

## A RELATIONAL APPROACH TO LEXICAL BORROWINGS IN THE DISCOURSE OF ROMANIAN BILINGUAL IMMIGRANTS IN SPAIN

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**ABSTRACT.** *A Relational Approach to Lexical Borrowings in the Discourse of Romanian Bilingual Immigrants in Spain.*<sup>2</sup> This paper is a neurocognitive analysis of idiosyncratic lexical borrowings recorded in the discourse of bilingual Romanian immigrants living in Spain. The neurocognitive approach, also known as Relational Network Theory (RNT), conceives language as an interconnected relational network composed of nodes and lines, part of and connected to the general cognitive system. Linguistic processing is a result of spreading activation through the network and of the system's interaction with other biological systems. The model elegantly describes real and inferred linguistic behaviors, both well-formed and erroneous. We use this approach to explore the underlying mechanisms that trigger the emergence of linguistic interference in the discourse of bilingual speakers. We focus on several lexical borrowings selected from corpora of Romanian spoken in Spain, and we model them, using the NeuroLab tool, in relational network terms. The network modeling of these hybrid forms pinpoints new ways of understanding the differences between adapted and non-adapted, and between necessary and luxury borrowings. We conclude that the RNT model is well suited for explaining bilingual processing and, arguably, one of the few models that can account for the hybrid forms emerging in the discourse of bilingual speakers.

**Keywords:** *Relational Network Theory, lexical borrowing, Romanian, Spanish, Rumañol, neurocognitive linguistics*

**REZUMAT.** *O abordare relațională a împrumuturilor lexicale din vorbirea imigranților români bilingvi din Spania.* Această lucrare este o analiză neurocognitivă a împrumuturilor lexicale spontane înregistrate în vorbirea imigranților români bilingvi care locuiesc în Spania. Abordarea neurocognitivă, cunoscută și sub numele de Teoria Rețelelor Relaționale (TRR), concepe

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limbajul ca pe o vastă rețea relațională interconectată, compusă din linii și noduri, care este parte din și conectată la sistemul cognitiv general. Procesarea lingvistică este rezultat al răspândirii activării prin rețea și al interacțiunii sistemului cu alte sisteme biologice. Modelul reușește să descrie în mod elegant comportamente lingvistice reale și ipotetice, atât pe cele bine formate cât și așa numitele greșeli de exprimare. Folosim această abordare pentru a explora mecanismele interne care stau la baza apariției interferențelor lingvistice în vorbirea bilingvilor. Ne concentrăm atenția pe câteva împrumuturi lexicale selectate din corpusuri de limbă română vorbită în Spania și le modelăm cu ajutorul aplicației NeuroTool, sub forma rețelelor relaționale. Acest tip de modelare indică noi modalități de a înțelege diferențele dintre împrumuturile adaptate și neadaptate, necesare și de lux. Considerăm că modelul TRR este unul adecvat explicării felului în care vorbitorii bilingvi procesează informația lingvistică și, probabil, printre puținele modele teoretice care pot da seama de formele hibride care apar în vorbirea unor astfel de vorbitori.

***Cuvinte-cheie:** Teoria Rețelelor Relaționale, împrumut lexical, română, spaniolă, rumañol, lingvistică neurocognitivă*

## Introduction

There has been an increasing interest in recent decades in understanding the way in which bilinguals process linguistic information. Different models have been proposed, starting with the classical work of Weinreich (1953/1974) and continuing with several approaches resulting mostly from psycholinguistic experiments (DeGroot 1992, 1993; Dijkstra and van Heuven, 2002; Green 1998; Kroll and Stewart 1994; Paivio and Desrochers 1980). Buzilă (2020a) showed that the explanatory capabilities of those models depend on a series of properties, such as stratification, connectivity and distributed representation of linguistic information, and suggested that a theoretical model combining those features would, arguably, have even higher explanatory capabilities. The Relational Network Theory (Lamb 1999, 2016) was designated as such a candidate model. By applying this approach to bilingual processing, distinct languages could be modeled as conceptual nodes that function similarly to semantic nodes in driving lexical selection within a relational network (Buzilă 2020a). Buzilă (2020b) tested this assumption by applying the model to real-life cases of semantic borrowings observed in the oral discourse of Romanian immigrants living in Spain. These hybrid forms were shown to emerge naturally from a network based linguistic structure and were explained in terms of shared parts

of the semantic network (meaning-induced cases) the phonological network (sound-induced cases), or both (meaning and sound-induced cases).

The aim of this paper is to further test the explanatory capabilities of the RNT model in dealing with bilingual processing, by applying it to the analysis of another language contact phenomenon observed in the same Romanian-Spanish contact situation: idiosyncratic lexical borrowings.

