Semantic Analysis From a Pragmatic Perspective of the Constructions of the Change of State Pseudocopulative Verb in Techno-Scientific Digital Media

GAO Mengning

Beijing International Studies University, Beijing, China

In this paper we delve into the nuanced realm of ambiguous expressions within the pseudocopulative change of state verbs (PCOS verbs) in the digital media about technology and science, supported by Generative Lexicon Theory (Pustejovsky, 1995) and Segmented Discourse Representation Theory (Asher & Lascarides, 1995; 2005). As a result, this paper scrutinizes the dynamic semantics inherent in the interpretation of metaphorical expressions and disambiguation of copulative constructions within authentic contexts. Furthermore, we highlight a significant correlation between the event structure of PCOS verbs and the temporal constraints governed by rhetorical relations within segmented discourse.

Keywords: pseudocopulative change of state verbs, Generative Lexicon Theory, Segmented Discourse Representation Theory, digital media

Introduction

The pseudocopulative change of states verbs exhibits a common morphosyntactic feature, namely, the co-occurrence with the clitic *se*. This group of verbs includes *ponerse*, *quedarse*, *volverse*, and *hacerse*. While this subject matter boasts a well-established tradition, specifically concerning the eventive structure, which have attracted the attention of researchers. In this work, we would like to seek to introduce an innovative perspective about the semantic interpretation of these verbs in the real context. Concretely speaking, this paper will extend its purview into the semantic-pragmatic domain, delving into the ambiguous interpretation of their dynamic semantics within the context of techno-scientific digital media, thereby offering a pragmatic viewpoint.

In order to tackle this challenge, we intend to combine the formulation of theoretical models with a comprehensive analysis of the semantics inherent in copulative constructions involving pseudocopulative verbs. The main idea underlying these studies is that the semantic interpretation of the PCOS verbs is influenced by discursive semantic, in this case, the rhetorical relations. Therefore, the study adopts the theoretical frameworks of James Pustejovsky's Generative Lexicon Theory (Pustejovsky, 1991; 1995) and Nicholas Asher and Alex Lascarides Segmented Discourse Representation Theory (Asher, 1993; 2011; Asher & Lascarides, 1995; 2005), enabling the development of a theoretical model for semantic-pragmatic analysis.

As a result, this paper scrutinizes the dynamic semantics involved in the interpretation of metaphorical expressions and disambiguation of copulative constructions within authentic contexts. Furthermore, we

GAO Mengning, Ph.D., Lecturer, School of European Studies, Beijing International Studies University, Beijing, China.

underscore a noteworthy connection between the event structure of pseudo-copulative verbs and the temporal constraints which govern the rhetorical relations in segmented discourse.

As this paper is conducted from a semantic-pragmatic perspective, we direct our attention to the pragmatic use of these verbs in some specific materials, in this case, the techno-scientific news in digital media. The first part of this paper offers a critical overview of the literature on *ponerse*, *quedarse*, *volverse*, and *hacerse.* The second section introduces the theories that are applied in the research. The third part provides the methods used in this paper including the formation of the corpus and the perspectives of the semantic-pragmatic analysis. Afterward, we will focus on the restrictions which the rhetorical relations impose on the PCOS verbs. To demonstrate the restriction, we used the agentive interpretation of the subject in the PCOS verbs' construction and the alternation of PCOS verbs with the same attribute. The final part draws some conclusion on the basis of the original corpus and introduces some future lines of research in the pragmatic research about the PCOS verbs.

Literature Review

Although the study of PCOS verbs has an established history, most of the researchers concern about the agentive implication and aspectual nuances among them: *ponerse* and *hacerse* sometimes encompass the subject's intention, while others do not; the copulative construction of *ponerse* and *quedarse* always describes those changes of state with the properties of *stage-level*, while the other two PCOS verbs, *hacerse* and *volverse*, denote the changes with properties of *individual-level* (Morimoto & Pavón Lucero, 2007). The combination of these verbs also forms an important part of the study. Nevertheless, there is any conclusion accepted by all the authors, even the researchers also have to recognize that the combination of PCOS verbs with other attributes can be influenced by many factors, for example, the dialects.

From a critical standpoint, it becomes evident that traditional grammatical works have predominantly approached these verbs from a descriptive perspective, focusing on resolving problematic areas such as variation of the denomination, semantic and syntactic characteristics, and the classification based on the type of change of state denoted by those PCOS verbs. In contrast, monographic studies dedicated to these verbs clearly illustrate the evolution of linguistics, exploring the topic from various perspectives, particularly in semantics. The most recent perspectives encompass approaches such as Construction Grammar, Cognitive Semantics, and Spanish teaching. In this case, some researchers proposed hierarchical family of PCOS verbs construction (Ibarretxe-Antuñano & Cheikh-Khamis, 2019) and conceptual figures (Van Gorp, 2017) to elucidate the pragmatic usage of these verbs and the aspectual distinctions among them.

