Dynamic construal of conceptual categories: An investigation of the Southern Vietnamese classifier cây

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ABSTRACT

While conceptual categories have been a topic of much research, it has yet to be resolved whether or not conceptual categories have a static underlying mental representation and fixed category membership, or a dynamic mental representation with variable membership. Natural language classifiers have often been looked at as sources of evidence for conceptual categories. This paper investigates the Southern Vietnamese classifier cây and, through a hierarchical organization task methodology, provides evidence for the view that the underlying mental representation of conceptual categories is to some degree dynamic. Our data shows the classifier cây being used in metonymic and metaphoric expressions and to form ad hoc categories. These results challenge the static view of category mental representation, which predicts that such uses of the classifier cây should not be possible.

Keywords: Dynamic vs static; conceptual categories; classifiers; idealized cognitive models; ad hoc categories; dynamic construal; schematicity.

1.Introduction

While conceptual categories have been the topic of much research since the 1970s, it has often been assumed that conceptual categories have a static, hierarchical underlying mental representation. However, Croft and Cruse (2004) have noted that a new view is gaining attention, in which conceptual categories are "subject to construal" and are "created at the moment of use" (p. 75). Natural language classifiers offer much data in support of this emerging view. Lakoff (1987) noted that classifier languages provide a rich source of data revealing the structure of conceptual categories, because "classifier systems reflect the experiential, imaginative, and ecological aspects of mind" (p. 112). Our research into the Vietnamese classifier *cây* provides evidence for a dynamic underlying mental representation of a conceptual category that can be construed in novel or creative ways to meet the needs of speakers.

This paper will first provide an overview to major theoretical approaches to conceptual categories (the Classical theory vs. Cognitive theories) as well as discuss the nature of such conceptual categories as being static or dynamic. Section 3 provides an overview of the Southern Vietnamese classifier *cây.* Section 4 presents the research questions and hypothesis. Section 5 oulines the methods and procedures and results. Section 6 offers a discussion and section 7 concludes the paper with theoretical implications and suggestions for future research. In particular, this paper will show grammatical uses of the classifier *cây* to form ad hoc categories, and to form metonymic and metaphoric constructions. These data are of theoretical importance in that they constitute evidence for a dynamic view of conceptual categories. It will be concluded that the underlying mental representation of conceptual categories cannot be a static hierarchical structure.

2. Background

2.1 Classical theory of categorization

The classical theory of categorization went unchallenged from the time of Aristotle to the 1970s. This theory defined categories as entities with clear cut boundaries, whose members were determined by their possession of

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necessary and sufficient features. Croft and Cruse (2004) used the example of the category COLT to illustrate how the classical theory would define membership by the necessary and sufficient features [EQUINE], [MALE], [YOUNG]. Thus, all entities in the world possessing these features would be equal members in this category (p. 76).

This view was challenged by the groundbreaking work of Eleanor Rosch in the 1970s, when she and her colleagues produced a series of experiments demonstrating that the classical theory of categorization fails to adequately explain conceptual categories. Rosch (1978) used the principles of *cognitive economy* and *perceived world structure* to account for a great deal of phenomena that the classical theory could not. While the classical view assumes an objectivist view of the world, Rosch (1978) noted that conceptual categories can only be "about the perceived world and not a metaphysical world without a knower . . . What attributes will be perceived given the ability to perceive them is undoubtedly determined by many factors having to do with the functional needs of the knower interacting with the physical and social environment" (p. 253).

A popular example of where the classical theory fails, discussed in Lakoff (1987) amongst others, is the category BACHELOR. The classical theory would define this category as having the necessary and sufficient features [-married],[+male],[+adult]. Under this framework, whether or not something in the world is a bachelor is a yes or no question. This theory predicts that all things in the world possessing these necessary features should be considered a bachelor, and anything lacking any or all of these features should not. However, there are many entities in the world with these features that we would be hesitant to describe as bachelors; for example, the pope, priests, and men in long-term unmarried relationships. See Lakoff's discussion of this (p. 70-71).

The classical theory fails in many other respects to adequately account for conceptual categories. It assumes that all category members share equal status with one another as members of that category. However, as we will see in the following section, conceptual categories have graded membership, in which some members are better examples (are more "prototypical") than others as being members of that category. The boundaries of conceptual categories are not "clear-cut" (Rosch, 1978, p. 259). Contrary to Classical theory claims, the next section also shows that conceptual categories are organized hierarchically in terms of abstraction. Superordinate level categories are generally the most abstract and inclusive, while subordinate level categories are generally the least abstract and inclusive. In between those two levels are basic level categories, which is the level at which humans operate most frequently and naturally.

