

THE LINGUISTIC-COMPUTATIONAL MODELING OF METONYMY IN THE FRAMENETBRASIL LEXICAL DATABASE: A CASE STUDY¹

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ABSTRACT

This work reports on ongoing research aimed at modeling a metonymic relationship in the FrameNet Brasil database. This paper is based on a case study with the `Teams` frame. Both the frame and the corpus consulted are part of a frame-based trilingual (Portuguese – Spanish – English) electronic dictionary covering the soccer, tourism and World Cup domains developed by FrameNet Brasil. The basic infrastructure, analytical categories and methodology used were those developed for FrameNet (Fillmore et al. 2003, Baker et al. 2003, Ruppenhofer et al. 2010), which can be defined as an application of Frame Semantics to practical lexicography.

KEYWORDS: metonymy, Teams Frame, FrameNet Brazil, FrameNet, Frame Semantics.

RESUMO

Este trabalho registra pesquisa em andamento cujo objetivo é modelar uma relação metonímica para a base de dados da FrameNet Brasil. Este artigo é baseado em um estudo de caso com o frame `Teams`. Tanto o frame destacado para análise quanto o corpus consultado são produtos do dicionário eletrônico trilingue (Português - Inglês - Espanhol) baseado em frames semânticos para os domínios do futebol, do turismo e da copa do mundo. A infraestrutura básica, as categorias analíticas e a metodologia utilizadas são as desenvolvidas pela FrameNet (Fillmore et al. 2003, Baker et al. 2003, Ruppenhofer et al. 2010), que pode ser definida como uma aplicação da Semântica de Frames para a lexicografia prática.

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PALAVRAS-CHAVE: metonímia, Frame Teams, FrameNet Brasil, FrameNet, Semântica de Frames.

INTRODUCTION

The purpose of this paper is to present, as a case study, the importance of developing a linguistic-computational model to account for metonymy in the FrameNet Brasil lexical database. The Teams⁴ frame was chosen to show one of the inconsistencies in the lexicographic annotation process due to the lack of a relation modeling the extension or contiguity of meaning via metonymy.

The linguistic-computational modeling carried out in this work aims to devise theoretical-methodological strategies for metonymic disambiguation, combining studies in Cognitive and Computational Linguistics. The work is conducted at FrameNet Brasil, a Computational Linguistics Laboratory at the Federal University of Juiz de Fora that develops lexical and syntactic resources for Brazilian Portuguese and works in cooperation with the Berkeley FrameNet, at the International Computer Science Institute, Berkeley. Both projects use the theoretical assumptions of Frame Semantics.

Considering the increasing demand for research focused on computational tasks and Natural Language Understanding (NLU) (Allen 1995), the purpose of this work is to refine frame to frame and frame element to frame element relation in FrameNet Brasil's lexical database. The study builds on previous research (Gamonal 2013, Peron-Côrrea 2014), which proposes guidelines for the development of the 2014 World Cup FrameNet Brazil Dictionary, a trilingual electronic dictionary (English, Portuguese, Spanish) covering the domains of the World Cup, Football, and Tourism according to Frame Semantics and FrameNet methodology.

The results of the analysis presented here provide background for linguistic and computational solutions adopted by the FrameNet Brasil team in the development of m.knob, a Multilingual Knowledge Base featuring a translation machine and a recommendation system for tourism and sports.

2. TRADITIONAL AND COGNITIVE STUDIES ON METONYMY

In this section, we present a brief review of studies related metonymy, from the traditional view of the phenomenon to the research in Cognitive Linguistics.

2.1 TRADITIONAL STUDIES ON METONYMY

In the majority of Brazilian Portuguese grammars that include the description of metonymy, it is found in the section dedicated to figures of speech or rhetorical figures. This is due mainly to the Aristotelian legacy. Aristotle takes founding role in the systematization of reasoning studies. Interested in discussing logic (the Greek word λογική 'logos'), Aristotle approached human language as a means of analyzing the ability of thought / reason.

