Alfa: Revista de Linguística (São José do Rio Preto)

REFERÊNCIA

VILARINHO, Michelle Machado de Oliveira. A methodology for the elaboration of a portuguese analogical dictionary. **Alfa: Revista de Linguística** (São José do Rio Preto), São Paulo, v. 61, n. 1, p. 105-131, jan./mar. 2017. Disponível em: <http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1981-57942017000100105&lng=pt&nrm=iso>. Acesso em: 11 jan. 2018. doi: http://dx.doi.org/10.1590/1981-5794-1704-5.

A METHODOLOGY FOR THE ELABORATION OF A PORTUGUESE ANALOGICAL DICTIONARY

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■ ABSTRACT: The topic of this work is part of a line of research known as Lexicon and Terminology, developed at the Center of Terminological and Lexical Studies (LexTerm Center), at the University of Brasília. The object of study is an analogical dictionary, understood as a lexicographic repertoire, onomasiological in nature, in which lexemes are organized from ideas or concepts to lexical units. The main objective of this research is to present a proposal for a Portuguese Informatized Analogical Dictionary (DIALP, following the Portuguese spelling). The main target audience of the dictionary is the learner of BrazilianPortuguese as a Second Language (PBSL). The selection of lexemes to compose the entries is guided by Kleiber's (1990) Extended Version of Prototype Theory, Fillmore's (1977a,b) Semantic of Frames, as well as by the reformulation of entries from Azevedo's (2010) analogical Dictionary of the Portuguese language. In order to elaborate the model for the proposed dictionary, we have adopted the methodological principles for the elaboration of lexicons, dictionaries and glossaries, as postulated by Faulstich (2001), and we also applied Vilarinho's (2013) proposal. This research contributes to promote Brazil's technological development, since no previous work has appropriately reached the goals set by the present study.

■ KEYWORDS: Analogical Dictionary. Extended Version of the Prototypes. Frame Semantics. Semantic Relations.

Introduction

The present research is inserted in a line of research known as Lexicon and Terminology, developed within the Graduate Program in Linguistics at the University of Brasilia (UnB). This research was carried out at the Center of Lexical and Terminological Studies (LexTerm Center),[1] at the Department of Linguistics, Portuguese and Classical Languages (LIP), at UnB. It is an extension of a previous proposal introduced by Vilarinho (2013), as well as a presentation of partial results from the project titled

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"Informatized Analogical Portuguese Dictionary", supported by the Brazilian Research Foundation FAP-DF.[2] The main objective of this research is to develop a proposal for a Portuguese Informatized Analogical Dictionary (referred to as DIALP in this paper).[3] The primary target audience of the aforementioned dictionary is the learner of Brazilian Portuguese as a Second Language (BPSL) (i.e., foreigners, indigenous people, and deaf learners).

The object of study is the analogical dictionary (ideological), defined as "[…] a lexicographical repertoire, onomasiological in nature, in which lexemes are organized in a systematic order, from ideas or concepts to lexical units",[4] according to Vilarinho (2010, p.35). This type of dictionary leads the user to a grouping of related lexemes. Therefore, in case of unfamiliarity with a lexical item or forgetfulness of the signifier, the desired lexeme can still be found. For instance, in case the user does not know or forgets the linguistic expression used to designate the professional responsible for planning and elaborating a construction or renovation project, he or she can look up the entry for *profissão* (i.e., profession), with the objective of discovering or recalling the lexeme *arquiteto* (i.e., architect), which conveys the idea in question. It is worth noting that a common dictionary does not allow the user to take the onomasiological path just described.

According to Gaudin and Guespin (2000, p.71):

> […] the analogical dictionary prefigures the analogical system by virtue of its organization around a word that "marks the common idea associated to all the words that refer to it". Therefore, the organization is notional. It is not a reference system of words to words, but an organization by meaning relations in which a prefiguration of lexical fields is established.[5]

The analogical dictionary is comprised of categorization and entries. Categorization governs the organization of entries and is ordered by lexical fields. Each category and subcategory forms an entry. After the introduction of categorization, entries are arranged alphabetically, so that lexemes related to the entry words (also known as headwords) are registered based on semantic relations (hypernym, hyponym, holonymy, meronym, synonym, and related concept, to be further detailed).

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[2]   Fundação de Apoio à Pesquisa do Distrito Federal.

[3]   Dicionário Informatizado Analógico de Língua Portuguesa (DIALP).

[4]   Original: "[...] *repertório lexicográfico, de caráter onomasiológico, no qual os lexemas são organizados em ordem sistemática, com base nas ideias ou nos conceitos para chegar às unidades lexicais*".

[5]   Original: "[...] *le dictionnaire analogique préfigure le système analogique par son organization autour d'un mot «marquant l'idée commune à tous les mots dont il est question». L'organisation est donc notionnelle. Il ne s'agit pas d'un système de renvois de mots à mots mais d'une organisation par apparentements de sens dans laquelle se dessine comme une préfiguration des champs sémantique*.".

The analogical dictionary model proposed by Vilarinho (2013) is the starting point for the elaboration of entries to compose DIALP, a dictionary aimed to provide users with the Brazilian Portuguese lexicon, and also to spread our culture and our language.

The globalization process diminishes the boundaries between people, who increasingly need to communicate in a multilingual environment. In this linguistic setting, Portuguese is one of the ten most widely spoken languages in the world. In order to organize the lexicon of this language in a systematic way, there is need for further development of Lexicography, a discipline that can be improved through the application of linguistic theories as well as technological resources from Computational Linguistics.

Brazil has an important role in the international scene, either by being part of economic trade blocks or by hosting major sporting events. Therefore, Brazil has a relevant role, both political and linguistic, in the context of a new map of social interactions and intercommunication between peoples. In this sense, our country holds a favorable position for teaching and learning Portuguese (VILARINHO; FAULSTICH, 2009, p.201), and a dictionary is an indispensable tool. This lexicographical repertoire: "[…] is a systemic organization of the lexicon, a description of the lexicon of a language", according to Biderman (2001, p.131).[6]

Informatized dictionaries may employ computational resources that provide tools to extend the content of lexicographical repertoires. However, Duran e Xatara (2007, p.210) note that: "[a]lthough informatized dictionaries have become common, in most cases, they mimic the layout of the printed dictionaries."[7] Brazilian informatized dictionaries still display a simple structure, when compared to French and English dictionaries. According to Vieira and Lima (2001, p.10), "[t]here is a lot of research and work carried out mainly for English, Spanish, German, French and Japanese. We find, however, a lack of research, tools, linguistic and human resources to computationally address Portuguese Language."[8]

Considering this lexicographical scenario, we intend to contribute to the development of a more coherent and complete Portuguese dictionary in an informatized format. Based on our teaching practice in Lexicon and Terminology courses in the context of the Undergraduate Program in Letters: Brazilian Portuguese as a Second Language (PBSL) at UnB, we have identified the need for monolingual dictionaries designed to help teaching Portuguese as a second language. Thus, in order to fill this lexicographical gap, we propose the elaboration of DIALP, aimed at the aforementioned audience.

Since analogical dictionaries present the grouping of related concepts or ideas, this type of work is a useful BPSL teaching aid tool, offering a range of words that enables the learner to go through entries to find what he or she needs to use in a linguistic

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[6]   Original: "[...] *constitui uma organização sistêmica do léxico, uma descrição do léxico de uma língua*".

[7]   Original: "*[e]mbora os dicionários informatizados tenham se tornado comuns, na maioria das vezes, ainda imitam o leiaute dos dicionários impressos.*".

[8]   Original: "*[h]á muita pesquisa e trabalhos realizados principalmente para o Inglês, Espanhol, Alemão, Francês e Japonês. Encontramos, porém, carência de pesquisas, ferramentas, recursos linguísticos e humanos para tratar computacionalmente a Língua Portuguesa.*".

context. However, to ensure that the user will understand the meaning of each lexeme, our dictionary model also presents the analogical part, in addition to the alphabetical one. The analogical part provides the definition for the entry word. It also presents to the user a set of lexemes that is semantically related to that entry. The alphabetical part, in turn, as the name suggests, presents lexemes in alphabetical order, just like a common language dictionary. However, the entries are elaborated with a focus on the learner of BPSL.

Analogies

In order to organize the analogical dictionary, it is necessary to determine the analogies for the purpose of structuring the entries. As the human mind captures identity relations subjectively, we have determined how the analogies should be established so that they are not too general.