The classical theory of categorization is implicit in formalist mathematics, logic, syntax, and semantics. As Lakoff (1987) pointed out, "It's not that there is anything wrong with the tools of mathematical logic. It's just that they are inadequate to deal with the empirical facts that have been discovered about human categorization" (p. 219). Thus, the philosophical stakes of this debate are very high—the empirical evidence that challenges the classical theory of categorization also challenges the dominant view of linguistics.

2.2 Cognitive theories of categorization

Turner (1995) noted that a great deal of empirical evidence has emerged which seriously challenges the classical, Aristotelian theory of categorization (p. 38). This has triggered much debate about the nature of conceptual categories, out of which several alternative, but often overlapping theories, have emerged (Lewandowska-Tomaszczyk 2007). Some of the most prominent are the family resemblance model, prototype theory, Idealized Cognitive Models (ICM), and Schematicity.

The idea of family resemblance was first pointed out by Wittgenstein, but received renewed interest in the 1970's. Wittgenstein pointed out that certain categories, like the category *game,* do not fit the classical view, because there are no common properties shared by all games (Lakoff, 1987, p. 16). The idea of family resemblance is that there is no single feature or set of features that determine category membership. Thus member 'A' could be related to member 'B' by property 'C', and member 'D' could be related to member 'A' by property 'E'. 'B' and 'D' share no common features, yet through family resemblance they are both members of this category. Wittgenstein is also credited with first observing that categories often do not have fixed boundaries (Lakoff, 1987, p. 16). This idea was a precursor to

what came to be called *membership gradience*.

Rosch and her colleagues took the incites of Wittgenstein, and others, and combined it with their own research into prototypes and category structure. Lakoff (1987) noted that Rosch and her associates "revolutionized the study of categorization within experimental psychology" (p. 39). Rosch denied that prototype theory was a theory of the mental representation of categories, or that there was a single literal prototype in each category. *Prototypicality*, as she meant by the term, only refers to judgements about how good a category member is as a member of that category i.e. how good of an exemplar it is of that category (Rosch 1978, p. 263).

Lakoff (1987) agreed that prototype effects alone do not demonstrate category structure. He noted that "[t]he effects constrained the possibilities for what representations might be, but there was no one-to-one correspondence between the effects and mental representations" (p. 43). In his influential book *Women, Fire, and Dangerous Things* (1987), Lakoff claimed that "category structure and prototype effects are by-products" of Idealized Cognitive Models (p. 68). Cienki (2007) described Lakoffs ICMs as ways "in which we organize knowledge" (p. 176). Similar to Rosch's principle of perceived world structure, ICMs are not meant to be an objective representation of the world:

> The models are *idealized*, in that they involve an abstraction, through perceptual and conceptual processes, from the complexities of the physical world. At the same time, these processes impart organizing structure – for example, in the form of conceptual categories . . . They provide an advantageous means of processing information because they are adapted to human neurobiology, human embodied experience, human actions and goals, and human social interaction. (Cienki, 2007, p. 176)

Lakoff, claims that it is because the term *bachelor* is defined according to an ICM with numerous cultural assumptions about marriage expectations, typical marriage age, and things of the sort that the pope and unmarried adult men in long-term relationships (although they possess the features [+adult], [-married], [+male]) are not considered bachelors. Lakoff's ICMs are meant to be the source of category structure that creates prototype effects. Lakoff is thought of as one of the founding fathers of Cognitive Linguistics. His work on categorization inspired a great deal of research, particularly within the field of Cognitive Linguistics. In addition to ICMs, Cognitive Linguistics has used the concept of schematicity to analyze conceptual categories. What is meant by the term *schema*, as it is used in Cognitive Linguistics, is a superordinate concept that groups more specific concepts according to shared properties. The specific concepts within a schema are called *elaborations*, *instantiations*, or *subcases* (all terms being used interchangeably) of the schema (Tuggy, 2007, p. 83).

Tuggy (2007) described schematicity relations as arising through a comparison of mental structures that an individual perceives to be similar in some way. "The act of comparison is asymmetrical, comparing a *target* structure to a *standard*" (p. 86). Tuggy (2007) elaborated on the concept of schematicity, drawing the distinction between full schematicity and partial schematicity. He contended that these concepts can account for the difference between the classical theory of categorization and the cognitive theories. *Full schematicity* is when an instantiation has all of the features of its schema. Partial schematicity is when an instantiation has only some of the features of its schema (p. 86). Thus, the classical theory of categorization allows only for the relationship of full schematicity between a category concept and its instantiations. Cognitive theories, however, allow for both relationships of full and partial schematicity, which explains prototype effects such as membership gradience and fuzzy category boundaries.