⁴ In this paper, Courier font is used to highlight frame names.

As meaning production is a complex process, and the focus of his studies was on logical reasoning, Aristotle decided to separate the study of language in two areas: philosophical-scientific studies and rhetorical-poetic studies. The first would include, for example, the declarative propositions, those supporting inference methods, through which it is possible to achieve the comprehension of new pieces of knowledge from previously given knowledge⁵. In turn, the second would account for issues such as metaphor and metonymy.

Aristotle realized that language itself could not be construed only in regards to truth conditions, i.e., not everything can be judged as true or false. Therefore, all that exceeded the scope of declarative propositions should be conceived as a demand to the field of rhetoric and poetics.

Etymologically, metonymy means name change (from the Greek μετα ‘goal’ – Όνομα ‘onoma’), and the concept has long been interpreted as a kind of artistic ornament, because of the impossibility to literally interpret metonymic expressions. The analytical option of traditional studies has been thus to consider it as part of figurative language, linking its use to strategies for guaranteeing persuasion or the communication of emotions and passions.

2.2. COGNITIVE STUDIES ON METONYMY

Cognitive Linguistics (CL) assigns another epistemological point of view to the metonymic phenomena. Because of its empirical nature, CL includes metonymy as a result of human categorization processes linked to human experiences (Barcelona 2003, Lakoff 1987, Dancynger & Sweetser 2014).

Several studies in CL gathered scientific evidence supporting the centrality of metonymy in human language. In a founding text, Lakoff (1987) shows that metonymy works as a cognitive mechanism to ensure understanding. According to the same theoretical orientation, Radden and Kövecses (1999) consider the source field of metonymic mappings as the vehicle that will provide access to other conceptual entity within the same Idealized Cognitive Model (ICM), while Lakoff and Turner (1989) claim metonymy activates relations between two domains within the same cognitive macro-domain. Croft (1993), in turn, analyzes metonymy as the process of highlighting entities.

Barcelona (2003) points out that metonymy did not get the same attention given to metaphoric phenomena in CL studies; however, several researchers recognize the role of metonymy in the conceptualization processes related to language. Especially, the relationship between metaphor and metonymy shall be investigated rigorously, because, according to this author, metaphorical extension is metonymically structured in many cases.

Considering the studies of Rosch (1978) – discussed by Lakoff (1987) when proposing radial categories –, Barcelona (2003) indicates that categorization by prototypes is itself a metonymic operation, considering that a domain is organized in terms of the attributes of a prominent subdomain.

5 As shown in the classic example: “Every man is mortal. Socrates is a man. Therefore, Socrates is mortal.”

In the description of the general principles of metonymy, Lakoff (1987) highlighted the importance of the background, i.e., the cultural models developed by societies.

According to Lakoff (1987), the metonymy model is a model of how A and B are related in a given conceptual framework:

- i) There is a “target” concept *A* to be understood for some purpose in some context;
- ii) There is a conceptual structure containing both *A* and another concept *B*;
- iii) *B* is either part of *A* or closely associated with it in that conceptual structure. Typically, a choice of *B* will uniquely determine *A*, within that conceptual structure;
- iv) Compared to *A*, *B* is either easier to understand, easier to remember, easier to recognize, or more immediately useful for the given purpose in the given context (Lakoff 1987:84).

Dancygier and Sweetser (2014) organize metonymy into two groups: categorial metonymy and frame metonymy, explaining that, while the first is based on a relationship between a larger category and a smaller category included in the larger one, the latter characterizes a relationship between parts of the same frame. An example discussed by the authors is *the White House*, an important kind of **part-whole** metonymy. In (1), notice that the name of the building is used to refer to the entire executive branch of the US government.

- (1) *The White House* decided to leave its options open⁶

The authors also argued metonymy relates to iconicity. Non-verbal signs at public toilets doors distinguish the space reserved for men, women, disabled people and parents with their babies, for example. This is possible because metonymic icons point to the culturally relevant categories included in each case. For instance, if the sign features a high heel, it designates a restroom reserved for women, and if it features a wheelchair, the space is adapted to people with disabilities.