## 1. Theoretical and methodological background

Lexical borrowings are traditionally defined as the reproduction of previously learned linguistic patterns not in the context in which the speaker learned them (Haugen 1950). Following his basic distinction between *importation* and *substitution*, Haugen (1950) considers lexical borrowing as a subtype of the first phenomenon, but does mention a *hybrid* phenomenon in which a part of the linguistic pattern in focus is imported and another one is substituted. This differentiation according to the criterion of adaptation went through various refinements. McLaughlin (2011) identifies two types of non-adapted forms and several types of adapted forms and refers to all of them as *loanwords*, using Haugen (1950)'s terminology. A comprehensive overview of the different types of distinctions that have been made along the years can be found in Jafaar et al. (2019). For this analysis we will make a distinction between *non-adapted* and *adapted* borrowings. The former refer to those Spanish words which appear in the discourse of Romanian immigrants with the same phonological and morphological form which they have when used by natives in a Spanish discourse. The latter are innovative forms based on Spanish words (i.e., the stem of the word is Spanish) but which present morphological<sup>3</sup> features belonging to the Romanian system.

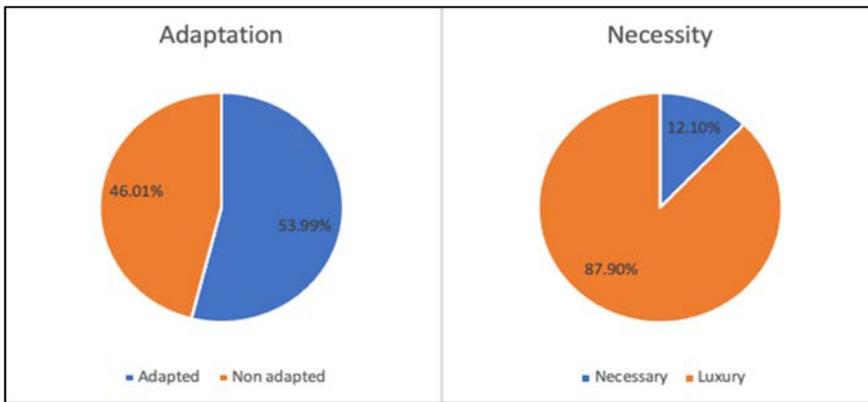
A second distinction traditionally made is that between *necessary* and *luxury* (or *unnecessary*) borrowings. Necessary borrowings refer to the borrowing of new concepts together with their original terms whereas luxury borrowings occur when the recipient language already contains a word that can be considered a semantic equivalent (Onysko and Winter Froemle 2011). We will use this distinction in our analysis although the idiosyncratic nature of our corpus makes it more difficult to judge if a borrowed form is really necessary or not.

As mentioned in the introduction, we direct our attention to borrowings observed in the Romanian variety spoken by immigrants living in Spain. Among the studies which focused on this variety, Buzilă 2016 and Jieanu 2012 contain

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<sup>3</sup> The mere phonological assimilation of certain Spanish phonemes which are not present in the Romanian system is not considered an adaptation. Those speakers would use the "Romanian" sounds even when speaking Spanish. For example, the pronunciation of Sp. *cerveza* [θerβeθa] as [servesa] is a phonetic adaptation which would not count as an adapted borrowing.

the most extensive corpora. Given the fact that interference at the lexical level (mostly lexical borrowings) was shown to be the most frequent contact phenomenon in this particular contact situation (Buzilă 2016, 183), we considered that putting together the lexical borrowings from the two studies was enough in order to obtain a relevant corpus for the present analysis. Indeed, we managed to gather a total of 752 cases (tokens) representing 386 unique forms (types) of lexical borrowings. A quick quantitative analysis revealed that there is only a slightly higher number of adapted (406) versus non-adapted (346) borrowings, but there is a considerable difference between necessary (91) and luxury (661) cases. Relative frequencies can be compared in figure 1.



**Figure 1.** Distribution of lexical borrowings in the corpus according to the adaptation and necessity criteria.

The prevalence of luxury borrowings in the discourse of Romanian immigrants living in Spain may have different explanations, but part of the problem is the difficulty of drawing a clear line between them. As mentioned above, the criterion to mark the cases in our corpus as luxury borrowings was the existence of a semantic equivalent in Romanian. However, since we are dealing with idiosyncratic borrowings, the reference point should actually be the idiolect of each person, therefore we should consider necessary borrowings all cases in which the speaker has no semantic equivalent in his/her own linguistic repertoire, even if there is one in Romanian. An example in Jieanu (2012, 237) is especially illustrative for this point: “Cazul chelnăriței care îmi oferea suc de *piña*. A recunoscut că nu auzise în România de ananas.”<sup>4</sup> It is obvious that such a case should be treated as necessary borrowing in the case

<sup>4</sup> “The case of the waitress who offered me *piña* juice. She admitted that she hadn’t heard of pineapple back in Romania.”

of that particular speaker, although, according to the canonical definition it would be a luxury one, due to the existence of Rom. *ananas*. There are many cases in which one might suspect that a certain borrowing is used because of the lack of a semantic equivalent in the linguistic repertoire of that individual speaker, but this aspect is hard to prove. In order to keep our analysis relevant, we will choose unequivocal examples of luxury borrowings for RNT modeling, that is, those which respect the canonical definition.