Generative Lexicon and Segmented Discourse Representation Theory

In our study, we rely on Generative Lexicon and Segmented Discourse Representation Theory as our theoretical background and propose an extension thereof. On one hand, with the study of De Miguel and Fernández Lagunilla (2000), the event structure of Generative Lexicon serves as a foundational component of our investigation. The framework provides us with insights into the specific aspects of this construction. Its generative mechanisms contribute to the materialization of the combination process. Another particular significance is the mechanism of semantic type change, which plays a crucial role in the combination process of lexical elements. Our aim is to conduct a formal inquiry into language that is both expressive and flexible enough to capture the generative nature of lexical creation. On the other hand, the work of Nicholas Asher and James

Pustejovsky has paved the way for the integration of lexical semantics and discourse semantics. Their contributions have laid the groundwork for our endeavor to explore the interplay between lexical structures and discourse representations within our study. By leveraging these established frameworks and extending their applications, we aim to deepen our understanding of the semantic and pragmatic dimensions of language use within our research domain.

The Generative Lexicon theory posits that words stored in our mental lexicon comprise some interconnected types of information, represented as structures. Qualia Structure encapsulates the most distinctive facets of a word's meaning, which are viewed as relationships between the word and the concepts conveyed by other words. Furthermore, verbs and nouns that denote events convey details about both the temporal organization (event structure) and the participants involved (argument structure) in the event they represent. The event categories proposed within the framework of Generative Lexicon align with the conventional Vendlerian typology, which classifies events into States, Processes, and Transitions. Additionally, these event structures may encompass discernible subevents, representing temporal segments or phases within the main event. Building upon this event structure, De Miguel and Fernández Lagunilla (2000) described the compositional event structure of the clitic "se" and expanded upon these three basic categories to delineate eight types of events, in order to scrutinize the aspectual nuances, present in different expressions.

Moving on to semantic composition, the Generative Lexicon theory suggests that the information contained within the aforementioned structures interacts during composition at a sublexical level. Contrary to the traditional Fregean notion of strict compositionality, the theory posits that the meaning of complex linguistic expressions is constructed compositionally through processes of mutual adjustment between the meanings of co-occurring words. In this paper, we will focus on one of the most significant processes within this framework: coercion. Coercion occurs when a verb, in conjunction with an argument, induces a change in the semantics of the argument to align it with the verb's selectional requirements. Coercion manifests in two primary subtypes: exploitation and introduction.

The Segmented Discourse Representation Theory (SDRT), developed by Asher and Lascarides (2005), aims to capture the semantics of segmented discourse, which includes not only lexical semantics but also rhetorical relations that impose spatial-temporal constraints to ensure discourse cohesion and coherence. The structures of segmented discourse representation (SDRS) are the basic units: they represent segmented discourse according to the rhetorical relations that connect the topics introduced by text segments. Drawing on the groundwork by Mann and Thompson (1987), Asher and Lascarides further include these rhetorical relations in dialogue. They categorize these relations into two types: those of coordination, which lack spatial-temporal constraints (e.g., contrast, parallelism, and continuation), and those of subordination with spatial-temporal constraints (e.g., elaboration and explanation).

Asher and Lascarides (1995) validated the efficacy of the SDRT model in elucidating how discursive information influences lexical semantics, particularly in the realm of anaphora. Years later, Asher later introduced the Type Composition Logic, inspired by Type Structure and the generative mechanisms of Generative Lexicon. This framework facilitates the interpretation of type change in semantics through process such as accommodation, coercion exploitation, and coercion introduction (Asher, 2011, p. 240). This innovative approach extends the capabilities of SDRT, providing a comprehensive framework for understanding the dynamic interplay between discourse structure and lexical semantics.

Methodology

To substantiate this inquiry, the data emanate from the samples from science and technology news published in the prominent digital media in Spain. Specifically, we have collected techno-scientific news articles with a 75% match to the science and technology domain. To attenuate the dialect effect, we have selected articles from *La Voz de Galicia*, *El Correro*, *La Vanguardia*, and *El Mundo* from the year 2021. On the basis of this corpus, our methodology proceeded as follows: firstly, we classified the materials according to their genre of the context. Next, by analyzing the communicative functions of these genres, we identified the prevalent rhetorical relations commonly employed across different genres. Finally, drawing inspiration from Asher's theories, we developed an analytical model aimed at elucidating the interaction between the semantic interpretation of PCOS verbs and the rhetorical relations. This model seeks to explain the metaphorical usage, alternation of PCOS verbs, and disambiguation of these verbs in contexts encountered in science and technology news articles.