With respect to this, it is worth noting the following passage by Gaudin and Guespin (2000, p.195):

> […] thanks to analogy, we can enumerate a large amount of information based on the entry word. However, we could not extend such amount of information to encompass an enumeration that would take an encyclopedic character. [...] Indeed, the analogy remains closely limited to discourse relations carried out in the language and has cultural value for a language community. [...] We could not relate it only by virtue of its insertion in the culture.[9]

Thus, analogies group a set of words that display affinities. These affinities are culturally oriented. There are lexemes registered in the entries because of lexical inferences based on encyclopedic information. Therefore, in the proposed dictionary model, analogies are established by semantic relations or by lexical inferences.

Each language is autonomous to create lexical inferences, since world knowledge is not the same among speakers of different linguistic communities. In this respect, we agree with Cabrera and Filho (2007, p.14):

> […] two things or relations could have the same name, or have equivalent names in different languages, but totally different meanings, which would allow lexical inferences in certain languages, but not in others.

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[9] Original: "[...] *grâce à l'analogie, on peut donc recenser un grand nombre d'informations à partir du mot-vedette. Cependant, on ne saurait accroître l'étendue de ces informations jusqu' à un recensement qui prendrait un caractère encyclopédique. [...] En effet, l'analogie reste étroitement limiteé aux relations discursives reçues en langue, et possède une valeur culturelle pour une communauté de langue. [...] On ne pourra l'approcher que par son insertion dans la culture.*"

The corresponding institutions could be profoundly different across languages.[10]

The creation method of DIALP can be used for developing analogical dictionaries in many languages, provided that the necessary adjustments are made — since analogies present in the model will not always apply in other languages, due to the particular way each society interprets and relates things in the world.

In this work, analogy is "[…] similarity and, above all, identity of relations, as the lexemes are linked by connections of semantic character around a central idea based on semantic connections" (VILARINHO, 2010, p.36).[11]

We highlight the fact that the analogical dictionary has no relation to the meaning of 'analog' in Computer Science. In this field, 'analog' is defined as: "a measurement unit or representation of quantities in which a sensor or indicator continuously monitors, without pauses or gaps, the variation of quantity being measured or represented" (HOUAISS, 2009).[12]

The next section describes the methodological procedures followed in this research.

Methodology

This research is both qualitative and descriptive. The descriptive-analytic method was used to prepare lexicographical paradigms that meet the scientific and linguistic Brazilian needs.

In order to decide which lexemes would make up the dictionary's nomenclature, we were guided by Azevedo's (2010) dictionary and by the reformulation of its entries. The choice of this work is based on the fact that Azevedo's (2010) dictionary is the most current and up-to-date Portuguese analogical dictionary. The first edition dates back to 1950 and is out of print. In 2010, Lexikon Publishing Company has reissued the dictionary, and it can now be easily found in bookstores. We have decided to reformulate the entries from Azevedo (2010) because of the commendable collection of lexemes that it presents. As Azevedos's (2010) lexicographical proposal is intended to consulters of Portuguese as a mother tongue, a reformulation was needed in order to adapt the presentation of the dictionary to our target audience (i.e., learners of BPSL). Thus, we have excluded from the entries those lexemes that are not used in contemporary Portuguese, adding those that are currently employed. The criterion adopted for this

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[10] Original: "[...] *duas coisas ou relações poderiam ter o mesmo nome, ou terem nomes equivalentes em diferentes línguas e terem sentidos totalmente diferentes, o que permitiria inferências lexicais em certas línguas e não em outras. As instituições correspondentes poderiam ser profundamente diferentes de uma língua para outra.*".

[11] Original: "[...] *semelhança, e, principalmente, identidade de relações, já que os lexemas estão ligados por conexões de caráter semântico em torno de uma ideia central.*".

[12] Original: "*forma de medida ou representação de grandezas na qual um sensor ou indicador acompanha de forma contínua, sem hiatos nem lacunas, a variação da grandeza que está sendo medida ou representada.*".

judgment was that the lexeme's definition had to be semantically related to the entry word. The analysis followed the subsequent steps:

i.   selection of entries that cover the defined thematic areas;
ii.   organization of the lexemes in alphabetical order;
iii. checking the definition and usage notes of each lexeme from Azevedo (2010) in the following Portuguese language dictionaries: Houaiss Eletronic Dictionary (HED) (2009) and New Aurélio Dictionary (NAD) (2010). These are contemporary dictionaries that serve as the basis for identifying the definitions and the nomenclature currently used in Portuguese.

After selecting the lexemes from Azevedo (2010) to compose the nomenclature of DIALP, it was necessary to include additional lexemes, so that the entries would comprehesively cover the lexical field. Therefore, to include new lexemes, the criteria were based on our encyclopedic knowledge and the consultation of Digital Aulete Dictionary Lexikon (2010), HED (2009), Terminological Glossary of Clothing by Cruz (2013), and Cambridge Word Routes (2007). We have adopted both Aulete (2010) and HED (2009) as a reference based on their high lexicographical quality and general distribution. Regarding Cruz's (2013) Glossary, we have chosen this work based on the fact that it was produced at Lexterm Center and it presents a collection of lexical units from the field of "clothing", which is useful for DIALP's purposes. It is important to note that we have only selected lexemes used in common language from the aforementioned terminological glossary. Cambridge (2007) was also considered, since it is organized by lexical fields and semantic relations. Thus, it was possible to access a work that is systematically organized, as DIALP is intended to be.

DIALP was developed in a computer program that enables semasiological and onomasiological search, since it displays both the alphabetical and systemic parts. The alphabetical part has the same structure of a common language electronic dictionary. Therefore, the user is able to access the definitions. The entries in the alphabetical part consist of all the lexemes found in the analogical part of the dictionary and include: + entry word, + grammatical information, + definition, ± source of the definition, ± reference to another entry word, ± context, ± phraseology.

The innovative aspect of this research is the analogical part, which is systemic. In this part, the lexemes are analogically organized. The entries are composed of: + entry word, + grammatical information, + definition + lexical relations (hypernym, hyponym, holonym, meronym, synonym, antonym, and related concept), ± usage notes, ± context, ± reference to another entry word, + analogical verbs. The entry word and the lexemes are presented in alphabetical order.

The analogical part is structured as a mental map to display the lexical fields, as shown in Figure 1.

Figure 1 – DIALP Lexical Fields
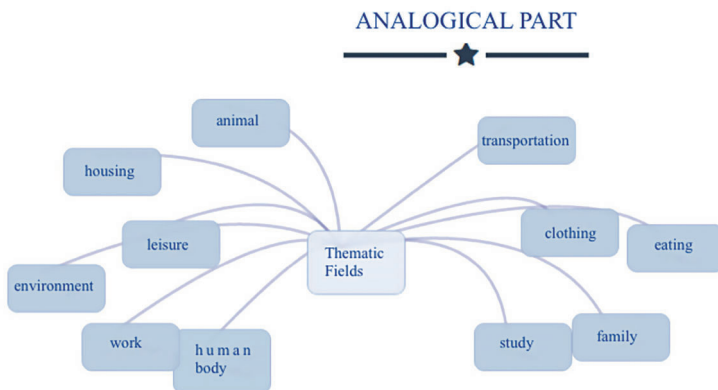
Source: http://www.dicionarioonlineanalogico.com.br/campos-tematicos/analogica (with adaptations).

The above layout with the thematic fields is the display screen of the analogical part. With the use of Javascript plugins, the layout enables an interactive presentation, allowing movements on screen. The available thematic fields in the dictionary are: *alimentação* 'eating', *animal* 'animal', *corpo humano* 'human body', *estudo* 'study', *família* 'family', *habitação* 'housing', *lazer* 'leisure', *meio ambiente* 'environment', *trabalho* 'work', *transporte* 'transportation', and *vestuário* 'clothing'. These fields cover the basic lexicon that the target audience of the dictionary can consult.

Delimitation of those fields is based on the lexical fields taken from Cambridge Word Routes (2007, p.vii), which "[…] groups together words and expressions with similar meanings under headings that inform the reader about a given lexical field."[13] Lexical fields are understood as:

> […] a lexical paradigm formed by the articulation and distribution of a continuum of lexical content through various units of the language (words) that are opposed to one another based on simple content features. That is, the lexical field comprises a set of lexical units sharing a common area of meaning based on immediate oppositions (VILELA, 1979, p.60).[14]

Thus, the lexical field is composed by a set of lexemes having common and distinctive features. Common features indicate that the lexemes belong to the same

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[13] Original: "[…] *agrupa palavras e expressões de significado semelhante sob cabeçalhos que informam o leitor a respeito de um determinado campo lexical*.".