Given the fact that we want to model the most typical cases, we were also interested in identifying the most frequent ones in each category. The quantitative analysis of the corpus revealed the following:

- Non-adapted necessary borrowings: *comedor* ('school cafeteria' and also 'lunch period in school') – 6 occurrences.
- Non adapted luxury borrowings: *cole* < Sp. *colegio* ('school') used instead of Rom. *școală*. – 14 occurrences.
- Adapted necessary borrowings: *extranherie* < Sp. *extranjería* ('immigration', 'foreigners / aliens affairs') – 2 occurrences.
- Adapted luxury borrowings: *debere/-le* < Sp. *deberes* ('homework') instead of Rom. *teme/-le*. – 10 occurrences.

We model these exemplar cases using the RNT approach and notation in order to reveal the underlying structures and mechanisms involved in the appearance of such phenomena. We are especially interested in understanding how the two distinctions reflected in the typology above are translated in differences in connectivity in a network-based structure, if at all.

The RNT modeling of lexical borrowings rely on the following theoretical pillars:

- Linguistic system is a network-based structure composed not of linguistic units (objects or symbols), but of nodes and lines. Linguistic processes are represented as activation spreading through the network according to the type of nodes ('and' and 'or') it crosses and the strength of lines it travels along (Lamb 1999, 66-83). Likewise, learning new information involves a rewiring of the system by strengthening previously latent connections. This mechanism is a Hebbian one, relying on the proximity principle and the abundance hypothesis (Lamb 1999, 204-26; 2016).
- Bilingual systems are not qualitatively different from monolingual systems (Paradis 2000), so we have no reason to believe that the relational networks behind bilingual productions function differently than those accounting for monolingual productions. They will have different patterns of connectivity, but should rely on the same basic principles of network operation.

- Distinct languages are actually subnetworks which overlap partially and which are each connected directly or indirectly to a distinct cardinal node which we call 'language node'. These cardinal nodes are connected to all the lexical nodes which represent the lexicon of a particular language, and therefore they drive lexical selection (Buzilă 2020a). At the same time, they are connected to different parts of the morphological level, driving morpheme selection as well.

The mechanisms involved in the production of those speech acts containing lexical borrowings were modeled in relational terms by using RNT abstract notation (Lamb 1999, 66-83) as implemented in the NeuroLab application (Tisher 2010).

## 2. Lexical borrowings in RNT

RNT conceives language as a huge interconnected relational network containing no linguistic units, but relationships implemented as nodes and lines (Lamb 1999, 59-60). Any linguistic phenomenon is explainable in terms of activation being propagated through these elements, according to node types and line strengths. The system is purely relational, but it interfaces with other systems. At the bottom,<sup>5</sup> it interfaces with the muscular system at the output (for linguistic production) and the sense organs at the input (for perception). At the top, it interfaces with the overarching conceptual system, which is a multimodal cognitive system (Lamb 1999, 146; 2016). Several authors have shown that this relational view of language can successfully describe and explain real and inferred linguistic behaviors, both well-formed and erroneous<sup>6</sup> (Buzilă 2020b; García 2015; Gil 2016; Lamb 1999, 60, 69, 98, 143; Sullivan 1998, 2001, 2017; Sullivan and Tsiang 2017).

We must clarify the fact that we consider all cases of lexical borrowing as being innovative, i.e., as appearing spontaneously in the discourse of individual speakers, for the first time. This clarification is an important one because it means that we will be examining the dynamic side of language processing, i.e., the kind of operations that alter the form of the network, rather than simply looking at the static network structure which allows activation to pass through already established connections (Lamb 1999, 183). That means that we will treat the cases under analysis as phenomena occurring spontaneously, in an innovative fashion in the discourse of the bilinguals although we do not know if that is the

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<sup>5</sup> 'Up' and 'down' are notational conventions, with the upward direction going towards meaning and the downward one going towards expression.

<sup>6</sup> It is also worth mentioning that the model is strongly supported by neurological data (García *et al.* 2017, 57-75; Lamb 1999, 320-69; Lamb 2016).

actual case. In other words, we do not know if the cases recorded in the sources that we used to build our corpus were actually produced in this innovative way, for the first time, at the moment of their recording. Nevertheless, whether that was indeed the case or not would only be relevant for a sociolinguistic analysis, but not for our approach. From our point of view, there must have been a first time when a bilingual speaker produced a particular hybrid form, regardless of what happened later, therefore, we treat all cases as if they were produced for the first time at the moment of their recording, because we are interested in verifying if the RNT model can account for the emergence of such innovative phenomena. The way in which they spread or not in a given population, i.e., if they are adopted from speaker to speaker and become part of a local norm is a different topic which is not in the scope of this paper.