Note that the CL approach to metonymy is not restricted to a cluster model accounting for the exchange of lexical items, but, rather a conceptual framework in which one cognitive construct stands out from the others, assuming the status of representative for the whole. Thus, the compositional approach to language meaning, according to which the meaning of the whole is a sum of the meanings of its constituent parts does not cover the reality of natural languages, given the existence of pervasive cognitive process such as metonymy, which, based on a reference, explore inference and reveal the cultural aspects involved in language comprehension.

⁶ https://www.washingtonpost.com/world/national-security/how-the-obama-white-house-runs-foreign-policy/2015/08/04/2befb960-2fd7-11e5-8353-1215475949f4_story.html. Accessed in December 1st 2015.

3. FRAME SEMANTICS AND FRAMENET

Frame Semantics (Fillmore 1976, 1977, 1982) is an empirical approach to semantic description and analysis that emphasizes the close relationship between knowledge and experience, and demonstrates the complex networks of meanings involved in such a semantic description.

The frame is the basic analytical unit of Frame Semantics. According to Fillmore:

By the term 'frame' I have in mind any system of concepts related in such a way that to understand any one of them you have to understand the whole structure in which it fits; when one of the things in such a structure is introduced into a text, or into a conversation, all of the others are automatically made available (Fillmore 1982:111).

The theoretical and methodological foundations of Frame Semantics have been applied to the construction of a computational lexicon: the FrameNet project⁷. FrameNet provides a frame-based syntactic and semantic description of the English lexicon, which is grounded on corpus evidence. Also, the database can be useful in the development of resources related to Natural Language Processing (NLP).

According to Fillmore (2008), the main objectives of FrameNet are:

- i) describing lexical units (LUs) in terms of the semantic frames they evoke, and describing those frames;
- ii) defining the frame elements (FEs) of each frame that are essential for a full understanding of the associated situation type;
- iii) extracting from a very large corpus example sentences which contain each LU targeted for analysis;
- iv) selecting from the extracted sentences representative samples that cover the range of combinatorial possibilities, and preparing annotations of them as layered segmentation of the sentences, where the segments are labeled according to the FEs they express, as well as the basic syntactic properties of the phrases bearing the FE,
- v) displaying the results in lexical entries which summarize the discovered combinatorial affordances, both semantic and syntactic, as valence patterns, and creating links from these patterns to the annotated sentences that evidence them, and
- vi) defining a network of frame-to-frame relations and the graphical means of displaying these, that will show how some frames depend on or are elaborations of other frames. (Fillmore 2008: 49,50).

7 <https://framenet.icsi.berkeley.edu/fndrupal/>.

FrameNet methodological proposal has been extended to other languages, in addition to Brazilian Portuguese, such as German, Mandarin, Spanish, Japanese and Swedish. In Brazil, this resource has been developed at the Federal University of Juiz de Fora. All data is made available online.⁸

4. THE COPA 2014 FRAMENET BRASIL PROJECT

The Copa 2014 FrameNet Brasil project (Salomão et al. 2011, 2013) developed a frame-based trilingual (Portuguese – Spanish – English) electronic dictionary to soccer, tourism and World Cup domains⁹. Multilingual challenges involved in the construction of the dictionary are described in Torrent et al. (2014).

Table 1 shows the number of frames described for each domain in each language, lexical units and semantically and syntactically annotated sentences.

