound is [-animate] or is not in a relation of possession with the head of the compound, then the genitive morpheme *'s* does not attach to the noun modifier.

The question is what analysis we should ascribe to compounds like *shepherd's purse* or *sunflower*. For this purpose, we will take a look at the configuration in which the genitive marker *'s* assigns the genitive case. In order to make matters clearer, we need to explore the distinction between structural case and inherent case. According to Chomsky (1986) (in Jeong 2003), structural case assignment and inherent case assignment are defined in terms of case assigners, i.e. in terms of the categorial features of case assigners. Structural case is assigned by [-N] categories and is defined in terms of purely structural relations between case assigners and case assignees, while inherent case is assigned by [+N] categories and is defined in terms of purely thematic relations between case assigners and case assignees.

According to Chomsky (1986) (in Jeong 2003), the genitive case (both the *of*-genitive and the *'s* genitive is an inherent case, being assigned by a noun which bears a thematic relation to its modifier. Being defined in terms of the thematic relations between case assigner and case assignee, inherent case is assigned at D-Structure, unlike structural case, which is assigned at S-structure.

According to Abney (1987), however, the *'s* genitive (or the possessive) is a structural case, being assigned in a Spec-Head configuration. If we adopt Abney's point of view, what we get is:

(74) DP

/ \

NP D’

/ \

D^0 NP

shepherd *‘s* *purse*

Evidence in favour of the idea that *shepherd’s purse* is a DP comes from the way it is used:

(75) Shepherd's purse is used to stop heavy bleeding[27].

Although it appears in subject position (an argumental position) in (13), *shepherd’s purse* has no determiner. A determiner is, nevertheless, needed when the compound does not present a genitive marker within its structure:

(76) The sunflower is the state flower of the US state of Kansas.[28]

This would suggest that other structure than ( ) is needed to account for their distribution:

(77) * DP

/ \

NP D’

/ \

D^0 NP

sun *flower*

[27] http://health.howstuffworks.com/shepherds-purse-herbal-remedies.htm

[28] http://en.wikipedia.org/wiki/Sunflower

On the analogy with *shepherd's purse*, we might be tempted to adopt a representation such as the one below:

(78) ?? NP

/ \

N'

/\

N^0

sun ø flower

followed by the rule NP-> N^0

Such an analysis, however, fails to capture the fact that the noun *flower* functions as the head of the compound *sunflower*. For this reason, it would seem a reasonable solution the analysis proposed by Lieber (1983):

(79) N

/ \

N N

sun flower

The question is what representation we assign to a compound such as *floarea soarelui,* and how do we assume the Genitive case is assigned in Romanian (inherently or structurally).

In "Notes on the Structure of the Romanian DP and the Assignment of the Genitive Case", Cornilescu (1993) argues that the Genitive case in Romanian is a structural case assigned outside the NP, in the Specifier of a lower functional projection called AgrGen Projection.

Evidence in favour of such a hypothesis comes from control facts:

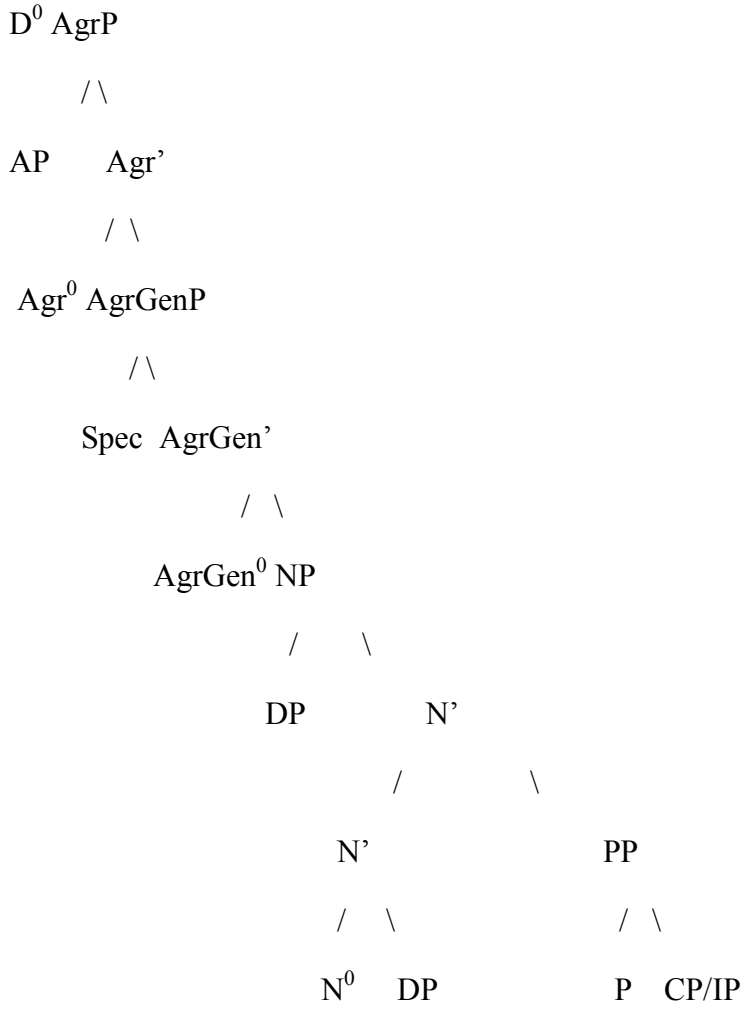
(80) angajarea bine-gândită PRO_i a acestui $actor_j$, pentru a atrage $PRO_{i/j}$ publicul

(hiring-the wise AL this actor (GEN) in order to draw the public)

the wise hiring of this actor in order to draw the public

(81) D'

/ \



o bine-gândită PRO_i angajare a acestui $actor_j$ pentru a atrage $PRO_{i/j}$ publicul

The fact that the object of the nominalization is not in a c-commanding position with respect to the clause, but, the phrase nevertheless allows the coindexation between "a acestui actor" and PRO, indicates that the object raises to a higher c-commanding position (there is object shift). One cannot assume that the internal argument DP is assigned case in SpecNP, since this position is filled by the subject. Thus, the object must move further up in order to get case.

Furthermore, a connection has been noticed between the referential and the case properties of noun phrases: it is specific DPs which get structural case in agreement positions which they reach by Object Shift (Mahajan (1990)). Since only NPs that are referential may be in the Gen case in Romanian:

(82) a. acordarea de burse elevilor silitori

the granting of scholarships to hardworking pupils

b. acordarea a unsprezece burse elevilor silitori

the granting of eleven scholarships to hardworking pupils

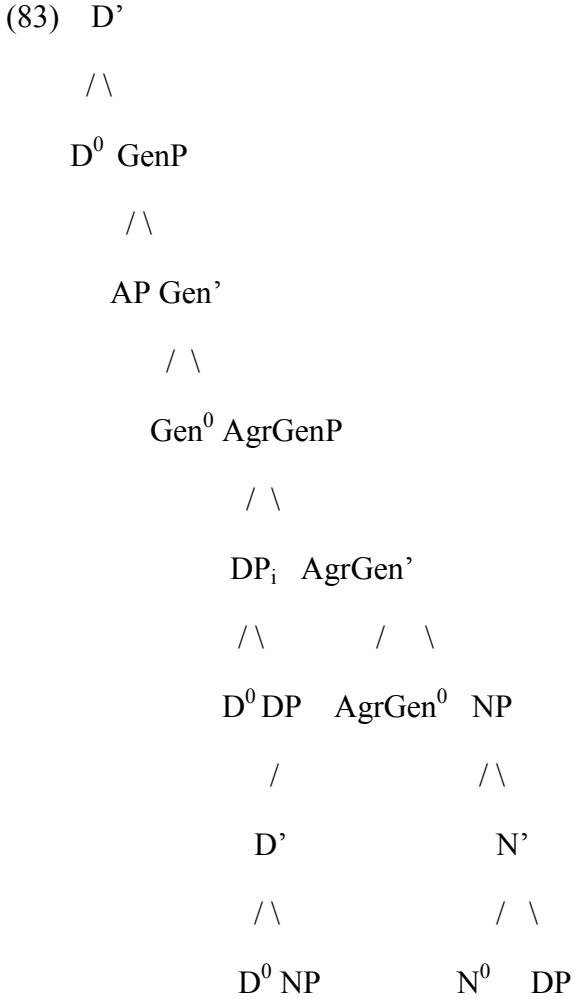
c. acordare grabnica a tuturor burselor elevilor silitori

the urgent granting of all the scholarships to hardworking pupils (examples from Cornilescu (1993): 126)

we expect the position where Gen is assigned to be an agreement position, outside of NP.