### 2.1. *Non-adapted necessary borrowings*

The most frequent case of non-adapted necessary borrowing in the corpus is the use of Sp. *comedor* to refer to a cafeteria-like establishment present in most Spanish schools and kindergartens, where students typically have lunch in-between their classes. It is also used to refer to the time slot during which lunch is served (lunch period). Examples (1), (2) and (3) illustrate these uses:

- (1) *După aia mă duc la comedor.*  
'Then I go to *lunch*.'
- (2) *Deocamdată n-o lăs la comedor, nici nu-i destul de mare fata.*  
'For the moment I don't send her to *lunch*, the girl is not old enough.'  
(Buzilă 2016)
- (3) *La comedor mănânc în turnul doi.*  
'At *lunch* I eat in the second shift.'  
(Jieanu 2012)

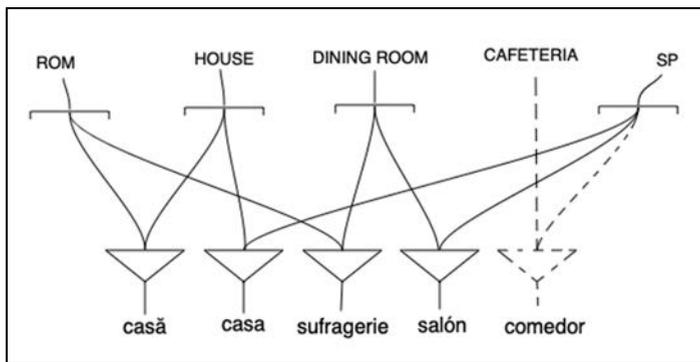
While in (1) only the locative meaning is obvious, example (2) and (3) illustrate the use of *comedor* with a temporal meaning, denoting a moment or an interval within school schedule. The actual reality denoted by this term is not present in the Romanian school system where children do not typically have lunch at school in this organized fashion. Therefore, in order to refer to this reality, new for the immigrants, they normally make use of the Spanish word. There is no adaptation to the Romanian morphological system and virtually no

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<sup>7</sup> The use of Rom. *turnul* with the meaning of 'shift' or 'round' is actually a semantic calque and is analyzed in detail in Buzilă 2020b.

phonetical adaptation either.<sup>8</sup> The non-adapted use of this word is possibly facilitated by its formal resemblance to some Romanian nouns with locative meaning, such as *dormitor*, *coridor* etc.

In relational terms, the necessity of this borrowing is translated in the fact that there was no conceptual node in the cognitive system of the speaker representing the reality denoted by the Spanish term *comedor*. When getting in contact with this new reality, the speaker had to learn this new information, which means that, in his/her linguistic system, a new conceptual node and a new lexical node were added to the structure, together with the connection between the two. Figure 2 represents a part of the relational system of a bilingual containing lexical nodes for both Romanian and Spanish words for 'house' and 'dining room'. The respective lexemes are being activated depending on their connection to the conceptual nodes HOUSE and DINING-ROOM but also to the two language nodes ROM and SP. The right combination between a conceptual node and a language node, depending on the situation, will produce one of the four lexemes *casă*, *casa*, *sufragerie* or *salón*.



**Figure 2.** The concept CAFETERIA and the lexeme *comedor* being added to a bilingual system.

The dotted lines and nodes represent the latent parts of the network that are being recruited and strengthened when the speaker learn the new concept and its name. Unlike in the case of the other concepts, which are connected first to an 'or' node spreading the activation downwards, towards both Romanian and Spanish lexemes, CAFETERIA is linked directly to *comedor*, as there is no competitor lexical node in the system. Nevertheless, it should be

<sup>8</sup> As already explained, we consider that the possible pronunciation of the fricative [ð] – not present in the Romanian phonological system – as a plosive [d] does not make it an adapted borrowing.

pointed out that there still is an ‘and’ node just above the lexeme *comedor*, getting activation from both the conceptual node CAFETERIA and the language node SP, even if, apparently, one line would be enough. This node reflects the reality that the new lexeme was learned in a Spanish context and is perceived as a Spanish lexeme even if it has no Romanian competitor term in the system. This model predicts that the lexeme *comedor* will be produced each time when the meaning CAFETERIA is intended. In other words, the mechanisms explaining a necessary borrowing are the very mechanisms explaining the learning of any new lexeme connected to a new concept, i.e. learning of any linguistic new information.