In this analytical model, the interpretation of a discursive segment is predicated on the synthesis of both semantic and discourse information. This synthesis encompasses various elements, including argumental structure, event structure, the qualia structure, the rhetorical relations, and the temporal restrictions. Consequently, beyond merely establishing a hierarchical discursive structure based on lexical semantic, discursive semantic can also help to resolve the ambiguity of the lexical semantic.

Results and Discussion

As previously stated, our focus lies in the pragmatic use of PCOS verbs in digital media. With regard to the corpus, after cleaning and processing the data, we have obtained a total of 140 examples of *ponerse*, 114 examples of *quedarse*, 59 examples of *volverse*, and 111 examples of *hacerse*.

Table 1

Frequency of the PCOS Verbs in Techno-Scientific Digital Media

	Number of the examples	Percentage
Ponerse	140	33%
Quedarse	114	27%
Volverse	59	14%
Hacerse	111	26%
Total	424	

Because the rhetorical relations between the text segments reveal the intention of the author and determine the text coherence (Kovtunenko, 2018), in order to reveal the effect of the rhetorical relations on the semantic interpretation, we proposed the relations between the pragmatic functions and the rhetorical relations according to the corpus.

With the help of the preference of the rhetorical relations in various types of news, the interpretation of the copulative constructions involving pseudocopulative verbs can be refined. On the basis of the original corpus, there are two types of disambiguation. One is the agentive interpretation of the PCOS verbs, and the other is, the alternation of the PCOS verbs according to the aspectuality, and, in addition, the metaphoric expressions.

Firstly, let's analyze whether the agentive interpretation of the PCOS verbs is implicated by this copulative construction, with an example from the corpus, *hacerse famoso* and *hacerse millonario* in the chronicle *El*

millonario de bitcoin más joven del mundo quiere crear un móvil indetectable. Here is the segment including those constructions, which is already labelled by π_1, π_2, π_3, π_4, and π_5.

> Erik Finnan se hizo famoso hace unos años (π_1) al hacerse millonario (π_2) gracias a que invirtió mil dólares […] (π_3). Con 12 años comenzó a invertir en criptomonedas (π_4) y antes de ser mayor de edad ya tenía más de un millón de dólares (π_5). (Mejías, A., 2021-07-16)

Indeed, the potential for *hacerse* to imply an agentive interpretation of the subject needs a closer examination of the rhetorical relations connecting the text segments. To confirm whether the subjects in this segment are respectively agents or not, we need to recur to the more adequate rhetorical relations that connect the sentences, considering the preference that we resumed before.

Obviously, the rhetorical relations between π_1, π_2, and π_3 constitute the essential issue. From the shortened segment, it is evident that π_2 is introduced by the prepositional phrase *al*, typically indicating temporal information, while π_3 begins with *gracias a que*, indicating the reason. Since, in segmented discourses, *al* and *gracias a que* are respectively typical markers of *context* and *explanation*. Consequently, for the segment to achieve greater coherent, we propose that the most suitable rhetorical relation between π_1 and π_2 is that of *context*, while between π_2 and π_3, it is that of *explanation*. With this result, in π_1 *hacerse* does not imply an agentive interpretation, whereas in π_2, this verb functions as a transitive verb, implying the agentive will of the subject. Therefore, in π_1, Erik Finnan is assumed as the PATIENT, while in π_2, as the subject, this referent serves as the AGENT. Simultaneously, the clitic *se*, whose referent is also Erik Finnan, functions as a reflexive pronoun serving as the direct object and undergoes the change as the PATIENT.

Table 2

The Communicative Functions and Rhetorical Relations in Techno-Scientific Digital Media

Genres	Pragmatic functions	Rhetorical relations
Informative news	Information	Continuation, elaboration, narration, explanation, background.
	Persuasion, attraction	Explication, par of question, consequence.
Interview	Information	Rhetorical relations of dialogs.
Report	Professional and specific information	Elaboration, explanation, consequence, result, alternation, correction, background, question answer pair.
Editorial and article	Argumentation, persuasion, expression of the opinions	Explanation, background, elaboration, foreground background pair, result, parallela, correction, contrast, counterevidence.
Chronicle	Narration	Foreground background pair, background, narration, explanation, elaboration.
Infographic	Information	Explanation, alternation, background, consequence, elaboration, continuation, narration.

Concerning the metaphoric expressions with these verbs, such as personification and metaphors, rhetorical relations play a crucial role in confirming the dynamic semantic of the constructions with PCOS verbs. For instance, consider a metaphoric expression in a touristic news, which form the *elaboration* with the π_1 in (1). According to this *elaboration*, we can ascertain that the attribute *las pilas* selects *empresas, pymes y autónomos* as subject in line with their *telic quale*[1].