The notion of schematicity can also explain prototypes and the correspondence between conceptual categories and linguistic categories with the notions of *salience*, *entrenchment*, and *conventionalization* (Schmid, 2007). This theoretical framework treats linguistic categories, like the semantic domains denoted by noun classifiers, as the result of the entrenchment and conventionalization of conceptual categories. This discussion by Tuggy (2007, p. 86-87) is worth quoting at length:

As mental comparisons and schematicity judgments of these sorts are repeated, especially repeated saliently (forcefully), in a person's thinking, they become *entrenched* in his or her mind, and their ease of reactivation is thereby enhanced. As usage events that presuppose or even assert them occur, their *conventionality* is established, and they become part of the subset of the person's cognitive repertoire which constitutes the language he or she shares with other speakers . . .

Consequently, nonlinguistic cognitive structures start to become linguistic as soon as they are used as part of a phonological or semantic structure, that is, the minute language users start to talk about or with them. (p.86-87)

In this view prototypes are just strongly entrenched and highly salient concepts within a schema that anchor many relations of full or partial schematicity. "In such cases, this strongly entrenched concept serves as the center of a category constructed on the *prototype* model" (Tuggy, 2007, p. 89).

Another theory of conceptual categories within cognitive linguistics is the dynamic construal theory. This theory makes use of the notion of construal, which in cognitive linguistics is a "cover term that has come to be used for different ways of viewing a particular situation" (Verhagen, 2007, p. 48). Croft and Cruse (2004) argue that the theory of dynamic construal can provide a better explanation to what has previously been referred to as fuzzy category boundaries. "[A]ll the evidence for fuzziness involves reactions to isolated lexical items, rather than construals in specific contexts. While the category boundary construed in response to a lexical item can vary with context, there is no reason to suppose that there is anything fuzzy about the different construed boundaries" (Croft & Cruse, 2004, p. 95).

Of the theories discussed above, dynamic construal theory takes the most radical position on the underlying representation of conceptual category structure, arguing that not just the category boundaries but the entire category itself is subject to construal (Croft & Cruse, 2004, p. 95-96). As the results of this study will come to show, the classifier *cây* shows evidence in favor of construal.

2.3 Dynamic Vs static categories

Many of the conceptual categories found in different cultures around the world have hierarchical structures. This is not a controversial point. What is controversial, though, is how these hierarchies are mentally represented. Murphy and Lassaline (1997) suggest that there are two possibilities: "category hierarchy could be *pre-stored* or it could be *computed*" (p.97). The first idea is that concepts are structured in memory in a hierarchical fashion, which allows individuals to make inductive inferences and categorization judgements based off of this hierarchical structure. If one were trying to decide whether a tree is a plant, one would have to locate their concept *tree* in their memory and trace upwards in their hierarchical mental representation until they reach the concept *plant*.[1] At the concept node *plant,* information true of all plants would be stored, and information specific to trees would be stored at the *tree* node.

The second possibility is that we compute these hierarchical mental representations through reasoning processes. This could work through an inductive reasoning processes:

Suppose that you know all Xs are Ys, and all Ys are Zs. Now if you learn that all Zs have six fingers, what does that tell you about Xs? A little thought will reveal that Xs must also have six fingers, since all of them are Zs. Thus even though you clearly did not have the hierarchy stored in memory (before reading this paragraph), you could use the information about category inclusion to come to the correct answer. (Murphy & Lassaline, 1997, p.96)

This illustrates how people might be able to infer category inclusion and then draw the appropriate inferences, if there is not a static underlying mental representation of this category.

The first view, that conceptual categories are represented by static hierarchical structures in the mind, will be

[1] This example is based off of Murphy and Lassaline's (1997) example on p. 96

referred to as the *static view* from here on. The alternative, that conceptual categories have a dynamic underlying mental representation, will be referred to as the *dynamic view* from here on. There is evidence in support of both views. The static view is supported by the theory of *spreading activation*. According to this theory, association and priming experiments show that entire networks of concepts are activated during the retrieval of a target word. Schmid (2007) notes that "[t]his suggests that the stage of conceptual categorization, which is part of lexical retrieval . . . may involve two levels of activation: the activation of a conceptual network and the activation of the active node from the options provided by the network" (p. 122).

The dynamic view is supported by the influential work of Barsalou on what he called "*ad hoc* categories". Ad hoc categories, as defined by Barsalou (1983), are categories that "(1) violate correlational structure and (2) are usually not thought of by most people" (p. 214). Ad hoc categories are constructed on the fly to achieve particular goals. Most importantly, they are not well established in memory, and "ad hoc categories possess graded structures [i.e., typicality gradients) as salient as those structuring common categories" (Barsalou, 1983, p. 211). So "things to sell at a garage sale" or "things to take on a camping trip" are conceptual categories equal to other conceptual categories as common as *plant* or *tree* (Barsalou, 1983, p. 224). The fact that ad hoc categories are created from working memory, shows that they do not rely on a pre-stored static structure. This suggests that common conceptual categories could be computed in a similar fashion.

The research on the underlying mental representation of conceptual categories has not yet yielded any conclusive results. This issue is still debated, and future research will need to be done to resolve it.