[14] Original: "[...] *um paradigma lexical formado pela articulação e distribuição de um contínuo de conteúdo lexical por diversas unidades existentes na língua (palavras) e que se opõem entre si por meio de simples traços de conteúdo. Isto é, o campo lexical compreende um conjunto de unidades léxicas que dividem entre si uma zona comum de significação com base em oposições imediatas*.".

category. Distinctive features, in turn, highlight particular characteristics of the objects under description.

We have also consulted Nascimento's (1984) work, titled *Português Fundamental* [Fundamental Portuguese]. This work, the result of a quantitative and qualitative research conducted by the Linguistics Centre at the University of Lisbon, aimed to investigate lexemes commonly used in European Portuguese. Nascimento's work determines the focus of interest of Portuguese learners as L2 or as a Foreign Language (LE). This research has contributed to our dictionary model by helping us to identify lexical fields. Within this scope of interest, the following areas are conceived as lexical fields:

> […] human body; clothing; educational institutions (including people and things); health and diseases (excluding the names of diseases); personal hygiene; sports; meals; food and drinks; kitchen and cutlery; means of transportation; traveling; the city; village and field work; house and furniture; family and family life; love life; mail; media; shops; profession and occupation; art.

In order to check the mode of categorization of the lexical fields, we have also consulted the Visual Dictionary 3 in 1 (2011), by Dorling Kindersley Limited. This dictionary covers English, French, and Portuguese. It presents the lexicon organized in a systemic order; thus, after examining the lexical fields of the aforementioned dictionary, we have delimited the lexical fields of the new model of Portuguese analogical dictionary.

The computational program presents the parts of the dictionary interconnected using hyperlinks. If the user clicks on any lexeme in an entry from the analogical part, he or she is referred to the entry from the alphabetical part.

In order to structure the entries, we have adopted the methodological principles for the elaboration of lexicons, dictionaries and glossaries, postulated by Faulstich (2001), which served as the basis for preparing the lexicographical forms for the alphabetical part. The lexicographical form for the analogical part was based on Vilarinho's proposal (2010). The templates for both the alphabetical and the analogical forms can be seen in the following tables:

Figure 2 – Lexicographical Form for the alphabetical part

entry word	
grammatical category	
Gender	
variant(s)	
Area	
definition	
source of the definition	
source of the definition (abbreviated)	
context	
context source	
context source (date of publication)	
context source (abbreviated)	
reference to another entry	
hypernym	
note(s)	
Author	
Editor	
date	

Source: Faulstich (2001, with adaptations).

Figure 3 – Lexicographical Form for the analogical part

entry word		
grammatical category		
Gender		
definition		
source of the definition		
Noun	synonym	
	hypernym	
	meronym	
	holonymy	
	related concept	
verb		

Source: Oliveira (2010, p.28, with adaptations).

According to Faulstich (2010, p.181), in an entry, "[...] the context consists in the reproduction of a piece of text containing the lexeme in question, in order to demonstrate how it is used [...]".[15] Contexts, in this research, are taken from Sketch Engine. According

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[15] Original: "[…] *o contexto é um excerpto de texto no qual o lexema aparece registrado, transcrito com o fim de demonstrar como é usado* [...].".

to Kilgarriff et al. (2014), "[t]he Sketch Engine is a leading corpus tool, widely used in lexicography. Now, at 10 years old, it is mature software. The Sketch Engine website offers many ready-to-use corpora, and tools for users to build, upload and install their own corpora." This corpus tool enables us to perform a search that attests language in use. Therefore, contextualization based on corpora was chosen in order to prioritize language use. Furthermore, in lexicographic repertoires, the creation of contexts that can reproduce stereotypes or contexts that do not contribute to the understanding of the meaning of a lexeme should be avoided. Selected examples extracted from literary work aimed to complement the meaning of a lexeme and also to represent certain Brazilian cultural traits.

In this paper, variants are "[…] forms in competition with the entry word, [...] they correspond to one of the alternatives to denominate the same referent", as proposed by Faulstich (2001).[16]

The analogical part is innovative; therefore, it should be explained in detail. As nouns are grouped by semantic relations, we will explain each one of them. Semantic relations are recorded in the lexicographical forms using abbreviations. Synonymy, for instance, "[…] is meaning identity", according to Ilari and Geraldi (1943, p.42). This relation is established when there is a connection between lexemes in certain contexts and one lexeme may be replaced by the other. In the entry for *vestimenta* 'clothing, garment', for instance, we find the verbs *vestir* 'to dress' and *trajar* 'to wear', that can be synonymous in a given context. Synonyms are not always perfect, since this replacement may result in a change in meaning, depending on the context.

Hypernym and hyponym establish meaning inclusion, in the sense that the meaning of the hyponym is included in the hypernym. Thus, there is a hierarchical relationship: the subordination of the hyponym to the hypernym. The hypernym is the highest lexeme in the hierarchy, since its meaning includes the meaning of the subordinate lexeme (hyponym) (FAULSTICH, 1995, p.287). For example, in the entry for *veículo* 'vehicle', a hypernym, there are several hyponyms, such as: *bicicleta* 'bicycle', *carro* 'car', *carro de mão* 'wheelbarrow', *carroça* 'cart', *trenó* 'sled', among others. Therefore, hyponyms are members of the same category as the hypernym.

Holonym and meronym represent the hierarchical part-whole relationship. According to Gaudin and Guespin (2000, p.141), these relations "[…] establish between signs the relationship that language defines between referents. In order to elucidate the character of this linguistic relationship, we call *holonym* the whole and *meronym* the part."[17] These authors define 5 types of part-whole relations, described below.

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[16] Original: "[...] *formas concorrentes com a entrada, [...] correspondem a uma das alternativas de denominação para um mesmo referente*.".

[17] Original: "[…] *établissent les signes qui sont des relations celles que le langage dessine entre les referents. Pour le caractère indiquer linguistique de cette relation, on parle d›holonyme pour le tout et pour la partie méronyme*.".

1) Object/element: the part has a function in the whole, it is inseparable from the whole, and the part's name is not autonomous.
2) Set/member: the members form a set that is not necessarily homogeneous and each member is separable.
3) Mass/portion: mass consists of all the parts, all of which are homogeneous and have the same properties as the whole.
4) Object/constituent: the constituent is part of its holonym and inseparable from it, but the object and constituent are not homogeneous.
5) Activity/phase: the phase has a function within a temporal process.[18]

In what follows, each one of these types is exemplified. In the entry for *partes do corpo humano* 'parts of the human body', there is an example of the object/element relationship, since this entry lists the elements that constitute the object *cabeça* 'head'. For this object, we find the following lexemes: *sincipúcio* 'sinciput', *crânio* 'skull', *pericrânio* 'pericranium', *olho* 'eye', *testa* 'forehead', *orelha* 'ear', *rosto* 'face', *boca* 'mouth', *língua* 'tongue', among others (AZEVEDO, 2010, p.177-178). Thus, for the correct functioning of the human body, each part of the head performs a function. These elements are not separable from the object (i.e., the head), otherwise the body cannot function properly. In the entry for *vegetable*, the lexemes *floresta* 'forest' and árvore 'tree' are, respectively, a set and a member. The set of trees forms the forest, but not every tree looks the same, so they are not homogeneous.

The mass/portion relationship can be seen with the lexemes *flocos de neve* 'snowflakes' and *neve* 'snow', from the entry for *frio* 'cold'. Snowflakes are portions of snow, a mass noun.

Examples of object/constituent can be found in the entry for *doçura* 'sweetness'. For instance, *bala* 'candy' refers to a sweet made with *açúcar* 'sugar' (i.e., a type of jelly bean). Sugar is the constituent, since candy and sugar are not separable. However, sugar may be used to make other types of candy, not only jelly beans.

With respect to the activity/phase relationship, a year is divided into 12 months, and each month is a stage (or a phase). Months can be further divided into days, and days are phases of the month. In the entry for *tempo* 'time', we find the following lexemes: *ano* 'year', *day* 'dia', and *mês* 'month'. The first illustrates the activity, and the last two illustrate the phases or stages.

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[18] Original:
1) Objet/élément: la partie remplit une fonction dans un ensemble, la partie est inséparable de l'ensemble, le nom de partie n'est pas autonome.
2) Ensemble/membre: la réunion des membres forme un ensemble non nécessairement homogène, mais chaque membre est séparable.
3) Masse/portion: la masse est constituée de l'ensemble des portions, lesquelles sont toutes homogènes et possèdent les mêmes propriétés que l'ensemble.
4) Objet/constituant: le constituant entre dans la composition de son holonyme; il en est inséparable, mais l'objet et le constituant ne sont pas homogènes.
5) Activité/phase: la phase remplit une fonction au sein d'un processus temporel.