The syntax of the Gen assigner AL provides further evidence that Gen is assigned in a specifier position. According to Cornilescu (1993), AL is an expletive determiner, that has lost its binding properties (**al copil)*. It is a functional D^0 head which assigns Gen to its QP/ DP complement, on condition that the latter has an inflectional Q^0/ D^0 head.

(83)



L bogat al acestor copii unchi$_j$ t_j t_i

AL is licensed by agreement with the noun ("unchi"), but it is itself a head which assigns case under government ("al" governs "acestor copii").

Semantic facts also support the hypothesis that the Genitive case is a structural case in Romanian: it fulfills a variety of theta-roles, in addition to its specific Possessor role:

(84) a. trădarea cauzei (Theme)

the betrayal of the cause

b. trădarea lui Iuda (Agent)

Juda's betrayal

c. surpriza lui Ion (la vederea musafirilor) (Experiencer)

John's surprise (at the sight of the guests)

(85) a. cartea lui Ion (Possessor, alienable Possession)

John's book

b. surâsul Giocondei (Possessor, inalienable possession)

Gioconda's smile

c. floarea câmpului (Possessor or Locative)

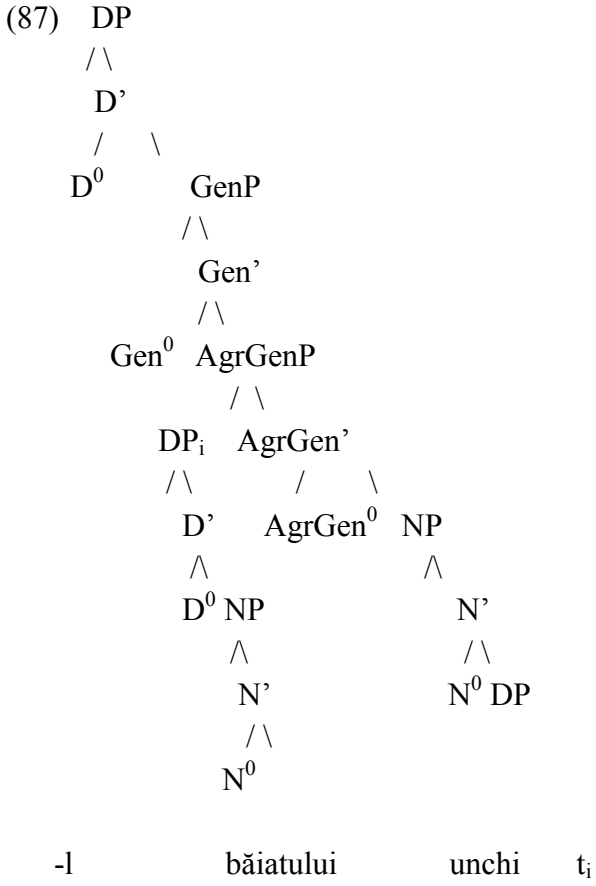
the flower of the field (examples from Cornilescu (1993): 118-9)

While the realization of the Genitive in English is sensitive to factors such as whether the noun is deverbal or not, the animacy of the possessor, the realization of the Genitive in Romanian is insensitive to such factors: it is always realized in the same way, irrespective of the theta-role of the non-head noun.