128 Trilingual Frames (124 new)	World Cup: 30	
	Soccer: 53	
	Tourism: 45	
1,125 Lexical Items	World Cup: 366	Br-Portuguese: 134
		English: 112
		Spanish: 134
	Soccer: 438	Br-Portuguese: 163
		English: 124
		Spanish: 151
	Tourism: 321	Br-Portuguese: 118
		English: 114
		Spanish: 89
13,451 Annotated Sentences	Br-Portuguese: 7,912	
	English: 3,374	
	Spanish: 2,398	

Focused on human users, the Copa 2014 dictionary was implemented as a web app. The database comprises interconnected framenet-style data – frames, lexical units, frame-to-frame relations, and annotated sentences. The main purpose was to test FrameNet structure as a means of providing semantically accurate word-to-word translations. Four different ways to access the information in the dictionary are available: searching a word, typing a sentence, browsing the list of frames grouped by cognitive domains, and exploring the frame grapher (see Figure 1).

8 <http://www.ufjf.br/framenetbr>.

9 <http://www.dicionariodacopa.com.br>.

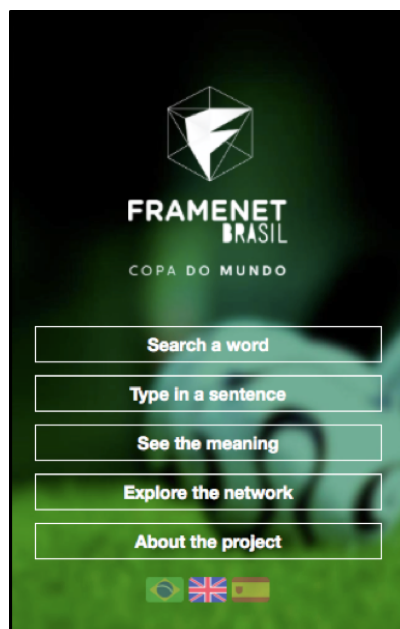


Figure 1: Main menu of the Copa 2014 App

The noun *Brazil* noun is a lexical unit that evokes the *Teams* frame. As expected, all the other names of countries that participated in the 2014 World Cup are also present in the corpora surveyed for building the dictionary: the Copa 2014 FN-Br corpus (1,001,326 tokens in Brazilian Portuguese). In this corpus, *Brasil.n* is used in many metonymies both in the soccer and in the tourism domains, as shown in Figure 2.

Based on occurrences such as the ones presented in Figure 2, the next section discusses how the *country for team* metonymy was accounted for in the dictionary database.

Rio=de=Janeiro capital do Reino=Unido de Portugal , **Brasil** e Algarves . No mesmo ano , uma grande crise financeira a regressar a Portugal . 1822 Príncipe regente do **Brasil** desde o retorno de dom João VI para Portugal , dom coroa- se imperador . 1831 Como primeiro monarca do **Brasil** , dom Pedro=I mostra- se pouco hábil e abdica do economia . As fazendas produtoras se multiplicam e o **Brasil** se torna um grande exportador de café . 1835 Inspirados levante a Revolta=dos=Malês , que quase triunfa . 1865 O **Brasil** se alia ao Uruguai e à Argentina em=torno=dea Tríplice=Aliança mortos e elimina metade da população paraguaia . 1888 O **Brasil** se torna o último país do Novo=Mundo a abolir a escravidão República . 1890 Com a abolição da escravidão , o **Brasil** abre fronteiras para suprir sua demanda por mão=de=obra expande a força militar e centraliza o poder . 1942 O **Brasil** abandona a neutralidade e entra na Segunda=Guerra=Mundial o na inflação que persistiria por décadas . 1958 O **Brasil** ganha sua primeira Copa=do=Mundo , triunfando sobre famílias tem hoje mais=de 1,5 milhão de filiados . 1985 O **Brasil** realiza uma eleição presidencial indireta . Tancredo=Neves República , a primeira mulher a ocupar o cargo no **Brasil** . Sucessora escolhida a=dedo por Lula , ela mantém em=grande=parte as políticas de seu antecessor . 2014 O **Brasil** sedia a Copa=do=Mundo de 2014 ao custo de R\$ 27 bilhões chegaram em 1500 , o território que hoje conhecemos como **Brasil** já era habitado há cerca=de 12 mil anos . Os primeiros encontraram alguns indícios anteriores da presença humana no **Brasil** . Os mais antigos vestígios do gênero na região Amazônica podem ter 12 mil anos . Na época do descobrimento do **Brasil** , é provável que vivessem no território entre 2 milhões pessoas . Cabral e companhia O curso da história do **Brasil** mudou para=sempre em 1500 , quando uma frota de 12 tratar . Os primeiros colonizadores só aportaram no **Brasil** em 1531 . O filósofo francês Jean-Jacques Rousseau idioma tupi-guarani mais tarde se espalhou por todo=o **Brasil** colonial , e ainda é falada por algumas pessoas na itinerantes de aventureiros que exploraram o interior do **Brasil** nos séculos 17 e 18 , pilhando assentamentos indígenas quando=dea chegada dos portugueses , em 1500 , já viviam no **Brasil** entre 2 milhões e 4 milhões de pessoas , divididas