After this explanation, we will focus on the discussion of the associative relationship, which is more abstract. Therefore, it needs to be carefully defined. The associative relationship involves the notion of related concept, understood as a lexeme that is "[…] juxtaposed with another lexeme in the same hierarchical level, displaying a coordination of meanings, and its semantic content has the same value" (FAULSTICH, 1995, p.287).[19] Furthermore, the notion of related concept originates from the associative relationship, as the "[…] lexical units belong to the same domain, but these units are not hyponymies, nor equivalents or opposites. The meaning of one lexical unit, by analogy, refers to the meaning of the other lexical unit" (FAULSTICH, 1993, p.94).[20] We conclude that the guiding criteria for the associative relationship in the analogical dictionary are lexical inferences taking place in the mind of the speaker.

Cabrera and Filho (2007, p.14) postulate that lexical inferences are not based on formal inferences using logic symbols. Lexical inferences are "[…] inferences that seem valid in virtue of certain connections established between the terms, although its form is not supported by any sector of modern logic, classical or non-classical."[21] Thus, these inferences "[…] have the support of our native intuitions" (FILHO, 2007, p.20)[22] and are carried out through the process of reasoning.

Deductions made by the speaker of a language to establish connections between different lexemes occur in virtue of lexical inferences. Therefore, "[…] the existence of lexical inference seems evident in any language that contains terms with which it is possible to represent predicates" (FILHO, 2007, p.19).[23] The established connections are not only originated from relations with the meaning itself, but also arise from encyclopedic information, which depart from "[…] 'pragmatic' maneuvers in touch with the world" (FILHO, 2007, p.21).[24] Thus, we understand lexical inference as the cognitive process of interpreting predicates of a language by identifying connections between the meanings of lexemes or through encyclopedic information stemming from the world knowledge shared by a society.

For instance, lexemes that display an associative relationship with the entry for *transporte* 'transportation' include the following related concepts: *aceleração* 'acceleration', *ambulância* 'ambulance', *atropelamento* 'running over', *batida* 'hit', *colisão* 'crash', *condução* 'driving', *deslocamento* 'displacement', *locomoção* 'locomotion', *mobilidade* 'mobility', *movimentação* 'movement', *navegação* 'navigation', *velocidade* 'speed', *voo* 'flight', *tráfego* 'traffic', *trânsito* 'transit', *viagem*

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[19] Original: "[…] *justaposto em um mesmo plano hierárquico, que se encontram em coordenação de significados, e seus conteúdos semânticos são de mesmo valor.*".

[20] Original: "[…] *unidades lexicais pertencem à mesma esfera de domínio, mas não são nem hiponímicos, nem equivalentes, nem opositivos. O significado de um remete, por analogia, ao outro.*".

[21] Original: "[…] *inferências que parecem válidas em virtude de certas conexões entre termos, embora sua forma não seja amparada por nenhum setor da lógica moderna, clássica ou não-clássica.*".

[22] Original: "[…] *têm apoio de nossas intuições nativas.*".

[23] Original: "[…] *a existência de inferências lexicais parece evidente em qualquer linguagem que contenha termos, com os quais se possam representar predicados.*".

[24] Original: "[…] *de manejos 'pragmáticos' em contato com o mundo.*".

'travel', *carro* 'car', *caminhoneiro* 'truck driver', *carroceiro* 'teamster', *ciclista* 'cyclist', *condutor* 'conductor', *motorista* 'driver', *motociclista* 'rider', and *taxista* 'taxi driver'.

As shown above, the related concepts are in coordination with the entry word, *transporte* 'transport' by analogy. It is possible to analyze the link between related concepts and the entities of meaning by observing the relationship between the lexemes such as *aceleração* 'acceleration' and *transporte* 'transport'. The latter means 'vehicle for conveying people or cargo'. The former means 'a process, an increase in speed'. The relation identity between these meanings is such that, as *transporte* 'transporte' is a system or means to move from one place to another, this movement may involve *aceleração* 'acceleration', that is, an increase in speed. Therefore, we have made lexical inferences to apprehend the link between the lexemes, since there is a relationship between the meaning of the two lexemes.

Another example of relation identity between lexemes is the link between *transporte* 'transport' and related concepts such as: *caminhoneiro* 'truck driver', *carroceiro* 'teamster', *ciclista* 'cyclist', *condutor* 'conductor', *motorista* 'driver', *motociclista* 'motorcyclist', and *taxista* 'taxi driver'. These lexemes refer to the human beings who drive some kind of vehicle, therefore, involving the meaning of transport.

The associative relationship can be further divided into subclasses, in order to group together concepts with greater semantic proximity. For each entry of the analogical dictionary, it is necessary to delimit the subclasses of related concepts, so that each subclass corresponds to a particular sense of the word. An example of these subclasses would be *local* 'location' and *profissão* 'profession, occupation', as further depicted in Figure 6.

Applied Linguistic Theories

The proposal for the analogical dictionary is based on Linguistic Theories of Cognitive Semantics, namely: the Extended Version of Prototype Theory and Frame Semantics. The entry word is the family. The words are family members, belonging to the same entry by virtue of having at least one common feature serving as the association with another referent that also belongs to the family.

The Extended Version of Prototype Theory is a model that predicts (but does not require) that members of the same category have features in common. In order to justify the fact that the sharing of common features is not a requirement, Schlyter (1982, p.12 apud KLEIBER, 1990, p.156) states the following: "[t]here are few properties, if any, that are shared among all peripheral individuals, there is only a family resemblance or similarity between individuals and the prototype."[25]

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[25] Original: "*Il y a peu de propriétés, peut-être aucune, qui sont tous les communes to individus périphériques, il n'y a qu'une famille des ressemblance or ressemblances avec le prototype.*".

The notion of family resemblance, a fundamental concept in this theory, is defined below:

> […] it characterizes a set of similarities between different instances of the same family. However, the crucial question is to determine what similarities are these: properties that are not necessarily shared by all members, but which are found in at least two members (KLEIBER, 1990, p.157-158).[26]

Thus, family resemblance is the property that justifies the fact that the members of a class are interconnected, although there is no common property defining the category. The idea of family resemblance was first proposed by Wittgenstein (1953). Based on this concept, categories are connected at the sides, not at the center, as shown below in Givón's scheme (1986 apud KLEIBER, 1990, p.160) in Figure 4.

Figure 4 – Representation of prototypicality effects
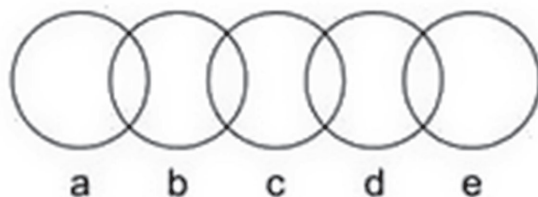
Source: Kleiber (1990, p.160).

It is not necessary that a common property is shared among objects in a given series, as in the standard version of the theory. Thus, "[…] family resemblance may then involve a set of referents A, B, C, D, E interconnected by associative relations: AB BC CD DE that justify a common denomination" (KLEIBER, 1990, p.159).[27]

Categorization is justified by associative links between different referents, not by a common link shared among them. Family resemblance, on the contrary, does not necessarily involve a property that is shared by all members, but a common property that is shared by at least two members (KLEIBER, 1990, p.157-159).

Regarding Frame Semantics, Charles J. Fillmore, an American Professor at the University of California, postulated in the Seventies a theory based on "[…] the

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[26] Original: "[...] *caractérise un ensemble de similarités entre différentes occurrences d'une même famille. La question cruciale est cependant de voir quelles sont ces ressemblances: ce sont des propriétés qui n'ont pas besoin d'être partagées par tous les membres, mais que l'on retrouve au moins chez deux membres.*".

[27] Original: "[...] *une ressemblance de famille peut donc consister en un ensemble referents A, B, C, D, E unis between par eux des relations de type associatif: AB BC CD justifient qui une appellation commune.*".

hypothesis that the human conceptual apparatus is not composed by individual concepts, but by conceptual sets internally structured" (SILVA, 1999, p.20).[28]

The guiding principles of Frame Semantics are 'scene', 'schema' and 'frame'. Scene refers to "[…] experiences in the real world, actions, objects, perceptions and personal memories",[29] according to Fillmore (1975, p.82). Frame "[…] refers to the linguistic units associated with the cognitive scene, [...] they presuppose a fairly complete understanding of the nature of the total transaction or activity" (FILLMORE, 1975, p.78-79). The scene can activate the frame and vice versa. Frames are associated in memory with other frames, as well as scenes are related to other scenes (FILLMORE, 1977b, p.127).

