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A Study on Meanings of English Polysemous Nouns from the Perspective of Cognitive Domain

Jianglin Xiang, Chaoqin Chen & Wanwu Huang

Hubei University of Technology, Hubei, China

Abstract

This study presents a systematic investigation of English polysemous nouns from the perspective of cognitive domains, exploring how different cognitive domains contribute to the construction and extension of noun meanings. The research identifies and analyzes two fundamental types of cognitive domains: the Cognitive Domain for Entity and the Cognitive Domain for Event. The former is further divided into macro-cognitive and micro-cognitive domains, while the latter manifests through verb-noun and preposition-noun structures.

Through detailed analysis of authentic language examples, this study reveals that the Macro Cognitive Domain exhibits conventional characteristics of entities and establishes fixed noun meanings, while the Micro Cognitive Domain reveals entity-specific qualities that become salient in particular contexts. The research also demonstrates how nouns can extend their meanings from entity reference to event reference through qualia structure and prepositional constructions.

The findings suggest that noun polysemy is systematically motivated by cognitive mechanisms and contextual factors, rather than being arbitrary. This study not only advances theoretical understanding of polysemy but also provides practical implications for language teaching and learning. The cognitive domain framework offers valuable insights into how words acquire and maintain multiple related meanings within systematic cognitive structures.

Keywords

Cognitive domain, Polysemy, English nouns, Semantic extension, Meaning construction, Entity-event transition

1. Introduction

Multi-meaning words are called polysemous words. Words of this type are typical in language. According to Lyons (1995), there has never been a natural language where each word has a singular meaning. According to Ullmann (1951), communication would be difficult if there were different words for “bath”, “shampoo” and “wash hair” and no common term for “wash”. Everyone is aware that polysemous words have long been a focus of linguistic research, and several schools look at word

meanings from various angles, such as semantic viewpoint, syntactic perspective, cognitive perspective, etc.

Polysemous words have been studied from various perspectives in linguistics. While traditional approaches including descriptive grammar, metaphor, and metonymy have made significant contributions, they each have limitations. Descriptive grammar focuses mainly on countable and uncountable variations, offering only partial explanations. Metaphorical and metonymic approaches, though insightful for referential functions, cannot fully explain phenomena like the different meanings of 'book' in phrases such as 'read/burn/buy a book'. The cognitive grammar approach provides a more comprehensive framework but faces challenges in systematically analyzing the potentially unlimited nature of cognitive models. There remains a need for a more structured approach to analyzing polysemous nouns through cognitive domains.

This study aims to:

1. Investigate the systematic patterns of English polysemous nouns through cognitive domains;
2. Explore the relationship between different types of cognitive domains and meaning construction;
3. Develop a structured framework for analyzing noun polysemy.

The significance of this research is threefold. First, it provides a systematic approach to understanding noun polysemy through cognitive domains. Second, it bridges the gap between theoretical cognitive linguistics and practical semantic analysis. Third, it offers practical implications for language teaching and learning.

2. Literature Review

2.1 Previous Studies on Polysemous Nouns at Abroad

Early studies on word meaning can be traced back to Berlin (1976), who emphasized that words are foundational elements of the universe, forming the basis of memory, imagination, family, society, literature, and history. From a cognitive perspective, Deane (1988) positioned linguistics as a branch of cognitive science, arguing that linguistic theory development heavily relies on nonverbal data. He proposed that polysemy emerges from both lexical concepts and grammatical structural flexibility, viewing it as an optimization of human communication that maximizes usable information while minimizing speech processing effort.

A significant contribution to the field came from Wierzbicka (1985), who conducted comprehensive analyses of English noun meanings in 'Lexicography and Conceptual Analysis'. Her work highlighted the complexity of semantic analysis, particularly in the relationship between superordinate words and their hyponyms. For instance, while 'fish' has clear hyponyms like trout, salmon, and tuna, terms like 'fruit' and 'furniture' require different analytical approaches, functioning more as 'cover terms' or 'grouping words'.