2.4 Conceptual categorization and classifiers

There is no set agreement in the literature on what exactly a classifier is considered to be (Aikhenvald 2000; Fromkin et al. 2003; Tran, 2011; Cai & Sera 2019; Saalbach & Imai 2012). Some examples of classifier languages include some Australian aboriginal languages, some native American languages, and most Asian languages. This research focuses in particular on Vietnamese as a classifier language.

Many researchers have looked to languages with classifier systems for evidence of conceptual categories (Gao & Malt 2009; Salehuddin, Winskel, & Maros 2011; Saalbach & Imai 2012; Cai & Sera 2019). However, other researchers have denied that linguistic categories reveal anything about conceptual categories. Such critics usually argue that classifiers are just linguistic devices that don't tell us anything about how speakers categorize things in the world. They also point to non-central/non-prototypical instances of classification and explain them as instances that may have at one time been part of a conceptual category, but today are just a historical relic of the language. Lakoff (1987) responds to these criticisms by pointing out, first, that language is part of our cognitive apparatus, and linguistic categories should not be considered different from conceptual categories (p. 110). He also argues that Schmidt's (1985) research on the classifier system in Dyirbal showed that when the mythology system, on which the classifier system was based, ceased to be passed on to the next generation, parts of the classifier system died off within just twenty years (Lakoff, 1987, p. 96-97). This suggests that classifiers are meaningful in the minds of speakers. There has also been psycholinguistic research demonstrating that a speaker of classifier language's performance on lexical retrieval tasks was more predictive than speakers of non-classifier languages (Srinivasan, 2010).

We conducted our research within the theoretical framework of cognitive linguistics, which assumes a direct connection between classifiers and conceptual categories.

3. Overview of the Southern Vietnamese classifiers *cây*

Our research investigates the classifier *cây* in the Southern Vietnamese dialect. Southern Vietnamese uses a numeral classifier system. Classifying morphemes, also known as classifiers, pair with specific categories of nominal referents (Tran 2011). Classifying morphemes are typologically common. They categorize nominal referents according

to their properties, such as being animate, inanimate, human, or being of a certain shape, having a certain function, or other common characteristics (Senft 2007, p. 680-681). Therefore, the classifier *cây* pairs with lexical items to create nominal referents, but only some lexical items and not others. In keeping with the Cognitive Linguistic framework discussed above, we believe that all grammatical cây + [lexical item] constructions (Simpson & Ngo 2018) denote members of a superordinate conceptual category. Thus, membership in this conceptual category is a major contributing factor to the grammaticality of *cây + lexical item* constructions.

While *cây* by itself, when it is functioning as a noun and not as a classifier, can be translated as *tree*, the conceptual category that the *cây + lexical item* constructions are members of cannot be translated. It is culture specific and not equivalent to anything in the English language. This conceptual category is part of what Lakoff calls an ICM. Becker (1975) noted a similar problem in analyzing the Burmese classifier *yauʔ*:

> We can discuss the classifier *yauʔ* in English, but we cannot translate it, for there are no syntactic *or* semantic equivalents in English. *Lu* 'person, man' has rough equivalents in English, *'le* 'four' a quite precise equivalent. The classifier *yauʔ,* however, can only be explained as part of a conceptual structure which is non-English. (p. 115)

The purpose of the present research, however, is not to explain what this conceptual category is; rather it attempts to identify which lexical items can be paired with *cây* and why. The conceptual category of which all *cây + lexical item* constructions belong is unique in the data it offers us. With this one classifier we see many of the phenomena considered important to understanding conceptual categories: ad hoc categories, prototype effects, hierarchical structure, and metonymic and metaphoric extensions.

4. Research Question and Hypothesis

If classifiers were mere meaningless, functional, linguistic devices, we should expect that there would be a finite number of lexical items that could be paired with the classifier *cây.* Presumably the information about which lexical items could be paired with *cây* would be stored somewhere in the lexicon. If this were true, we should expect that any novel pairing of *cây* plus a lexical item would be ungrammatical. Alternatively, if classifiers do reflect real conceptual categories in the mind, and are not mere linguistic devices, they should behave like other conceptual categories in being able to construct ad hoc categories and being able to admit new members through metonymic and metaphorical mappings. The theoretical background discussed above supports the view that classifiers do reflect conceptual categories and there is evidence to support this view. The present research was conducted within the theoretical framework of Cognitive Linguistics that believes classifiers to be direct reflections of conceptual categories. The question that the current research investigates is whether the underlying mental representation of conceptual categories is dynamic or static; hence, our research hypothesis below.

Hypothesis: the underlying mental representation of conceptual categories is dynamic.