Schema refers to "[…] conceptual structures or frameworks that are linked together in the categorization of actions, institutions and objects found in sets of contrast, object prototypes, among other" (FILLMORE, 1977b, p.27). Faulstich (2010, p.192), interpreting Fillmore's ideas, argues that:

> […] the notion of schema is equivalent to an action frame or a larger context within which each lexical item has its own meaning. This frame is organized, consequently, from a set of notions or clues that becomes necessary for the characterization of an event, for example, an advertising message.[30]

According to Fillmore (1977a, p.77), "[t]he study of semantics is the study of the cognitive scenes that are created or activated by utterances." The author exemplifies this statement as follows: "[w]henever a speaker uses any of the verbs related to the commercial event, for example, the entire scene of the commercial event is brought into play — is "activated" — but the particular word chosen imposes on this scene a particular perspective." In this context, a person who listens and understands each utterance has the scene in mind, with all the necessary aspects of the event. The meanings are relativized to scenes. Words related to the scene are the frames. The set of frames of this event gives rise to the schema.
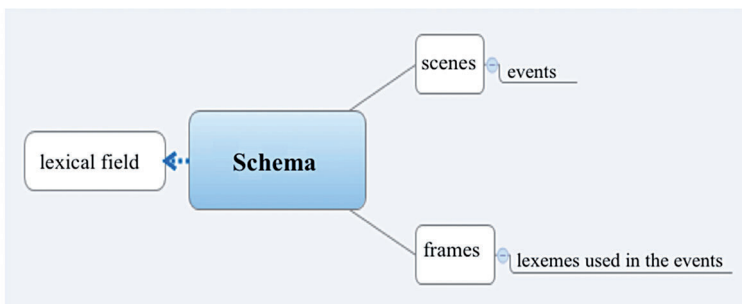
In the realm of analogies established in the analogical dictionary, it is possible to apply Frame Semantics. The scenes depicted in events select frames, which are the lexemes related to the event. The scene and frames form the schema, consisting of a lexical field, as exemplified below in Figure 5.

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[28] Original: "[…] *parte da hipótese de que o aparato conceptual humano é constituído não por conceitos isolados, mas por conjuntos conceptuais internamente estruturados*.".

[29] Original: "[…] *experiências do mundo real, ações, objetos, percepções e memórias pessoais*.".

[30] Original: "[…] *a noção de esquema é equivalente à de um quadro de ação ou de um contexto maior, dentro do qual cada item lexical tem uma significação própria. Esse quadro se organiza, por consequência, a partir de um conjunto de noções ou de pistas que se tornam necessárias para a caracterização de um acontecimento, como, por exemplo, uma mensagem publicitária*.".

Figure 5 – Application of Frame Semantics

Given the above, we believe that the target audience of analogical dictionaries need to have access to words that will be useful to build lexical fields' scenes and schema. Therefore, the analogies to be established cannot be restrictive, nor excessive. In view of this observation, when selecting words to compose each entry, we have adopted as a criterion the inclusion of words that allow the speaker to build scenes, using schemes established through frames. In the case of analogical verbs, we have considered frames that may occur in the scenes. Fillmore's studies, therefore, have helped us to include verbs that are generally used communication situation.

In order to illustrate this, we present the entry for *vestuário* 'clothing' from the clothing lexicon, made up, for example, by the following lexemes: *traje* 'costume', *roupa* 'clothes', *veste* 'garment', *vestuário* 'raiments', among others. The category *vestuário* 'clothing' forms the family. The set of similarities between the different entities of the same family is known as family resemblance, consisting of the common semantic features shared by members of the same family. The words denote a series of objects, so that it is necessary and sufficient that each member from the same category has at least one property in common with other members of the same category. This means that the word *calça* 'pants' shares with *blusa* 'blouse' at least one feature; *blusa* shares a property with *casaco* 'coat', and *casaco* shares a property with *saia* 'skirt' and so on. In what follows, we present the entry for *vestuário* 'clothing', from the analogical dictionary (with adaptations), with the application of the Extended Version of Prototype Theory.[31]

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[31] In Figure 6, "família/esquema" means "family/schema", and "membro da família/frame" means "member of the family/frame". Additionally, in this entry (and in all subsequent entries presented in this paper), the abbreviation "*m.n.*" stands for "masculine noun", and "*f.n.*" stands for "feminine noun".

Figure 6 – Entry from the analogical dictionary with the
application the Extended Version of Prototype Theory

família/esquema

vestuário *s.m.* peça de roupa que serve para cobrir qualquer parte do corpo humano.

membro
da família/
frame

substantivo

sin. indumentária, indumento, traje, roupa, vestes, vestimenta.
hip. v. acessório, agasalho, anágua, *baby look*, baloné, bata, bermuda, biquíni, bolero, blazer, blusa, burca, calcinha, calça, v. calçado, calção, camisa, camiseta, camisete, camisola, capa, capa de chuva, capacete, casaco, cigarrete, cinta, colete, combinação, cueca, espartilho, farda, fio-dental, fraque, jaleco, jaqueta, jardineira, *legging*, *lingerie*, longuete, macacão, macaquinho, maiô, moletom, paletó, pantalona, pijama, pulôver, robe, roupão, saia, salopete, segunda pele, *short*, *smoking*, sobretudo, suéter, sunga, sutiã, tanga, terminho, terno, túnica, uniforme, vestido.
mer. alça, algodão, aplicação, barra, botão, capuz, cós, couro, colarinho, *jeans*, forro, malha, manga.
con. (lugar) 1 brechó, butique, loja.
con. (lugar) 2 guarda-roupa, provador, vestiário.
con. (profissional) 3 alfaiate, costureiro, designer, editor de moda, estilista, figurinista, modelista, produtor.
con. 4 coleção, corte, costura, grife, elegância, estilo, moda, mostruário, trapo.

verbo

agasalhar, ajustar, aprontar, arrematar, arrumar, colocar, cortar, costurar, engravatar, estar com, experimentar, fardar, fantasiar, lavar, manchar, modelar, molhar, passar, provar, rasgar, secar, tirar, vestir, uniformizar, usar.

Source: Vilarinho (2013, with adaptations).

By analyzing concepts from the Extended Version of Prototype Theory and Frame Semantics, we see similarities between these theories to be applied to the analogical dictionary's entry. As an example, we have seen that the entry for *vestuário* 'clothing' groups together a set of lexemes, which forms a lexical field, constituting the schema. The schema involves scenes that, when implemented, activate lexemes. The speaker can produce an utterance, such as: "*A modelo vestiu o casaco da moda*" ("the model wore the fashionable coat"). In this example, the scene is motivated by the action performed by the agent (i.e., the model). The lexemes: *modelo* 'model', *vestiu* 'wore', *casaco* 'coat', and *moda* 'fashionable' are the frames, generating the schema of the scene. When there is a scene, there is a selection of frames that creates the schema.

Presentation of the Dictionary

We are unaware of any previous work that has successfully achieved the goals that this project aims to achieve, and the outcome of the present project will be made available in computerized form. Therefore, this research will contribute to the technological development of our country. In addition, DIALP is an innovation, since

there are no Portuguese analogical dictionaries targeting learners of BPSL. Thus, the dictionary to be developed will provide learners of Brazilian Portuguese as a Second Language with a helpful tool to develop communication skills in an immersion environment.

The content of DIALP is intended for:

i.   learners of Portuguese as a Second Language, since the analogical organization of the dictionary may lead them to the meaning of the desired lexeme;

ii.   designers of language activities, crossword puzzles, word games and quizzes, since these professionals consult sets of related linguistic units;

iii. teachers, students, lecturers, editors, and other professionals, who need a range of word choices, both from oral and written production, and/or are looking for expanding their vocabulary;

iv. composers, poets, writers, translators, journalists, and people looking for the arrangement of words with related meanings;

v.   lexicographers, terminologists, and terminographers, who need to identify notional, semantic, lexical, and associative fields, as well as lexical relations, and also to establish cross-reference systems in dictionaries, glossaries, lexicons and vocabularies; and

vi. researchers, indexers, documentalists, and laypeople, who intend to perform onomasiological searches and see how words of a language can be categorized in a systematic way.