On the basis of such evidence, Cornilescu (1993) concludes that the Genitive is a structural case in Romanian, and that it assigned under government either by the expletive determiner *al* or the preposition *a.* However, it is not the structures with *a/ al* that we are interested in, given the fact that the compound nouns following the pattern noun+ noun in the genitive include neither *a,* nor *al*. The question is what representation we assign to an example like:

(86) unchiul băiatului ‘uncle-the boy-GEN’

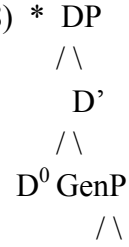
(87)

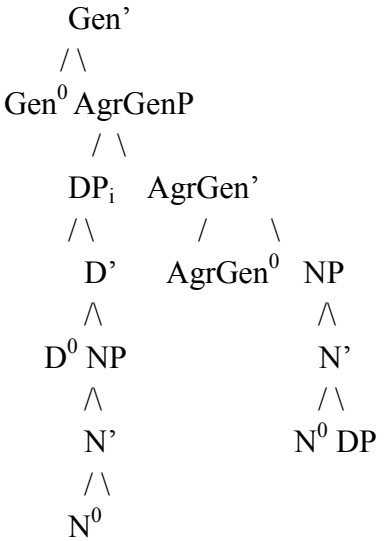


If we adopt the configuration above, we run into trouble, because there seems to be no D^0 which can assign the Genitive case to *băiatului*.

Interestingly, Cornilescu puts forth the claim that AL is a sort of copy of the noun it determines, since there is agreement in number, person, and gender between the two. She calls it an “expletive determiner”, given the fact that AL seems to have lost its binding properties (* “al băiat”). When it is present, it is AL which assigns the genitive case to the noun following it. The question is which element assigns the genitive case to the noun at stake, in case AL is missing, since, although the expletive determiner AL and the determiner *–l* can co-occur (*unchiul bogat al băiatului* ‘uncle-the rich AL boy-GEN’), they cannot occur one after the other:

(88) *





-l al băiatului unchi t_i

We could postulate that, in cases such as *unchiul băiatului* ('uncle-the boy-GEN') or *fata babei* ('girl-old lady-GEN'), what happens in fact is that we do have AL in the D^0 position, only it is not realized phonetically[29]. It is realized phonetically only when the head noun is too far from the other noun (*unchiul bogat al băiatului*). There thus seems to be a requirement that the element *l* (whether it is found in *unchiul* or in *al)* be adjacent to the noun *băiatului*.

Evidence that AL acts as a determiner comes from its striking similarity to the definite determiner. All the expletive determiners in the AL class actually exhibit this similarity:

(89) a. unchi al băiatului
'uncle AL-MASC, SG boy-GEN'
b. unchiul băiatului
'uncle-the boy-GEN'
(90) a. floare a mamei
'flower A-FEM, SG mother-GEN'
b. floarea mamei
'flower-the mother-GEN'
(91) a. fete ale mele
'girls ALE-FEM, PL mine'

[29]A similar line of reasoning leads us to say that AL is actually present in D^0, but what happens is that it is removed through a rule of phonological deletion: **unchiul al băiatului, *floarea a mamei, *fetele ale mele, *băieţii ai mei.*

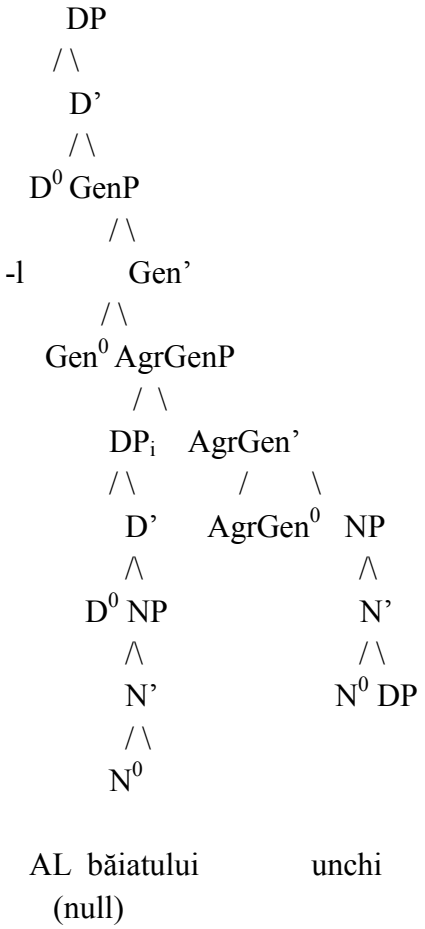
b. fetele mele
'girls-the mine'

(92) a. băieţi ai mei
'boys AI-MASC, SG mine'
b. băieţii mei
'boys-the mine'

The expletive determiner is formed from *a* and a form identical to the definite article (*-l, -a, -le, -i)*. Given the fact that the definite article seems to occur in both situations in which we encounter the genitive case, but we encounter "a" only in the (a) cases, we might think that, actually, it is the determiner which assigns the genitive case.