5. Methodology

To investigate the structure of the underlying mental representation of the category in question, samples of *cây + lexical item* pairings were needed. To accomplish this, we asked a native Vietnamese language consultant to confirm the translations of the pairings in our data set. Then, to better understand how speakers of this language perceive the hierarchical relations that these pairings bear to one another, we asked the native language consultant to perform a hierarchical organization task. The native language consultant is a 21-year-old female speaker of the Southern Vietnamese dialect. She has a high level of education, and also has knowledge of the Northern Vietnamese dialect. She has been living in the United States and was a PhD student in linguistics during the time of the procedures.

5.1 Procedure 1: translation task

cây + lexical item pairings were gathered from three different sources: an online corpus, [2] a Vietnamese-English dictionary (Nguyen, 1995), and from our native language consultant. The native language consultant performed a translation task for the words from each source. She was asked to confirm or clarify the translations from the corpus and dictionary, and to translate English phrases that were predicted would correspond to grammatical, but novel, *cây + lexical item* constructions. In addition, the native language consultant was asked to provide a word-for-word gloss of each item in the data set, and to confirm whether or not each *cây + lexical item* was novel to her.

5.1.1 Results and analysis

In total, we gathered 91 grammatical *cây + lexical item* pairings with English glosses and translations. Of these, 38 items were types of trees, 13 were plants other than trees, and 40 items were things other than trees and plants. These categories of *trees*, *plants other than trees*, and *other* are highly artificial and were created solely for the purpose of analysis. The data does not indicate whether or not *cây bụi* "bush" would be viewed as a tree or as a plant other than trees to a Southern Vietnamese speaker. Also, while the researcher originally classified *cây gậy* "stick" and *cây củi* "log" as *other*, native speakers may not view these items as such. Furthermore, *cây gỗ* could mean "wooden log" or "wood bearing tree" depending on context, and consequently could be thought of as a *tree* or as *other*.

The items that were categorized as *other* prior to conducting the procedure differ from one another to a great extent. This includes items like *cây số* "kilometer/milestone", *cây cầu* "bridge", *cây bùt* "pen", *cây xăng* "gas pump", and *cây đàn* "string instrument". One motivation for making a distinction between *trees* and *plants other than trees* is that trees are the central/prototypical members of this conceptual category and plants other than trees are not. Aside from the fact that *cây,* when being used as a noun and not as a classifier, means "tree", this must be the case because most of the items in the other category can only be made sense of as members of this conceptual category if they bear family resemblance to the central/prototypical members. This could not be the case for plants other than trees, since plants vary drastically in size, shape, and quality. Trees, on the other hand, can be thought of as having the properties of having a long slender body, being a living thing, being made of a sturdy material, being tall, and extending out of the ground; and these properties provide a motivation for the inclusion of all the types of plants we see and the members in the other category as members in this conceptual category. Items like *cây số* "kilometer/milestone", *cây cầu* "bridge", *cây bùt* "pen" can be thought of as being long and slender. Items like *cây cột* "column" and *cây xăng* "gas pump" can be thought of as extending out of the ground. Items like *cây trồng* "agricultural plants", *cây lương thực* "edible crops", and *cây bụi* "shrub" can all be viewed as living things that extend out of the ground. And *cây đèn đường* "street lights" and *cây cột điện thoại* "telephone poles" can be thought of as tall things that extend out of the ground.

Also, a number of examples were found of metaphor and metonymy (examples 1-3 below). The imagery of trees is essential in each one of these metaphors. In (1) a person is likened to a tree as something tall, extending out of the ground, but made out of meat, that serves no purpose. (2) likens the lifespan development and growth of a person to that of a tree. Example (3) is a case of metaphor and metonymy, where one can only get the metaphorical reading if *bút* "pen" stands metonymically for "writer". Furthermore, it can only have the reading of "famous writer", as opposed to an average writer, where the writer is seen as being prominent, standing above one's peers.

1) cây thịt
CL meat
"good for nothing person"
2) cây đời
CL life
"life"

[2] The online corpus we used can be found at: sealang.net/vietnamese/corpus.htm

3) cây bút
CL pen
"pen" or "famous writer"

In addition, 3 novel *cây + lexical item* pairings were found (examples 4-6 below). The native language consultant confirmed these as being grammatical cây + *lexical item* pairings that she was able to create spontaneously.

4) cây giảm giá
CL reduce price
"trees that are on sale"
5) cây đỏ
CL red
"endangered trees"
6) cây nguyên-thủy
CL ancient
"prehistoric trees"

The data set included a number of items at different levels of abstraction. The word *cây cối* "trees" is clearly an instantiation of *cây nhà* "plants", and *cây trái* "fruit bearing tree" is an instantiation of *cây cối* "trees", and *cây chanh* "lemon tree" is an instantiation of *cây trái* "fruit bearing tree". These different levels of abstraction and categories within the larger conceptual category in question motived the second procedure of investigation.