DIALP is available online at: www.dicionarioonlineanalogico.com.br, a website that enables dynamic and continuous access to the dictionary. The entries were elaborated by senior undergraduate students, majoring in Brazilian Portuguese as a Second Language, by following the methodology described in this paper. Students enrolled in Course Project: Multimedia Elaboration have worked on the entries as their Final Project (i.e., Senior Thesis), linked to the project titled "Application of the methodological steps of Lexicology, Lexicography, Terminology, and Terminography to systematize lexemes and terms", coordinated by Prof. Dr. Michelle Machado de Oliveira Vilarinho.

At the present stage of development, there are seven entries in the analogical part. These entries govern the elaboration of entries for the alphabetical part, which is composed of 205 entries. The research is still in progress, therefore more entries will be added to both parts. Lexemes added to the nomenclature of DIALP that were not collected from the work of Azevedo (2010) appear underlined. The information for grammatical category and gender is abbreviated in the entries. Furthermore, crossreferencing is made with the use of the abbreviation "*cf.*", which refers the user to the analogical part of the dictionary.

In what follows, we present the entries for *alimentação* 'eating', *estudo* 'study', *família* 'family', *lazer* 'leisure', *trabalho* 'work', *transporte* 'transportation', and *vestuário* 'clothing', from the analogical part of the dictionary.

Figure 7 – Entry for 'eating'

alimentação *s.f.* **1** abastecimento com substâncias para nutrição.		
substantivo	**Sinônimo** alimento, iguaria, manutenção, rango, sustentação, sustento. **Conceito conexo (utensílio doméstico)** bateria de cozinha, colher, escorredor, espremedor, faca, fôrma, frigideira, garfo, louça, panela, prato, rolo, saladeira, salseira, talher, travessa, tigela, trincho, vasilha. **Conceito conexo (refeição)** almoço, café da manhã, ceia, colação, consoado, *fast-food*, jantar, lanche, sobremesa. **Conceito conexo (profissão)** atendente, confeiteiro, cozinheiro, garçom, garçonete, nutricionista, padeiro. **Conceito conexo (lugar)** bar, cafeteria, cantina, churrascaria, confeitaria, copa, cozinha, espaço *gourmet*, feira, lanchonete, padaria, pizzaria, restaurante, sorveteria, supermercado. **Conceito conexo** alimento, apetite, bulimia, cardápio, *chef*, churrasco, comes e bebes, comestíveis, comilança, comilão, deglutição, degustação, dieta, desjejum, gastronomia, gastrônomo, gula, gulodice, guloseima, guloso, indigestão, ingestão, *maître*, mantimentos, mastigação, menu, pitéu, quitute, rapa, recheio, subsistência, sustança, trituração, voracidade.		
	Remissões (VILARINHO, 2013)	*cf.* acompanhamentos; *cf.* bebida; *cf.* condimento e tempero; *cf.* entrada; *cf.* grão; *cf.* fruta; *cf.* legume e verdura; *cf.* massas; *cf.* prato principal; *cf.* sobremesa
verbo		abarrotar, absorver, alimentar, almoçar, amamentar, beber, cear, chupar, comer, comer um boi, consumir, dar de beber, dar uma dentada, deglutir, degustar, desjejuar, devorar, digerir, empanturrar, empanzinar, encher, encher o bucho, engolir, engordar, ingerir, fartar, jantar, lamber, lanchar, manter, mascar, matar a fome/sede, lambiscar, mastigar, merendar morder, nutrir, por à boca, provar, papar, petiscar, provar, quebrar o jejum, rangar, regar, saborear, saciar, satisfazer, sustentar, tomar, triturar.

Source: Linhares e Vilarinho (2016, p.261-262).

Figure 8 – Entry for 'study'

estudo *s.f.* **1** processo de exercer atividades de aprendizagem e de conhecimento para compreender algo que se desconhece ou de que se tem pouco conhecimento; **2** conhecimento adquirido pela aplicação da inteligência; **3** trabalho que precede a execução de uma obra artística ou científica; **4** investigação artística ou científica sobre determinado assunto; **5** observação, exame minucioso de algo; análise (Houaiss, adapt.).	
substantivo	**conceito conexo (atividade)** dissertação, ensaio, esboço, estágio, fichamento, lição, monografia, relatório, resenha, resumo, portfólio, prova, sabatina, seminário, tese, tarefa de casa.
	conceito conexo (evento) curso, palestra, seminário.
	conceito conexo (exposição) aula, instrução.
	conceito conexo (disciplinas da educação básica) artes, biologia, educação física, ensino religioso, filosofia, física, geografia, história, língua espanhola, língua inglesa, língua portuguesa, matemática, química, sociologia.
	conceito conexo (instituição) academia, colégio, conservatório, creche, educandário, escola, escola-modelo, externato, faculdade, ginásio, instituto, internato, jardim de infância, maternal, universidade, escola.
	conceito conexo (local) anfiteatro, classe, plataforma, púlpito, tablado, tribuna, laboratório, sala de aula.
	conceito conexo (móvel/objeto) apagador, cadeira, carteira, giz, lousa, livro, material, pincel, púlpito, quadro.
	conceito conexo (nível de escolaridade) doutorado, educação básica, educação infantil, ensino fundamental, ensino médio, ensino superior, graduação, mestrado, pós-graduação.
	conceito conexo (pessoa/grupo de pessoas) aluno, congregação, discente, discipulado, docente, estudante, internado, mestrança, professorado, professor, universitário.
	conceito conexo (procedimento) adiantamento, aproveitamento, matrícula.
	conceito conexo (processo) admissão, aprendizado, aprendizagem, ensino, extensão, investigação, orientação, pensamento, progresso, regência, reflexão, revisão, análise, pesquisa.
	conceito conexo aptidão, cátedra, ciência, cognição, cultura, disciplina, docência, erudição, habilidade, leitura, livre docência, magistério, noviciado, postulado, pré-vestibular, matéria, vestibular.
verbo	adquirir, analisar, anotar, aplicar, aprender, aprimorar, aprofundar, assimilar, armazenar, colher, compreender, cursar, decorar, dedicar, defender, diplomar, dissertar, educar, ensaiar, ensinar, entender, escrever, estar, estudar, explicar, fazer, folhear, formar, frequentar, graduar, instruir, ler, matricular, obter, orientar, passar, pensar, pesquisar, pós-graduar, preparar, progredir, receber, refletir, repassar, revisar, saber, ser, soletrar.

Source: Peres e Vilarinho (2016, p.163-164).

Figure 9 – Entry for 'family'

família *s.f.* **1** grupo de pessoas ligadas por laços sanguíneos, casamento, união estável, afinidade ou adoção, cuja função é cuidar uns dos outros.	
substantivo	**Sinônimo** parentela; parente.
	Merônimo adúltero, afilhado, amante, avó, avô, bastardo, bisavó, bisavô, bisneto, comadre, compadre, cunhado(a), enteado, esposa, filho, gêmeos, genro, irmã, irmão, irmão caçula,irmão de criação, irmão de leite, irmão do meio, irmão gêmeo, irmão mais velho, madrastra, madrinha, mãe, mãe de aluguel, mãe de leite, mãe solteira, marido, meio irmão, neto, nora, órfão, padrasto, padrinho, pai,pai biológico, pai de criação, pai de família, pai solteiro, pais, parente, primo,primo-irmão, primo-segundo, sobrinho, sogra, sogro, tetraneto, tetravô, tia, tia-avó, tio, tio-avô, trineto, trisavô.
	Variante mamãe, papai, titio(a), vó, vô, vovó, vovô.
	Conceito conexo adulterino, ancestrais, ancestralidade, antepassado, árvore genealógica, ascendência, ascendente, casamento, casta, consaguinidade, descendência, divórcio, estirpe, filiação, fraternidade, genearca, genitor, herdeiro, linhagem, maternidade, nepostismo, parentesco, paternidade, patriarca, primogênito, raça, sangue, sanguinidade, separação, tribo, unigênito.
	Conceito conexo (lugar) casa, lar.
verbo	adotar, amamentar, apadrinhar, batizar, criar, cuidar, descender, educar, filiar, ser da família de, ser do mesmo sangue de alguém, ser parente.