Figure 2: Occurrences of *Brasil.n* in the Copa 2014 FN-Br Corpus

5. TEAMS FRAME AND METONYMIC RECURRENCE

As shown in Table 1, several frames were created to model the soccer and the World Cup experiences in the dictionary. One of them was the `Teams` frame. According to the description in Figure 3, the core frame elements (FE) are `SOCCKER_TEAM` and `COUNTRY`. This methodological decision was due to the fact that the *country for team* metonymy is highly productive in this frame, meaning that it surfaces frequently in the corpus.

However, according to FrameNet methodology, there is an important distinction that must be made between **core** and **peripheral** frame elements: while the first instantiates a conceptually necessary component of a frame, differentiating it from other frames, the latter do not introduce additional, independent or distinct events from the main reported event, being responsible for indicating circumstances such as time and place, for example (Ruppenhofer et al. 2010:19-20).

Note that, in sentences like (2-3) the `COUNTRY` FE represents the same role as the `SOCCKER_TEAM` FE.

- (2) O [Brasil^{COUNTRY}] enfrentará a Alemanha na semifinal.
- (3) [Brazil^{COUNTRY}] will play Germany in the semifinals.

Because of the high prevalence of structures like the ones in (2-3) in the corpus, the `COUNTRY` FE was included as a core FE to mark its occurrence to indicate the teams rather than only the countries they represent. However, this decision is not lexically consistent because nouns like *team.n*, *squad.n*, *seleção.n* and *equipe.n*, which may be accompanied by genitives, adjectives or prepositional phrases that designate the name of the countries, also appear in the corpus, as shown in (4-6).

- (4) [Brazil's^{COUNTRY}] [squad^{TEAM}]
- (5) The [Brazilian^{COUNTRY}] [squad^{TEAM}]
- (6) [Equipe^{TEAM}] [do Brasil^{COUNTRY}].

Teams

[Lexical Unit Index](#)

Definição [Definition]:

A **Soccer team** that represents a **Country** in The World Cup Tournament and is formed by a group of 23 players, being 11 in the official group and 12 in the reserve group. The official group must contain 1 goalkeeper and 10 line players.

Elementos de Frame [Frame Elements]:

Nuclear [Core]:

Country [] Place of origin represented by the soccer team.

Soccer team [] Group of players that plays the game.

Não-Nucleares [Non-Core]:

Depictive [] A quality or characteristic of the **Soccer team** or **Country**.

Figure 3: The Teams frame

The metonymy is productive at the frame level, since all the names of countries involved in the World Cup are LUs that evoke this frame (see Figure 4). Therefore, the decision to include COUNTRY as a core FE was based on the absence of an alternative to properly indicate the *country for team* metonymy in the lexical database.