5.2 Procedure 2: hierarchical organization task

From the data set, each *cây + lexical item* pairing was printed and cut out twice. The native language consultant was then asked to take each piece of paper and place it beneath what she perceived it to be an instantiation of. The native language consultant was given two cut outs of each word in case she felt that it could be an instantiation of more than one subcategory. She organized all the items from the data set hierarchically on a piece of poster board.[3]

5.2.1 Results and analysis

A number of hierarchical structures were found within this conceptual category, as well as a number of items that could not be incorporated into any structure, and several structures that could not be connected to the central structure. Some items were considered to be instantiations of more than one subcategory.

Cây nhà "plant" was the topmost item in the hierarchy, and *cây cối* "trees" was lower in the hierarchy. However, there were several subcategories of *cây cối* "trees": *cây rừng* "wild/native trees", *cây trái* "fruit bearing trees", *cây lá* "leaf bearing trees", and *cây gỗ* "wood bearing trees", and others. Below these subcategories, the native language consultant listed a number of items as instantiations of each category, including the novel categories from the data set. See Figure 1.

[3] See Figure 1 for a sample of the results of the hierarchical organization task.

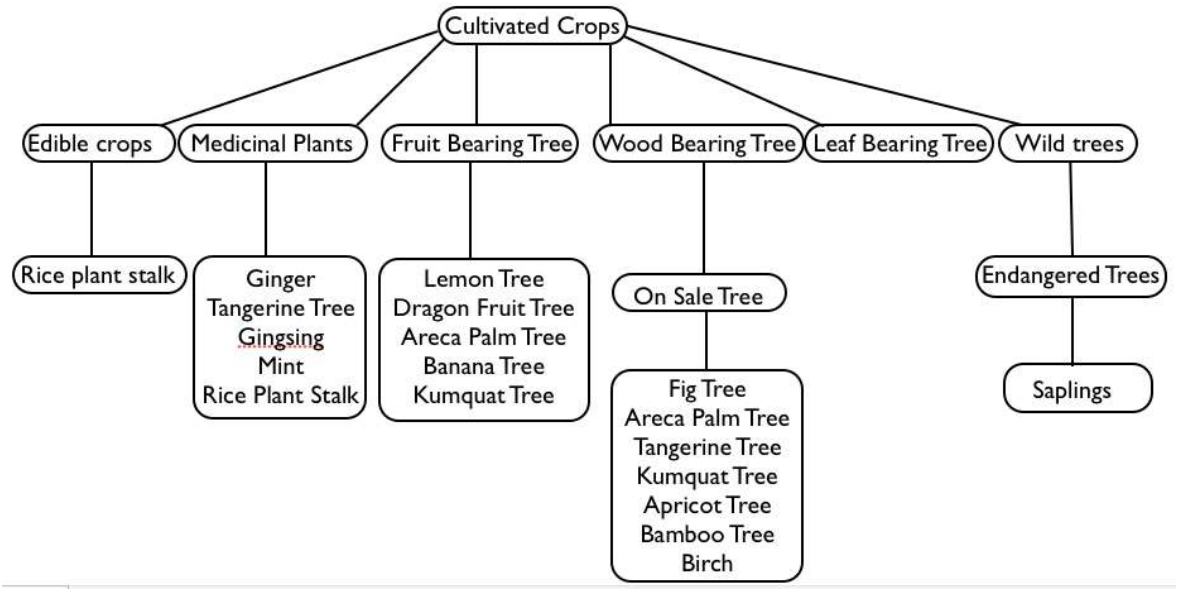

Figure 1. A sample of the results of the hierarchical organization task.

Several items could not be incorporated into any hierarchical structure, like: *cây số* "kilometer/milestone", *cây xăng* "gas pump", and *cây vàng* "gold bar". These items were not instantiations of anything in our data set, and nothing was an instantiation of them. However, there were items that did have instantiations under them, but were not considered to be instantiations of anything else. This was the case for *cây đàn* "string instrument", which had several types of string instruments under it. These floating items and structures could be the result of an incomplete data set. Perhaps if we had a greater number of *cây + lexcial item* pairings, these floating items and structures might have ended up being connected to a single, complete hierarchical structure. Or it could just be the nature of this conceptual category that there are items in it that bear family resemblance to the central/prototypical members, or are connected to them in some other way, but do not bear any hierarchical relationship to any of the other items in the category. The answer to this question, however, is out of the scope of the present research.

6. Discussion

The results show a central/prototypical subcategory of members in this conceptual category to which all the other members are related to in some way. The ways that the other members can be related to the central/prototypical members are through family resemblance, metonymy, and metaphor.