We might think that in such cases, it is the determiner which assigns the genitive case:

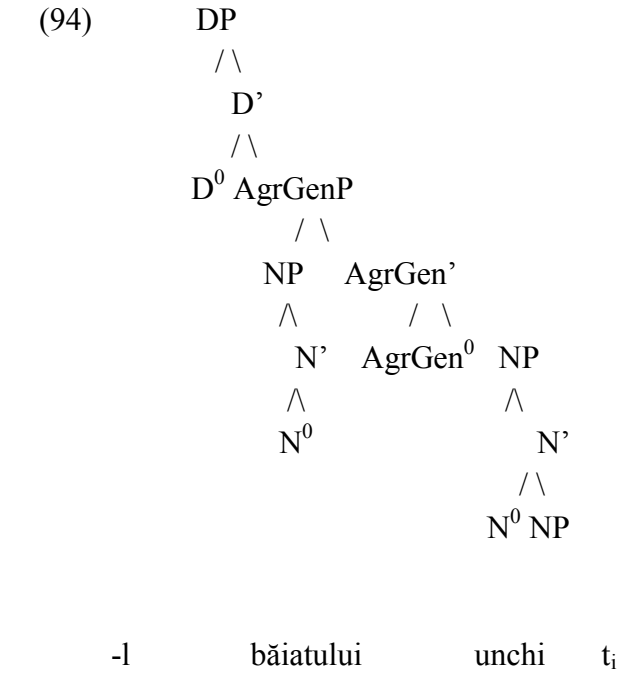
(93)



AL băiatului unchi t_i
(null)

Postulating a silent determiner in D^0 might seem a bit problematic, the only piece of evidence in favour of such a silent element being the co-occurrence between "-l" and "al" in phrases such as *unchiul bogat al băiatului*. We might thus be tempted to completely do away with the DP in SpecAgrGen:

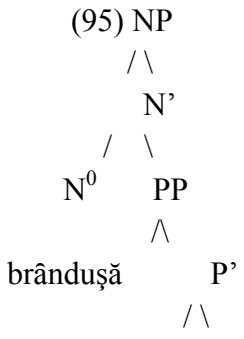
(94)



If we adopt this representation, this will imply that the Genitive case is not assigned under government (as it happens in *unchiul bogat al băiatului*), but it is assigned by "-l" in a Spec-Head configuration (between the head D^0 "-l" and the NP "băiatului", occupying Spec AgrGen). This would mean that the Genitive case in Romanian can be assigned in two distinct configurations.

In the case of compound nouns following the pattern noun+ preposition +noun, such as *brânduşă-de-primăvară* ('crocus of spring', i.e. 'spring crocus'), the second noun has to be case-marked, and it is case-marked by the first noun via the preposition:

(95)



P^0 NP
de / \
N'
/ \
N^o
primăvară

Romanian NN compounds such as *general-maior,* or *câine-lup* apparently represent an exception to the rule that Romanian does not allow caseless nouns within compounds[30].

4. 4. The Noun Movement Account

Another possible way of accounting for NN compounding could be by arguing that:

(96) 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.

While merging two bare nouns is a productive means of forming NN compounds in English, it is not so in Romanian. There is always N-to-D movement in Romanian (Cornilescu 1995), so that we have two DPs merging together (DP^DP) as in *floarea soarelui.*

Given that the D layer is associated with referentiality, this explains why the interpretation associated with compounds such as *broască porc* is dvandva proper (half X, half Y): each noun within the compound has its own referent.

It thus seems a fairly plausible hypothesis to argue that syntactic NN compounds are possible in languages which allow N-to-D movement, and not possible in languages which do not allow it

Moreover, we can relate this to the Case Account, given the fact that case-assignment usually involves noun movement, and that only DPs can be assigned case. The last two accounts can thus be reduced to a single account which is able to handle the issue of the productivity of NN compounding.

[30] If, however, we interpret the second noun as a predicate nominal resulting from a reduced small clause, then the question of how the second noun gets case reduces to the question of how a predicate nominal gets case.

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