Source: Carvalho (2014).[32]

Figure 10 – Entry for 'leisure'

lazer *s.m.* **1** tempo que sobra do horário de trabalho e/ou do cumprimento de obrigações, utilizado para fazer atividades que causam alegria e satisfação. (Adaptado do Houaiss)	
substantivo	**Sinônimo** descanso, diversão, divertimento.
	Conceito conexo acampamento, brinco, *camping*, distração, entretém, entretenimento, entretimento, espairecimento, excursão, farra, feriado, férias, folga, folguedo, passatempo, passeio, piquenique, ponto facultativo, recreação, recreio, repouso, solaz, sueto, turismo.
	Conceito conexo (lugar) academia, campo de futebol, cinema, clube, estádio, feira, jardim zoológico, parque, praça, praia, teatro, quadra, shopping.
remissões	*cf.* brincadeira, *cf.* brinquedo, *cf.* jogo, *cf.* esporte, *cf.* música, *cf.* evento, *cf.* filme.
verbo	alegrar-se, aproveitar, bailar, batucar, brincar, curtir, dançar, descansar, desenfadar-se, desentediar, dispor do seu tempo, distrair-se, divertir, dormir à sombra dos louros, empinar um papagaio, entregar-se as distrações, entreter, entreter-se, esbaldar-se, espairecer, estar em férias, farrear, fazer arraial, fazer, avenida, feriar, folgar, folgazar, foliar, garotar, garrir, jardinar, jogar, jogar entrudo, matar o tempo, passar a vida alegre e folgada, passear, pimpar, pintar e bordar, pintar o sete, polcar, recrear, recrear-se, refocilar-se, relaxar, repimpar-se, repousar, saltar, sambar, sapatear, sossegar, ter férias, ter o seu tempo livre, ter/dar folga, tomar férias, traquinar, trebelhar, tripudiar, valsar.

Source: Lima (2014).[33]

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[32] This entry was written by Rebeca de Almeida Carvalho for her Final Project "Lexical field for 'family': entries for DIALP", during the second semester of 2014.

[33] This entry was written by Fernanda Souza de Lima for her Final Project "A proposal for entries to compose DIALP's lexical field of 'leisure'", during the second semester of 2014.

Figure 11 – Entry for 'work'

	trabalho *s.m.* **1** ocupação, esforço físico e/ou mental a fim de alcançar determinado objetivo. **2** atividade remunerada ou não.
substantivo	**Sinônimo** emprego, negócio, ocupação, ofício, quefazer, serviço, trabalho. **Conceito conexo (transação)** crédito, débito, DOC, empréstimo, financiamento, investimento, operação, parcelamento, TED, transferência. **Conceito conexo (níveis de formação)** aperfeiçoamento, especialização, graduação. **Conceito conexo (local)** campo, comércio, departamento, divisão, empresa, escritório, esfera, indústria, loja, lugar, mercadoria, ministério, posto, repartição, setor, venda. **Conceito conexo (estratégia empresarial)** marketing, merchandising, otimização, publicidade. **Conceito conexo (método de trabalho)** automação, informatização, reciclagem. **Conceito conexo (característica profissionals)** ambição, cuidado, competência, competitividade, comprometimento, dinâmica, entusiasmo, especialidade, operosidade, participação, pontualidade, sujeição, tática. **Conceito conexo (estratégia operacional)** agenda, balanço, cronograma, gráfico, orçamento, organização, organograma, planejamento, planilha. **Conceito conexo (atribuição)** dever, dom, encargo, encomenda, função, habilidade, incumbência, ministério, missão, obra, obrigação, papel, plano, posição, posto, projeto, propensão, vocação. **Conceito conexo (profissão)** administrador, advogado, agente de viagens, agricultor, agrônomo, alfaiate, analista de sistemas, antropólogo, arquiteto, artista, artista plástico, ator, barbeiro, biólogo, carpinteiro, cientista político, cineasta, chapeleiro, comunicador social, contador, costureira, dentista, desenhista industrial, designer, diarista, economista, editor, eletricista, enfermeiro, engenheiro, escritor, esportista, estilista, fabricador, fabricante, farmacêutico, filólogo, físico, fisioterapeuta, fonoaudiólogo, gráfico, historiador, joalheiro, jornalista, juiz, lenhador, lexicógrafo, maquinista, marceneiro, marinheiro, matemático, mecânico, médico, militar, mineiro, motorista, músico, nutricionista, operador, operário, ourives, paisagista, pedagogo, piloto, programador, professor, promotor, psicanalista, psicólogo, publicitário, químico, relojoeiro, sapateiro, serralheiro, sociólogo, tecelão, técnico, urbanista, veterinário. **Conceito conexo 8** arte, carreira, comissão, custeio, custo, déficit, especialidade, estipêndio, estímulo, estratégia, estruturação, exercício, incentivo, logística, lucratividade, lucro, metodologia, mercadoria, ônus, orçamento, ordenado, prática, profissão, provento, ramo, rentabilidade, tarefa, tirocínio.
verbo	administrar, advogar, agenciar, analisar, aperfeiçoar, aplicar, arquitetar, assumir, atuar, clinicar, conduzir/efetuar/ fazer, costurar, cuidar, dedicar, desempenhar, desenhar, destinar, dirigir, editar, empenhar, empreender, empregar, encarregar, ensinar, entrar, entregar, envolver, escrever, especializar, estabelecer, estar, exercer, fabricar, funcionalizar, gastar, gerenciar, incumbir, lexicografar, medicar, ocupar, operar, pilotar, programar, realizar, reciclar, responsabilizar, sacrificar, seguir, ser, servir, suportar, negociar, ter/possuir/desfrutar, tomar, trabalhar, tratar.

Source: Nóbrega e Vilarinho (2016, p.181-182).

Figure 12 – Entry for 'transportation'

transporte *s.m.* **1** veículo utilizado para locomoção de passageiros ou cargas.	
substantivo	**Hipônimo** automóvel, avião, barco, bicicleta, bote, bonde, caminhonete, camioneta, caminhão, caminhão-trator, canoa, carro, carro-de-mão, carroça, ciclomotor, charrete, metrô, micro-ônibus, motocicleta, motoneta, mototáxi, navio, ônibus, quadriciclo, reboque, riquixá, semi-reboque, submarino, táxi, trator, trem, trem-bala, trenó, triciclo, Veículo Leve sobre Pneus (VLP), Veículo Leve sobre Trilhos (VLT). **Merônimo** acelerador, amortecedor, banco, buzina, cabine, capô, cinto de segurança, embreagem, escapamento, hélice, farol, freio, limpador de para-brisas, macaco, marcha, painel, motor, para-choque, para-brisa pedal, pisca-alerta, placa, para-choque, porta-mala, pneu, porta, radiador, retrovisor, roda, teto, triângulo, vagão, vela, vidro, volante. **Conceito conexo (profissional) 1** caminhoneiro, carroceiro, ciclista, condutor, motociclista, motorista, taxista. **Conceito conexo 2** aceleração, ambulância, atropelamento, batida, colisão, condução, deslocamento, locomoção, mobilidade, movimentação, navegação, sinalização, velocidade, voo, tráfego, trânsito, viagem, viatura.
verbo	acelerar, afundar, atropelar, aumentar, bater, colidir, correr, deslizar, deslocar, diminuir, frear, mover, transportar, quebrar, voar.

Source: Vilarinho (2013, p.167).

Figure 13 – Entry for 'clothing'

vestuário *s.m.* **1** peça de roupa que serve para cobrir qualquer parte do corpo humano.	
substantivo	**Sinônimo** indumentária, indumento, traje, roupa, vestes, vestimenta. **Hipônimo** v. acessório, agasalho, anágua, *baby look*, *balonné*, bata, bermuda, biquíni, bolero, blazer, blusa, burca, calcinha, calça, v. calçado, calção, camisa, camiseta, camisete, camisola, capa, capa de chuva, capacete, casaco, cigarrete, cinta, colete, combinação, cueca, espartilho, farda, fio-dental, fraque, jaleco, jaqueta, jardineira, *legging*, *lingerie*, longuete, macacão, macaquinho, maiô, moletom, paletó, pantalona, pijama, pulôver, robe, roupão, saia, salopete, segunda pele, *short*, *smoking*, sobretudo, suéter, sunga, sutiã, tanga, terminho, terno, túnica, uniforme, vestido. **Merônimo** alça, algodão, aplicação, barra, botão, capuz, cós, couro, colarinho, forro, jeans, malha, manga. **Conceito conexo (lugar) 1** brechó, butique, loja. **Conceito conexo (lugar) 2** guarda-roupa, provador, vestiário. **Conceito conexo (profissional) 3** alfaiate, costureiro, designer, editor de moda, estilista, figurinista, modelista, produtor. **Conceito conexo 4** coleção, costura, corte, *griffe*, elegância, estilo, moda, mostruário, trapo.
verbo	agasalhar, ajustar, aprontar, arrematar, arrumar, colocar, cortar, costurar, engravatar, estar com, experimentar, fardar, fantasiar, lavar, manchar, modelar, molhar, passar, provar, rasgar, secar, tirar, vestir, uniformizar, usar.