The findings that are of theoretical importance are the examples of metonymy and novel (ad hoc) categories exemplified above. Within Cognitive Linguistics, metonymy is thought to be "a cognitive process that operates **within** *one* cognitive domain or domain matrix and links a given *source content* to a less accessible *target content*" (Panther & Thornburg, 2007, p. 240). However, in the case of *cây bút*, when it has the metaphorical reading of "famous writer", the concept of *writer* is being mapped out of one conceptual domain (the conceptual domain in which the Southern Vietnamese word for *writer* takes a different classifier) and into another (the conceptual category comprised of *cây + lexical item* constructions), in which it did not exist before, via metonymy. This can still be consistent with the definition of metonymy given above, if the concepts of *writer* and *pen* both existed in a third overlapping conceptual domain. This metonymic mapping of the concept *writer* onto the word *cây bút* constitutes evidence for a dynamic underlying mental representation of the conceptual category comprised of *cây + lexical item* constructions. If new

members are permitted to be mapped into these conceptual categories, the static view of conceptual categories is untenable.

Novel categories constitute similar evidence against the static view. The novel categories from our data set are identical to the ad hoc categories researched by Barsalou (1983). They demonstrate the ability of Southern Vietnamese speakers to construct new categories within the larger category comprised of *cây + lexical item* constructions on the fly. If the static view were correct, and conceptual categories were represented by stable hierarchical structures, the formation of ad hoc categories should not be possible. However, as discussed in section 5.1.1 and 5.2.1, the native language consultant was able to construct grammatical *cây + lexical item* pairings that denote ad hoc categories; and, furthermore, she integrated those ad hoc categories into specific hierarchical locations during the hierarchical organization task, meaning that the structure of the conceptual category is not static and that it is not preset, but may be construed on the spot, hence the term *Dynamic Construal*. In Figure 1 the native language consultant considered the ad hoc category of *cây đỏ* "endangered trees" to be an instantiation of *cây rừng* "wild trees" and for *cây con* "sappling" to be an instantiation of *cây đỏ* "endangered trees". Thus, the underlying mental representation of this conceptual category had to be amended to accommodate these ad hoc categories.

While ad hoc categories and metonymy provide evidence against the static view, they do not show the dynamic view to be completely correct. Croft and Cruse (2004) noted that the theory of Idealized Cognitive Modals assume a certain amount of static structure. They propose that, in principle, even ICMs could be subject to construal (p. 95-96) But is there a limit to the extent that conceptual categories can be construed? As demonstrated by Figure 1, a fig tree can be construed as a wood bearing tree instead of a fruit bearing tree. But could a tree ever be construed as not being a plant? Does our knowledge about the individual members of these conceptual categories limit the extent of dynamic construal? The data shows some construal of this conceptual category, but it does not show the limits of construal. These are questions that should be taken into consideration for future research.

7. Conclusions

The findings are consistent with the theories within Cognitive Linguistics (schematicity, ICMs, dynamic construal theory) that believe in a direct connection between classifiers and conceptual categories. The classifier *cây* behaves as a syntactic and semantic anchor to this conceptual category, in that all members bear family resemblance to trees and the *cây + lexical item* construction "sanctions" novel members to this category. (Tuggy, 2007, p.99) This entrenched and conventionalized construction acts as a syntactic vehicle by which new concepts, if they possess the proper semantics, can be expressed grammatically. The *cây + lexical item* construction denotes a member of a conceptual category. This conceptual category is part of an Idealized Cognitive Model that is specific to the Southern Vietnamese experience with the world. The subcategories of *cây cối* "trees" (*cây rừng* "wild/native trees", *cây trái* "fruit bearing trees", *cây lá* "leaf bearing trees", and *cây gỗ* "wood bearing trees) reflect distinctions that were important in Southern Vietnamese culture, but are by no means objective or inherent distinctions in the world.

In conclusion the question of dynamic or static underlying mental representation, which is sometimes discussed as an either/or question in the literature, may in fact be a question of degree. While this research does show evidence for some degree of dynamicity, it is unclear exactly how dynamic conceptual categories may be. Further research into conceptual categories will have to be done, bearing these questions in mind.

REFERENCES

Aikhenvald, Alexandra Y. (2000). A Typology of Noun Categorization Devices. Oxford: Oxford University Press

Barsalou, Lawrence W. (1983). Ad hoc categories. Memory & Cognition, 11 (3), 211-227.

Becker, Alton L. (1975). A Linguistic Image of Nature: The Burmese Numerative Classifier System. Linguistics, 165, 109-121

Cai, W., & Sera, M. D. (2019). How Classifiers Group Solid Objects in Hmong, Japanese and Mandarin Chinese.

Cienki, Alan. (2007). Frames, Idealized Cognitive Models, and Domains. In Geeraerts, Dirk,

Croft, William, Cruse, Alan D. (2004). Cognitive Linguistics. Cambridge: Cambridge University Press

Cuyckens, Hubert (Ed.), The Oxford Handbook of Cognitive Linguistics (pp. 170-187). New York: Oxford University Press

Fromkin, V., Rodman, R., & Hyams, N. (2018). An introduction to language. Cengage Learning.