Unidade Lexical [Lexical Unit]	Status da LU [LU Status]	Rel Entrada Lexical [Lexical Entry Report]
Algeria.n	Created	Entrada Lexical [Lexical entry]
Argentina.n	Created	Entrada Lexical [Lexical entry]
Australia.n	Created	Entrada Lexical [Lexical entry]
Belgium.n	Created	Entrada Lexical [Lexical entry]
Bosnia-Herzegovina.n	Created	Entrada Lexical [Lexical entry]
Brazil.n	Created	Entrada Lexical [Lexical entry]
Cameroon.n	Created	Entrada Lexical [Lexical entry]
Chile.n	Created	Entrada Lexical [Lexical entry]
Colombia.n	Created	Entrada Lexical [Lexical entry]
Costa Rica.n	Created	Entrada Lexical [Lexical entry]
Croatia.n	Created	Entrada Lexical [Lexical entry]
Ecuador.n	Created	Entrada Lexical [Lexical entry]
England.n	Created	Entrada Lexical [Lexical entry]

Figure 4: LUs in the Teams frame

As discussed in section two, metonymy is a role to role relation, in which the mapping between source and target entails a relationship between roles within the frame while metaphors are mappings between frames in different cognitive domains.

FrameNet recognizes that frame elements are not independent of each other, they are related to the frame, required by it, and interrelated in different ways. There are three types of frame element relations in FrameNet: *coreset*, *requires*, and *excludes*.

The **coreset** relation occurs when a frame has FEs that act like sets, so that the presence of any member of the set is sufficient to satisfy the semantic valence of the predicator. For instance, DIRECTION, GOAL, PATH, and SOURCE are all core FEs in the TRAVEL frame. As an example, in (7), only the PATH FE is expressed, and the sentence is semantically complete, even without the other core FEs.

In contrast, in **excludes**-relation, if a FE is expressed, another will not be expressed. For instance, in (8), the GOAL FE in the Travel frame excludes the AREA FE. Hence, the presence of both FEs would render the sentence ungrammatical. In the opposite direction, the **Requires** relation happens when the occurrence of one core FE requires that another core FE also occur. For instance, in (9), if ITEM occurs, then GOAL is required.

(7) [We^{TRAVELER}] traveled^{TARGET} [across France^{PATH}].

(8) *[Pedro^{TRAVELER}] journeyed^{TARGET} [around the Caucasus^{AREA}] [to Europe^{GOAL}] [last month^{TIME}].

(9) [He^{AGENT}] attached^{TARGET} [the message^{ITEM}] [to the wall^{GOAL}].

In order to mark the metonymic relationship between *country* and *team*, and many other **whole-part** metonymies, for example, the addition of a FE-to-FE metonymic relation in the FrameNet Brasil database can prove to be appropriate, because the relations recognized by FrameNet are not specific to metonymies. This inclusion would enable peripheral FEs to take on core status without leading to theoretical inconsistencies.

The proposed intraframe relation, which will be referred to here as **metonymic substitution**, could be added to the list of FE-to-FE mappings to allow non-core FEs to substitute core FEs in sentences evoking a given frame.

The kind of metonymic mapping discussed for the `Teams` frame is not restricted to the soccer domain. Common and proper nouns referring to places engage in a variety of metonymies. Such entities can be described in a specific frame. Nevertheless, it is necessary to lexicographically validate such additions to the database. For instance, in the `People_by_origin` frame (Figure 5), one finds both `PERSON` and `ORIGIN` as core FEs.

In LUs such as *german.n*, FrameNet proposes an analysis in which both core FEs are incorporated to the LU, as shown in Figure 6, since a *german* is, at the same time, a `PERSON` defined in regards to some `ORIGIN`. Again, the metonymic substitution relation could provide a more theoretically accurate model for cases like that.

People_by_origin

[Lexical Unit Index](#)

Definition:

This frame contains words for individuals, i.e. humans, with respect to their `Origin`. The `Origin` is generally incorporated, but may occasionally be specified separately. The `Person` is conceived of as independent of other specific individuals with whom they have relationships and independent of their participation in any particular activity. They may have an `Age`, `Description`, `Persistent characteristic`, or `Ethnicity`.

I'm a proud BRIT.