> Sostenibilidad para convertir un transporte responsable del 15% de los gases de efecto invernadero en neutro en carbono para 2050, aunque hay una permanente tensión para acortar los plazos (π_1). Empresas, pymes y autónomos están obligados a *ponerse las pilas* (π_2). (Llamas, F. 13 of Octorber of 2021)

---

[1] A level of the Qualia Structure of the Generative Lexicon which represents the function information of the word.

Finally, we can examine the alternation of the PCOS verbs. In the corpus, there are numerous examples of the alternation of these verbs, which is that an attribute can be combined with different PCOS verbs. For illustration, we choose two groups of verbs as representation, *quedarse/volverse obsoleto* and *ponerse/volverse* + color. Upon formulating the SDRS, we noted that the rhetorical relations that restrain the construction of *quedarse* and *ponerse*, which denote the change of states with the properties of the stage-level, always imply the temporal restriction (e.g. *continuation*, *explanation*, *elaboration*), while those restrain *volverse* are always without this kind of restriction (e.g. *narration*).

Conclusions

In this paper, we have conducted an analysis of the pragmatic uses of the PCOS verbs in techno-scientific digital media, encompassing their agentive implication of the subject, the metaphoric expression, and the alternation when combining with the same attribute with different interpretations. Our analysis reveals that the rhetorical relations within the discursive structure not only convey the discursive semantic but also help to eliminate the ambiguity and refine the interpretation of metaphors.

In conclusion, this study advocates for an exploration of PCOS verbs within the framework of the Generative Lexicon. By examining their usage in techno-scientific digital media, we offer a fresh perspective on their study, introduce a dynamic semantics analysis methodology applicable to future research, and pave the way for further investigations into semantics and pragmatics. Specifically, we highlight the intricate interplay between rhetorical relations and the event structure of verbs, which enriches our understanding of language usage in diverse contexts.

References

Asher, N. (1993). *Reference to abstract objects in discourse* (Vol. 50). Dordrecht: Kluwer Academic Publishers.

Asher, N. (2011). *Lexical meaning in context: A web of words*. Cambridge: Cambridge University Press.

Asher, N., & Lascarides, A. (1995). Lexical disambiguation in a discourse context. *Journal of Semantics, 12*(1), 69-108.

Asher, N., & Lascarides, A. (2005). *Logics of conversation*. Cambridge: Cambridge University Press.

De Miguel, E., & Fernández Lagunilla, M. (2000). El operador aspectual «se». *Revista española de Lingüística, 30*, 13-44.

Ibarretxe-Antuñano, I., & Cheikh-Khamis, F. (2019). How to become a woman without turning into a Barbie: Change-of-state verb constructions and their role in Spanish as a foreign language. *International Review of Applied Linguistics in Language Teaching, 57*(1), 97-120. Retrieved from https://doi.org/10.1515/iral-2018-2008

Kovtunenko, I. V. (2018). Rhetorical relations of contrast in the blog text: Marking means, semantics, functions. *RUDN Journal of Russian and Foreign Languages Research and Teaching, 16*(1), 63-90. Retrieved from https://doi.org/10.22363/2313-2264-2018-16-1-63-90

Mann, W. C., & Thompson, S. A. (1987). *Retorical structure theory: Theory of text organization*. In L. Polanyi (Ed.), *Discourse structure*. Norwood, NJ: Ablex.

Mejías, A. (16 of July of 2021). El millonario de bitcoin más joven del mundo quiere crear un móvil indetectable. *La Vanguardia*. https://www.lavanguardia.com/tecnologia/20210716/7605496/millonario-bitcoin-mas-joven-mundo-quiere-crear-movil-indetectable-mmn.html

Morimoto, Y., & Pavón Lucero, M. V. (2007). *Los verbos pseudo-copulativos del español*. País: España.

Llamas, F. (13 of Octorber of 2021) El transporte profesional es una prioridad de la nueva movilidad. *El Mundo*. https://www.elmundo.es/motor/2021/10/13/61667f0ee4d4d8df4c8b4576.html

Pustejovsky, J. (1991). The generative lexicon. *Computational Linguistics, 17*(4), 409-441.

Pustejovsky, J. (1995). *The generative lexicon*. Cambridge, MA: MIT Press.

Van Gorp, L. (2017). *Los verbos pseudo-copulativos de cambio en español: Estudio semántico-conceptual de hacerse, volverse, ponerse, quedarse*. Frankfurt am Main: Vervuert Verlagsgesellschaft. Retrieved from https://doi.org/10.31819/9783954876310