Gao, M. Y., & Malt, B. C. (2009). Mental representation and cognitive consequences of Chinese individual classifiers. Language and Cognitive Processes, 24(7-8), 1124-1179.

Geeraerts, Dirk, Cuyckens, Hubert (Ed.), The Oxford Handbook of Cognitive Linguistics (pp. 139-169). New York: Oxford University Press

Lakoff, George. (1987). Women, Fire, and Dangerous Things. Chicago: University of Chicago Press

Lewandowska-Tomaszczyk, Barbara. (2007). Polysemy, Prototypes, and Radial Categories. In

Murphy, Gregory L. & Lassaline, Mary E. (1997). Hierarchical structure in concepts and the basic level of categorization. In Lamberts, Koen & Shanks, David (Ed.), Knowledge, Concepts and Categories (pp. 93-132) Cambridge: MIT Press

Nguyen, Dinh-hoa (Ed.). (1995). NTC's Vietnamese-English Dictionary. Lincolnwood: NTC Publishing Group

Panther, Kaus-uwe & Thornburg, Linda L. (2007). Metonymy. In Geeraerts, Dirk, Cuyckens, Hubert (Ed.), The Oxford Handbook of Cognitive Linguistics (pp. 236-263). New York: Oxford University Press

Rosch, Eleanor. (1975). Cognitive Representations of Semantic Categories. Journal of Experimental Psychology: General. Vol. 104, No. 3, 192-233

Rosch, Eleanor. (1978). Principles of Categorization. Rosch, Eleanor and Lloyd, Barbara B. (eds), Cognition and categorization 27-48. Hillsdale, NJ: Lawrence Erlbaum

Saalbach, H., & Imai, M. (2012). The relation between linguistic categories and cognition: The case of numeral classifiers. Language and Cognitive Processes, 27(3), 381-428.

Salehuddin, K., Winskel, H., & Maros, M. (2011). The pragmatic functions of numeral classifiers in modern Malay written corpus. GEMA Online® Journal of Language Studies, 11(2).

Senft, Gunter. (2007). Nominal Classification. In Geeraerts, Dirk, Cuyckens, Hubert (Ed.), The Oxford Handbook of Cognitive Linguistics (pp. 676-696). New York: Oxford University Press

Simpson, A., & Ngo, B. (2018). Classifier syntax in Vietnamese. Journal of East Asian Linguistics, 27(3), 211-246.

Srinivasan, Mahesh. (2010). Do classifiers predict differences in cognitive processing? A study of nominal classification in Mandarin Chinese. Language and Cognition, 2. 2. p. 177-190.

Tran, Jennie. (2011). The acquisition of Vietnamese classifiers. Unpublished doctorate dissertation. University of Hawaii, USA.

Tuggy, David. (2007). Schematicity. In Geeraerts, Dirk, Cuyckens, Hubert (Ed.), The Oxford Handbook of Cognitive Linguistics (pp. 82-116). New York: Oxford University Press

Verhagen, Arie. (2007). Construal and Perspectivization. In Geeraerts, Dirk, Cuyckens, Hubert (Ed.), The Oxford Handbook of Cognitive Linguistics (pp. 48-81). New York: Oxford University Press

الإنشاء الديناميكي للفئات (المفاهيمية :دراسة عن المصنف الفيتنامي الجنوبي كاي)

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ملخص

في حين أن الفئات المفاهيمية كانت موضوعًا للكثير من الأبحاث، إلا أنه لم يتم تحديد ما إذا كانت الفئات المفاهيمية لديها تمثيل عقلي أساسي ثابت وعضوية فئة ثابتة أم لا، أو تمثيل عقلي ديناميكي مع عضوية متغيرة. غالبًا ما يُنظر إلى مصنفات اللغة الطبيعية كمصادر للأدلة على الفئات المفاهيمية. وتبحث هذه الورقة في المصنف الفيتنامي الجنوبي **cây** ، ومن خلال منهجية مهمة منظمة هرمية ، تقدم أدلة على وجهة النظر القائلة بأن التمثيل العقلي الأساسي للفئات المفاهيمية ديناميكي إلى حد ما. وتُظهر بياناتنا أن المصنف يمكن استخدامه في التعبيرات المجازية والمجازية وتشكيل فئات مخصصة. تتحدى هذه النتائج وجهة النظر الثابتة للتمثيل العقلي للفئة التي تتنبأ بأن مثل هذه الاستخدامات للمصنف لا ينبغي أن تكون ممكنة.

الكلمات الدالة: ديناميكي مقابل ثابت؛ الفئات المفاهيمية المصنفات، نماذج معرفية مثالية. فئات مخصصة؛ تأويل ديناميكي التخطيطي.

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