FEs:

Core:

`Origin (Ori)`

The `Origin` is the place where the `Person` was born or lived a salient part of her or his life. In this frame, it is generally incorporated in the lexical item, but may be separately specified as in the following:
`FOREIGNERS from Japan` get short shrift around here.

`Person (Person)`

Semantic Type: Human

The `Person` is the human being whose `Origin` is specified.

Figure 5: The `People_by_origin` frame

german.n

Frame Element	Core Type
Age	Peripheral
Context_of_acquaintance	Peripheral
Descriptor	Peripheral
Ethnicity	Peripheral
Origin	Core
Persistent_characteristic	Peripheral
Person	Core

[Turn Colors Off](#)

- added
 1. Following this debacle , the Ottomans then allied themselves to Germany in the World War I , losing more territory with the defeat of the **GERMANS** in that war .
 2. Later the **GERMANS** came in force and occupied many of the islands .
 3. Today Jamaican population is a mixture of African and English , with Spanish , Indian , and a smattering of Portuguese Jews , **GERMANS** , Welsh , and Scots .

Figure 6: Example annotation for *german.n*

Since the purposes of this work are both to improve the adequacy of computational decisions in the FrameNet Brasil database, and, at the same time, to implement CL theory on metonymy, another relation must be proposed to improve the system capability to perform inferences, as well as to define the types of constraints to which metonymies are subject: a frame-to-frame – or interframe – relation referred to as **metonymic grounding**.

Let's return to the discussion concerning the *Teams* frame. In the context of the World Cup, the FE defined to indicate the team's origin was *COUNTRY*. Nevertheless, because teams are always headquartered at – and, therefore represent – a location, the deployment of place names to metonymically refer to teams is very productive. Hence, the system would gain in the capability to perform inferences if a relation between the incorporated FE denoting a location and a frame referring to locations is modeled. In other words, the system would be able to infer that Germany is a soccer team, for example, if the *COUNTRY* FE, and the LUs incorporating it, are mapped to a frame referring specifically to countries, in this case, the *Political_locales* frame.

However, there are issues to be verified, for example: are metonymies based on general words such as *country.n*, *city.n* and *territory.n* as productive as those involving proper nouns? Again, a proper corpus study and lexicographic validation will be necessary, because the results of these analyses will interfere in the way the frame and the relations involving it and its FEs are defined. Let us consider sentences (10-12).

- (10) **Brazil** lost to **Germany** in the World Cup semifinal match by six goals.
- (11) The host **country** lost to **Germany** by a 7 to 1 score.
- (12) ??? **Brazil** lost to **the country**.

Sentences (10) and (11) show two different ways to refer to probably the most infamous part of the Brazilian soccer squad history. For everyone minimally initiated in soccer, the interpretation of (10) and (11) are trivial. However, in (12), the substitution of the proper noun Germany by the corresponding common noun country, without any adjective that differentiates it from other countries, render the sentence odd.

Thus, since (12) is not likely to be found in corpora, while (10) and (11) are, the semantic and syntactic valences provided by lexicographic annotation validate such uses and show their constraints.

6. CONCLUSIONS

Cognitive Linguistics embraces different concepts on metonymy that reflect different approaches to this topic. There is linguistic motivation to include metonymic relations in the FrameNet Brasil database, and the lexicographical relevance of the case presented in this paper is in accordance with the FrameNet aim to provide lexical databases grounded on a network of cognitive domains. Hence, bringing together Frame Semantics – as a theory that presents the lexicon not as simple lists of words, but as a system of related concepts – and the studies on Metonymy is crucial to the progress of this and other works focused on accurately representing human languages in computational models.

The intraframe relation proposed in this work – metonymic substitution – is an appropriate means of showing which metonymies are lexicographically attested in a given language, while interframe relation – metonymic grounding – could provide constraints and enable the system to perform inferences.

The next steps in this research include increasing the corpus analyses in order to identify lexicographic bases for the proposition of new instances of these two relations.

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