Taylor (1995) approached polysemy from a categorical perspective, arguing that while the meanings of polysemous words are distinct, they maintain interconnections. He proposed that categories expand as

words' semantic ranges extend from core meanings to peripheries, driven by cognitive processes and object classification. Building on this foundation, Ungerer and Schmid (2006) explored word meaning through metaphor and metonymy to expand semantic range understanding.

Recent contributions include Horvat's (2021) investigation of context and cognition's impact on literal and rhetorical polysemy interpretation, demonstrating that metaphorical polysemy comprehension can be as accessible as literal meaning with appropriate contextual support. Additionally, Priestley (2017) examined body component noun pluralization, revealing how these nouns' meanings vary based on their characteristics and functions.

2.2 Previous Studies on Polysemous Nouns at Home

Domestic research has made significant contributions to understanding abstract nouns and cognitive approaches to polysemy. Zhang (1996) established a comprehensive classification system for English abstract nouns, identifying five categories: abstract nouns of conduct, quality, identity, inherence, and compound. His work also examined grammatical, rhetorical, and theoretical aspects of frequently used abstract nouns. Building on this foundation, Cai (2003) conducted a systematic investigation of English abstract nouns, incorporating both theoretical perspectives and practical applications, with particular attention to their rhetorical functions in literature.

Many scholars have explored word polysemy from cognitive perspectives. Wang and Li (2004) examined the relationship between cognition, word meaning, and embodied philosophy, arguing that embodied philosophy serves as cognitive linguistics' philosophical foundation. They demonstrated how human experience substantially constrains language form and meaning, using examples like the word 'see' to illustrate how physical experience shapes semantic extension.

Ma (2011) characterized polysemy as a linguistic phenomenon where words possess multiple related meanings, providing evidence that new meaning development results from diachronic linguistic processes involving human cognition rather than random evolution. Wang (2015) further contributed by explaining how figure-ground alternation in human perception of objective things enables words to carry multiple meanings, effectively demonstrating this through analyses of both Chinese and English examples.

2.3 Research Gaps

Despite the valuable contributions of previous studies, several significant gaps remain in the current research:

1. Theoretical Integration Gap While cognitive approaches have provided valuable insights, there lacks a systematic framework that effectively integrates different types of cognitive domains in polysemy analysis.

2. Methodological Gap Previous studies have not fully addressed how to systematically analyze the transition between entity and event meanings in polysemous nouns, particularly in different linguistic contexts.

3. Practical Application Gap There remains a need to bridge theoretical understanding with practical applications, especially in language teaching and learning contexts.

This study aims to address these gaps by developing a comprehensive analytical framework based on cognitive domains, examining both entity and event meanings of polysemous nouns.

3. Theoretical Framework & Methodology

3.1 Theoretical Foundation

The theoretical foundation of this study builds upon Langacker's (1987) cognitive domain theory. Cognitive domains provide essential background information for understanding noun referents, with two fundamental types: basic domains and abstract domains.

Basic domains form the foundational level of conceptual complexity, serving as building blocks for understanding word meanings. Our sensory systems provide various basic cognitive domains:

- Visual domain: space and color perception
- Auditory domain: pitch and sound
- Tactile domain: temperature, pressure, and pain
- Other sensory domains: taste and smell

Abstract domains build upon and relate to basic domains, adding layers of conceptual complexity. For example, while 'body' exists within the basic domain of three-dimensional space, 'arm' belongs to the abstract domain of 'body'.