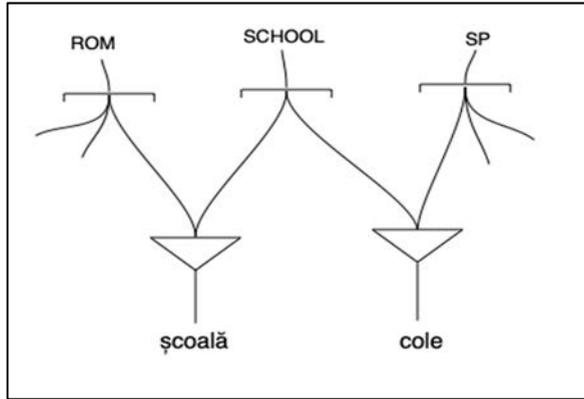
## 2.2. Non-adapted luxury borrowings

The most frequent case of non-adapted luxury borrowing in the corpus is the use of Sp. *cole* by young speakers to refer to the different types of education institutions they attend. The word is an abbreviation of Sp. *colegio*, which is the typical title of pre-university educational establishments in Spain and, according to DLE, it can also be used to refer colloquially to the classes that one attends in such an establishment. The same meaning is conferred in Romanian by the generic term *școală* (‘school’).

All the examples in the corpus were produced by early bilingual speakers whose idiolect features many Spanish abbreviations belonging to infantile language so it might be argued that this is a necessary borrowing. Nevertheless, while we admit that these speakers are highly accustomed to this school terminology, it is hard to believe that such a common word as ‘school’, i.e., Rom. *școală* is unknown to them. Therefore, we consider it a luxury borrowing. Examples (4), (5) and (6) illustrate it.

- (4) *Mănânc ceva, [...], mă spăl pe dinți, mă duc la cole.*  
‘I eat something, [...], I wash my teeth, I go to school.’
- (5) *Când ies de la cole zic la tata sau la mama vreau în parc.*  
‘When I get out of school I tell dad or mum I want to go to the park.’
- (6) *După aceea, când îs la cole, pun mochila în scaunu meu.*  
‘Then, when I’m at school, I put my backpack on my chair.’  
(Buzilă 2016)

As mentioned earlier, a luxury borrowing in the discourse of an individual speaker means that there is a native equivalent within the linguistic repertoire of that very speaker. In his case, the network of relationships must contain two lexical nodes connected to the same conceptual node SCHOOL. Figure 3 illustrates how a well-balanced bilingual system would look like.

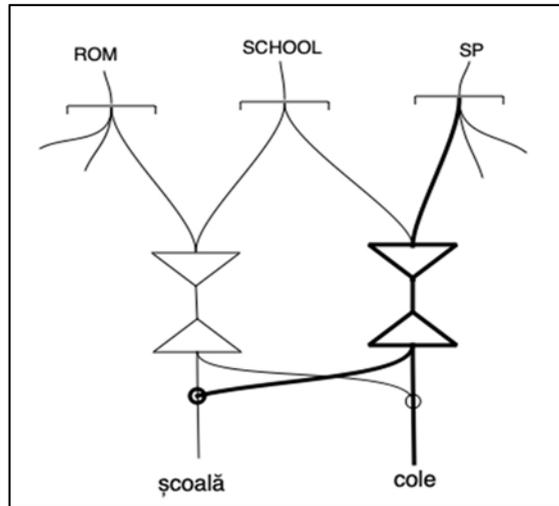


**Figure 3.** Bilingual system predicting the production of *școală* or *cole* depending on language nodes.

This model explicitly shows that whenever SCHOOL is active, it will activate both lines going towards the two lexemes, but only one of them will receive enough activation, depending on the language node being active at the same time. Therefore, in a situation in which the person is speaking Romanian (i.e., ROM node is active), *școală* will be produced and when the person is speaking Spanish (i.e., SP node is active), *cole* will be produced. It is basically a model that treats translation equivalents as a matter of lexical selection performed by language nodes.

The problem with this model is that it does not explain the production of *cole* in a Romanian discourse, which is actually the case of the borrowing under discussion. In order to understand how the system allows that, we need to consider some other properties of the system. One of them is the varying strength of connections. Figure 3 shows all lines as having the same width which suggests that they all have the same strength. In reality, that is hardly the case. Connections get stronger by repeated use via a Hebbian process so those pathways that are active more often will become stronger in time. In the case of a child living in Spain we may assume that the pathway underlying the production of *cole* will be active more often as he/she spends more time speaking about school in Spanish with his colleagues and friends than he does speaking about the same topic in Romanian to people in the family. Moreover, we can imagine situations in which the ROM node is inactive, while the person is interacting with Spanish people. However, given the fact that the person lives in Spain and is constantly surrounded by Spanish cues, it will hardly be the case that SP node is completely inactive. Due to these two factors, all lines coming from the SP node will probably be stronger than those coming from ROM. Therefore, in a situation in which both language nodes are active (ROM because the person is speaking Romanian at the moment and SP because the person is surrounded by Spanish

cues), lexical selection will be driven by the strength of connections. Stronger connection will send stronger activation to the nodes they are connected to and they will do it faster. And once a lexical node is activated, it will immediately send inhibitory activation to its competitors so that only one lexical item is produced in the end. Figure 4 shows how the same kind of structure allows for the production of *cole* due to stronger connections and inhibitory activation.