Source: Vilarinho (2013, p.168-169).

For the elaboration of definitions to compose the alphabetical part, when possible, we have adopted the model 'what is it' + 'what for', known as 'pragmatic definition', as proposed by Faulstich (2014, p.382). The first question is answered with the hypernym. The second question is answered with the functionality of the unit being defined. The adaptation of this model is based on the specificity of the lexeme to be defined, as detailed in the following figure (with adaptations).

Figure 14 – Model of the definition

Field	Model of the definition	Entry
alimentação 'eating'	+ hypernym (professional or individual), ± area of activity (food and health), + function. + hypernym (place, shop), + function	**churrascaria**[34] *s.f.* **1.** restaurante cujo prato principal é o churrasco, que geralmente é servido em rodízios. *"Para completar, o rodízio da churrascaria terá um preço especial para quem participar do evento, apenas R$25,00 por pessoa."* (PF[35], 2014). *Cf.* alimentação (parte analógica)
estudo 'study'	+ level of education, + function	**doutorado**[36] *s.m.* **1.** o grau/graduação de doutor. **2.** curso de pós-graduação *stricto sensu* de mais elevada titulação no Brasil, para obtenção do título de doutor, o que torna o profissional especializado em área de conhecimento. "O ex-bolsista do programa Ciência sem Fronteiras (CsF) [...] concluiu o ***doutorado*** no Programa de Pós-Graduação em Engenharia Química da Universidade Federal do Ceará (UFC)." (CAPES)[37]. **[**No curso de doutorado, o estudante precisa defender a tese, que deve ser original, resultante de pesquisa acadêmica. Se for aprovado no exame de defesa da tese, obterá o diploma de doutor. A duração mínima para o doutorado são 2 anos, mas o tempo regulamentar do curso são 48 meses (4 anos). Após o doutorado, o profissional pode realizar estágio pós-doutorado (denomina-se o profissional como PhD). Para esse estágio, não há nova titulação. (MEC, CAPES, adaptado por APP)**]**.

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[34] Entry for *churrascaria* 'steak house' written by Linhares e Vilarinho (2016, p.263).

[35] *Portal Fluminense* is abbreviated to PF. Available at: <http://portalfluminense.com.br/futebol/16/09/2014/fluminense-oferecera-para-cada-socio-um-ingresso-gratuito-para-jogo-com-o-vitoria/14083/>. Accessed date: September 30, 2014.

[36] Entry for *doutorado* 'Doctorate' written by Amanda Pereira Peres.

[37] Coordenação de Aperfeiçoamento de Pessoal de Nível Superior abbreviated to CAPES. Available at: <http://www.capes.gov.br/sala-de-imprensa/noticias/7441-bolsista-do-ciencia-sem-fronteiras-recebe-duplo-diploma-de-doutorado>. Acessed date: April 6, 2015.

Field	Model of the definition	Entry
família 'family'	+ kinship, ± function	**marido**[38] *s.m.* **1.** homem casado em relação à pessoa a quem se uniu cuja função é proteger a família. *"O marido ou esposa é herdeiro havendo ou não filhos ou pais do falecido"* (GOG[39], 2014). *Cf.* Família (parte analógica).
vestuário 'clothing'	+piece of clothing (hypernym), ± masculine or feminine, +characteristics (part of the body that it covers)	**pijama**[40] *s.m.* **1.** peça do vestuário usada para dormir, composta de blusa e short, ou blusa ou calça. *"O pai vestia o pijama depois do jantar e se deitava com os filhos para contar histórias".* (CB[41], 2016). *Cf.* vestuário (parte analógica)
transporte 'transportation'	+vehicle, +type of propulsion (humane; animal traction; fuel; electricity; impellent power) ±number of wheels (1; 2; 3; 4; or more than 4 wheels), +means of displacement (rails, road water, air, ice or snow) +specificity of use (to transport cargo, passenger or agricultural use or mecanized earthmoving)	**ônibus**[42] *s.m.* **1.** veículo motorizado, movido por combustível, com quatro rodas, usado na locomoção por via, para transporte coletivo de passageiros. *"Há ônibus que percorrem toda a ilha, passam em média a cada três minutos e despejam os passageiros no centro da cidade"* (CB, 2016). *Cf.* transporte (parte analógica).
trabalho 'work'	+ hypernym, + function	**arquiteto**[43] *s.m.* **1.** profissional que planeja e elabora projeto de construção e reforma. *O projeto da reforma é do arquiteto paulistano Jorge Elias* (CB, 2016). *Cf.* Profissão (parte analógica).

Source: Vilarinho (2017)[44].

The adoption of this model serves to standardize entries that belong to the same category. However, it is not always possible to follow this model. In any case, there was an effort to make explicit the categorization, based on the object's hypernym and functionality.

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[38] Entry for *marido* 'husband' written by Rebeca Carva*lho*.

[39] Gazeta On-line Globo abbreviated to GOG. Available at: <http://gazetaonline.globo.com/_conteudo/2013/03/cbn_vitoria/artigos/1417143-como-fica-o-direito-de-heranca-e-a-igualdade-entre-os-filhos-na-hora-de-herdar-um-imovel.html>. Acessed date: September 28, 2014.

[40] Entry for *pijama* 'pajamas' written by Vilarinho (2016) for the purpose of this research.

[41] Corpus Brasileiro abbreviated to CB. Available at: <http://www.linguateca.pt/acesso/corpus.php?corpus=CBRAS>. Acessed date: February 15, 2016.

[42] Entry for *ônibus* 'bus' written by Vilarinho (2017), for the puruposes of this research.

[43] Entry for *arquiteto* 'architect' written by Nóbrega e Vilarinho (2016, p.184).

[44] Table made for the puruposes of this research.

Final remarks

To summarize, based on the application of Kleiber's (1990) Extended Version of Prototype Theory, Fillmore's (1977) Semantic of Frames, as well as on the reformulation of entries from Azevedo's (2010) analogical dictionary, it was possible to present the model for DIALP. In the present research, we have adopted the methodological principles for the elaboration of lexicons, dictionaries and glossaries, as postulated by Faulstich (2001), as well as Vilarinho's (2013) proposal. In addition, we have adopted the pragmatic definition model (FAULSTICH, 2014, p.382) to write the definitions of DIALP.

Since Brazil has a relevant role in the international scene, as previously stated, there is a favorable context for teaching and learning Portuguese. Therefore, the findings presented in this paper will help disseminate both the Portuguese language and the Brazilian culture, as the description of the lexicon reveals cultural aspects.

Finally, given that Distrito Federal (DF) hosts several embassies, and that there are many foreigners living in Brasília, DF, in addition to refugees, traders, NGO workers, missionaries, apprentices, priests etc., the results of this project will provide tools to help these people develop language skills to communicate in Brazilian Portuguese in an immersion environment.

Acknowledgements

VILARINHO, M. Metodologia para elaboração de Dicionário Analógico de Língua Portuguesa. **Alfa**, São Paulo, v.61, n.1, p.101-129, 2017.

▪ *RESUMO: O tema desta pesquisa se insere na linha de pesquisa Léxico e Terminologia, desenvolvida no Centro de Estudos Lexicais e Terminológicos (Centro Lexterm), da Universidade de Brasília. O objeto de estudo é o dicionário analógico, entendido como um repertório lexicográfico de caráter onomasiológico, no qual os lexemas são organizados partindo das ideias ou dos conceitos para chegar às unidades lexicais. O objetivo principal desta pesquisa é a criação de uma proposta de Dicionário Informatizado Analógico de Língua Portuguesa (DIALP). O público-alvo principal da obra é o aprendiz de Português do Brasil como Segunda Língua (PBSL). A seleção dos lexemas para compor os verbetes se baseia na aplicação da Versão Ampliada da Teoria dos Protótipos de Kleiber (1990) e da Semântica de Frames de Fillmore (1977) e na reformulação dos verbetes do Dicionário Analógico da Língua Portuguesa de Azevedo (2010). Para elaborar o modelo de dicionário postulado, adotamos a proposta metodológica para elaboração de léxicos, dicionários e glossários de*

Faulstich (2001) e aplicamos a proposta de Vilarinho (2013). A realização desta pesquisa contribui para o desenvolvimento tecnológico do Brasil, uma vez que não há registro de outra obra que tenha atingido satisfatoriamente os objetivos que este projeto se propõe a alcançar.

▪ *PALAVRAS-CHAVE: Dicionário analógico. Versão Ampliada da Teoria dos Protótipos. Semântica de Frames. Relações Semânticas.*

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