**Figure 4.** Bilingual system predicting the production of *cole* based on stronger connections and inhibitory links.

### ***2.3. Adapted necessary borrowings***

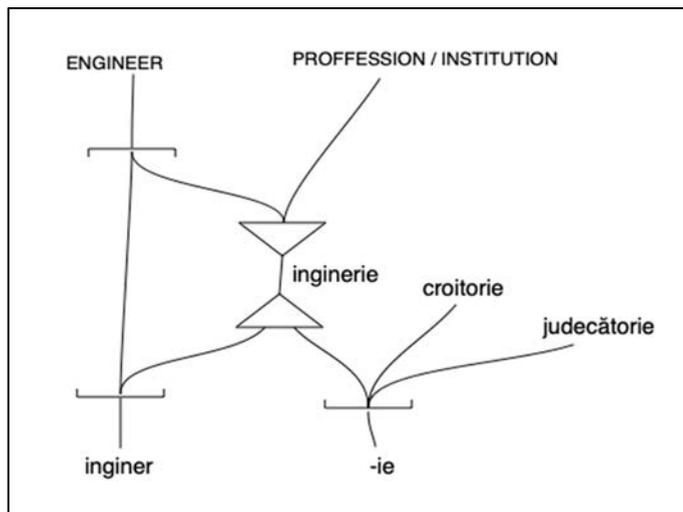
The most frequent case of adapted necessary borrowing in the corpus is the form *extranherie*, an adaptation of Sp. *extranjería*, which refers to a system of norms and rules concerning the condition, actions and interests of foreigners in a country (DLE). The adapted nature of this borrowing is given by the use of the Romanian derivative suffix *-ie*, the equivalent of Sp. *-ía*, added to the derivation base form *extranher-* (Sp. *extranjer-*). The identical derivative process in the two languages (Spanish noun base + *-ía* vs. Romanian noun base + *-ie*) and the formal similitude between the two morphemes, Rom. *-ia* (definite form) and Sp. *-ía*, facilitate the borrowing of the base alone and the use of the Romanian suffix, resulting in the hybrid form *extranherie*<sup>9</sup>. A similar process occurs, for example, in the derivation of Rom. *inginerie* from the noun base *inginer*.

<sup>9</sup> Once again, it is not the simple assimilation of the velar fricative [x] to the Romanian glottal fricative [h] that makes it an adapted borrowing, but the morphological process of adding a Romanian suffix.

Examples (7) and (8) illustrate this adapted borrowing.

- (7) *Era un șef de poliție [...] în Elche, de la extranherie.*  
 ‘There was a chief of police [...] in Elche, from *foreigner service*.’
- (8) *Am vrut mai mult... m-am dus la școala de... extranherie se numește.*  
 ‘I wanted more... I went to the school of... it’s called *foreigner service*.’  
 (Buzilă 2016)

We have already explained (in 2.1.) that the necessary nature of the borrowing means that it is a matter of new nodes (conceptual and lexical) being added to the structure together with the connection between them. In this case the conceptual node FOREIGNER SERVICE and the lexical node *extranjería* are supposedly added to the structure and the new pattern of connectivity would account for the consistent production of *extranjería* whenever its meaning is intended. Nevertheless, that is not the case, as the form that is being produced is the hybrid form *extranherie*.

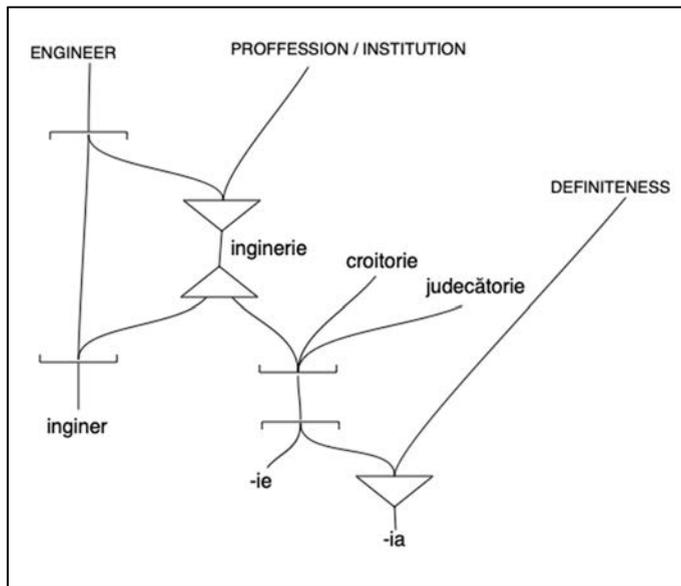


**Figure 5.** Monolingual structure allowing for the production of *inginerie* as a derivative form of *inginer*.

Adapted borrowings appear typically in the discourse of late bilinguals, so we need to understand how these hybrid forms relate to the already existing monolingual structure of such a speaker. Figure 5 illustrates the structure underlying the production of *inginerie* (‘engineering’) as a result of the activation of conceptual nodes ENGINEER and PROFESSION / INSTITUTION. The system must be wired in such a

way that both lexemes *inginer* and *inginerie* should be connected to the concept ENGINEER and that *inginerie* is produced only if the concept PROFFESION / INSTITUTION is also active, otherwise *inginer* should be the output. The pattern of connectivity in Figure 5 predicts exactly that. It also suggests that the same form *-ie* is connected to other subnetworks for the production of similar lexemes, such as *croitorie* or *judecătorie*, which will have similar patterns of connectivity.

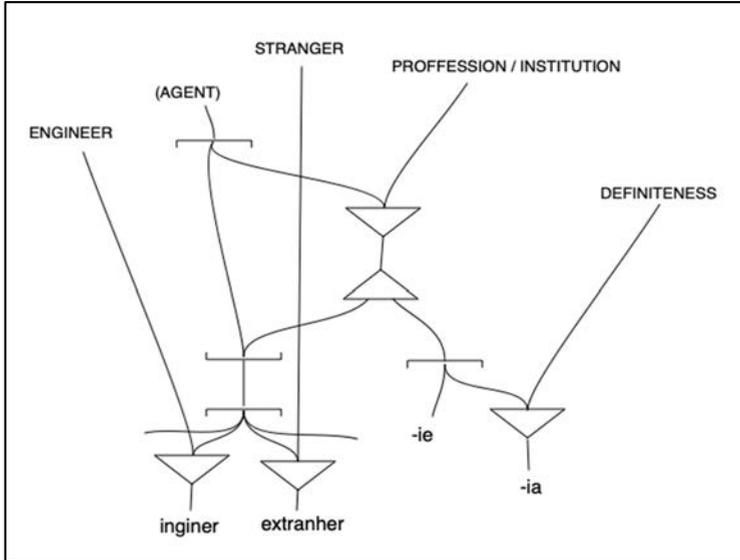
Figure 5 is actually a simplified version because the same structure needs to also allow the production of the definite form *ingineria*. By placing an 'or' node at the bottom of the diagram we can suggest that the derivative morpheme has actually two possible realizations: *-ia* if the conceptual node for DEFINITENESS is active, and *-ie* if not. Figure 6 shows how this alternation is also implemented in a relational structure.



**Figure 5 bis.** A more complete model including connections for the alternation *inginerie - ingineria*.

It is important to understand how nodes are connected for this alternation because the definite form is the one which, by analogy, allows the hybrid form to emerge. When the speaker hears (and learns) the lexeme *extranjería*, he/she maps it to the already existing structure, which means that the speaker interprets the Spanish lexeme as a compound form similar to Rom. *ingineria*. But instead of allocating new nodes and lines for all the components of this new compound form, the system does that only for the new information, i.e., the stem *extranjer-*

(assimilated to the Romanian pronunciation which we will transcribe as *extranher-*), and links it to the rest of the network already in place. Figure 6 illustrates the result of this process.



**Figure 6.** The phonetic form of *extranjería* interpreted as a compound form similar to Rom. *ingeniería*.

The interpretation of the phonetic form of the lexeme *extranjería* as a compound form similar to Rom. *ingeniería* means that a new node is recruited within the structure to represent the stem *extranher*, connected to the conceptual node STRANGER. This new node is connected to the rest of the network in the same way in which *inginer* is connected. Therefore, when an indefinite form of the institution is intended, the way in which these new nodes are wired produces the form *extranherie*. So, it is not so much the case of an adaptation *per se* of the Spanish word, but a reinterpretation of its components and a mapping of these components on the already existing structure for the expression of different pairs of lexemes referring to AGENT and the PROFESSION or INSTITUTION related to that agent.

By comparing this last diagram with figures 4 and 5, we can see now that the structure underlying the production of the lexeme for agent and of the lexeme for the institution is an abstract one and that the semantic input only occurs at a lower level, i.e., the 'and' nodes at the bottom-left corner of the diagram. This is how the system generalizes a certain pattern of connectivity that is consistently activated to represent more abstract information about morphological constituents.

An interesting consequence of the structure presented in figure 6 is the fact that it predicts the possibility of producing *extranher* also as an adapted borrowing for ‘stranger’. Indeed, the corpus confirms this prediction. Both singular and plural forms, in definite and indefinite use have been found, as the following examples illustrate it:

- (9) *Sunt mai mulți extranheri, nu numai români.*  
 ‘There are several *strangers*, not only Romanian.’
- (10) *Rezistați și voi cum puteți, apanați-vă cu extranherii ăștia.*  
 ‘Hang on as you can, do what you can with these *strangers*.’  
 (Jieanu 2012)
- (11) *Le-ai ridicat tu țara, extranheru.*  
 ‘You raised their country, you *the stranger*.’  
 (Buzilă 2016)

#### 2.4. Adapted luxury borrowings

The most frequent case of adapted luxury borrowing is the use of the hybrid plural form *debere* / *deberele* in both definite and indefinite use, in the discourse of young, early bilingual speakers. Here, the vowel [e], which is part of the Spanish plural morpheme *-es* (Sp. *deber* – *deberes*) is interpreted as the Romanian plural morpheme *-e*, so the *-s* is dropped and the word is used as an indefinite plural form similar to other Romanian plurals such as *case* (‘houses’), *portocale* (‘oranges’) etc. The interpretation of *debere* as a plural form allows the use of the Romanian enclitic definite article so *deberele* is also easily produced as an equivalent of the definite Spanish form *los deberes*. The fact that the term is mostly used in plural in Spanish school contexts facilitates its adaptation in spite of the difficulty of finding an improbable feminine singular form *\*deberă* / *\*debeară*.

On the other hand, being a relatively common word, it is relatively improbable that the Romanian equivalent, i.e. Rom. *teme* / *temele*, is not present in family conversations about school. Therefore the word must be part of the linguistic repertoire of those speakers, and that makes it a luxury borrowing.

Examples (9) and (10) illustrate both uses of this adapted borrowing.

- (12) [*Despre ce ați vorbit?*] / *De debere... că nu știam ceva.*  
 [‘What did you talk about?’] / ‘About *homework*... there was something I didn’t know.’
- (13) *După școală fac deberele.*  
 ‘After school I do my *homework*.’  
 (Buzilă 2016)



The other question raised by this example is the existence of the lexemic node *debere*, as a competitor of *teme*. This is explained by the same process of reinterpretation of a Spanish form. Here, *deberes* is interpreted as a Romanian plural form ending in *-e*.<sup>10</sup> The central right part of the diagram represents the type of wiring needed to account for an abstract model of how feminine, plural nouns alternate their indefinite and definite forms. The type of structure is similar to that presented in 2.3. for *inginer - inginerie*. The monolingual system of the speaker supposedly had this structure in place before it was presented for the first time with the phonetic form *debere(s)* in the input. Therefore, this form was interpreted by analogy as plural form similar to the Romanian forms ending in *-e* and was accommodated within the same structure. Thus, when the speaker intends to refer to HOMEWORK in a context in which the definite form is needed, the form *deberele* is produced by virtue of the connectivity already in place.

### Conclusions

In this paper we have used the RNT model to describe and explain the emergence of lexical borrowings in the oral discourse of bilingual Romanian immigrants living in Spain. By conceiving distinct languages as cardinal nodes connected to distinct (although overlapping subnetworks), we have illustrated the different mechanisms underlying the different types of lexical borrowings.

A non-adapted necessary borrowing was shown to rely on the very mechanisms that explain learning in relational networks, therefore, producing one is no different than producing any newly acquired linguistic pattern.

Luxury borrowings, on the other side, cannot be explained as the result of mere lexical selection based on language nodes, but rather as a consequence of the gradual strengthening of one pathway (typically the one connected to the SP node) which becomes dominant in that part of the network.

Adapted borrowings were shown to be more complex as they rely on three distinct elements: a) a pre-existing structure representing the abstract model for the regular production of alternative forms (derivatives with the same suffix or regular definite forms); b) the interpretation of a foreign form presented in the input as being similar to those native forms connected to the structure mentioned at a); and c) the accommodation of a the newly acquired lexeme within the existing structure by recruiting a lexemic node for the reinterpreted lexeme.

On top of those three elements, when the adapted borrowing is also a luxury one, the strength of connections also plays a role, as mentioned above. That makes the adapted luxury borrowings the most complex of all types of lexical borrowings.

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<sup>10</sup> This reinterpretation is probably facilitated by the common phenomenon of final *-s* lenition in Spanish.

We have shown that the two main criteria for differentiating lexical borrowings are still valid as the relational networks and the mechanisms involved in explaining these distinct types are indeed different. Furthermore, the RNT modeling suggests a progression in complexity of the four different types from the simplest to the most complex:

- Un-adapted necessary borrowings
- Un-adapted luxury borrowings
- Adapted necessary borrowings
- Adapted luxury borrowings

We believe that we have shown once more that the RNT model is well equipped for explaining non-standard phenomena such as those found in bilingual situations and we are confident that any other contact phenomena can be modeled in relational terms.

However, we are aware of the need of testing the validity of these models in a more empirical way. There are two ways of doing it that come to our mind:

1. Making testable predictions based on existing analysis of contact phenomena and designing experiments to test those predictions with real bilingual people.
2. Computer simulation of bilingual systems based on RNT postulates.

We express our hope that any of the two paths will be taken in the near future by RNT scholars.

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