3.2 Research Framework

This study adopts a systematic analytical framework based on two key components:

Dimensional Analysis

- Examination of domain dimensionality
- Analysis of dimension interactions within domains
- Investigation of domain-dimension relationships

Cognitive Domain Classification

- Macro-cognitive vs. Micro-cognitive domains
- Entity cognitive domains vs. Event cognitive domains

Analytical Procedures

- Identification of polysemous meanings
- Context-based domain analysis
- Systematic pattern recognition

3.3 Data Collection and Analysis

The analysis draws upon authentic language examples to demonstrate how cognitive domains operate in actual language use. Examples are analyzed through:

Context Analysis

- Identification of relevant cognitive domains

- Examination of domain interactions
- Recognition of meaning extension patterns

Semantic Pattern Analysis

- Entity-to-event transitions
- Domain activation patterns
- Contextual influence factors

4. Analysis of Polysemous Nouns on Cognitive Domain

4.1 Cognitive Domain for Entity

This section examines noun referents through two distinct cognitive domains: macro-cognitive and micro-cognitive domains. For analytical convenience and clarity, cognitive domains are categorized into these two types. The macro-cognitive domain represents the domain where humans comprehend the general characteristics of an entity, corresponding to the basic meanings of nouns. The micro-cognitive domain, in contrast, represents the domain where humans understand an entity when only one specific aspect is highlighted, relating to contextual noun usage.

4.1.1 Polysemous Nouns on Macro Cognitive Domain

The macro-cognitive domain provides foundational understanding of noun referents through multiple interrelated cognitive domains. Consider the noun 'car' as an exemplar. A car occupies physical space, thus initially understood within the spatial domain. It possesses a specific shape, which, while not a basic domain itself, derives from the spatial domain. These represent the car's physical characteristics. Additionally, a car has functional characteristics, such as mobility, involving the domain of positioning. These various aspects of a car—its appearance, function, and operation—engage multiple cognitive domains, all fundamental to the car's nature and falling within the Macro Cognitive Domain. As Langacker (2017) notes, while all these cognitive domains contribute to understanding when the noun is used in context, some domains become more central while others remain peripheral.

Consider the following examples:

S1: 'But what would happen if we just parked the car outside the home and our home was located in crime-prone areas?' In this context, 'car' activates multiple cognitive domains related to the entity, with the locational domain becoming central. The sentence emphasizes the car's spatial positioning rather than its other attributes.

S2: 'A lot of the women don't know how to drive the car.' Here, the function domain becomes primary due to the verb 'drive', highlighting the car's operational characteristics rather than its physical attributes.

S3: 'Cornering limits are very high, with lots of grip, but the car is wide and cumbersome on narrow road.' This example foregrounds the form domain, emphasizing the car's physical dimensions and their implications for maneuverability.

In each case, while the noun 'car' maintains its connection to the physical entity, different cognitive

domains become salient based on contextual factors, demonstrating how the macro-cognitive domain facilitates flexible yet coherent meaning interpretation.

4.1.2 Polysemous Nouns on Micro Cognitive Domain

The objective world contains countless entities, each possessing various attributes. Entity attributes can be observed through four primary aspects: temporal attributes, spatial attributes, and physical attributes. The phenomenon of noun polysemy connects, either directly or indirectly, to these characteristics of the referent entity.

Let us examine this through several examples:

S4: 'Before cars and buses, most people couldn't live far from their work, so there are two types of people: town people and country people, with two different cultures.' Here, 'cars and buses' transcends mere physical reference to implicate the temporal domain, specifically the historical moment of their emergence. The nouns inherently suggest the verb 'appear' through temporal context.

S5: 'Go to your mother, Lucius. It's what she'd like.' While 'mother' clearly denotes a person, the preposition 'to' activates its spatial dimension, treating the person as a location. This demonstrates how syntactic context can shift the dominant cognitive domain.

S6: 'You can smell roses, not smog.' In this instance, 'roses' refers specifically to their fragrance rather than the physical flowers, while 'smog' indicates its odor rather than its visible form. This semantic narrowing occurs through the verb 'smell's' selective activation of specific attributes, demonstrating how verbal context can restrict and specify noun meaning within the micro-cognitive domain.

4.2 Cognitive Domain for Event

The cognitive domain for events manifests in two primary structural patterns: 'v + n' structure and 'prep + n' structure. The former involves verbs preceding event-denoting nouns, while the latter features prepositions preceding such nouns. These structures represent different mechanisms through which nouns can extend their meanings from entity reference to event reference.

4.2.1 Cognitive Domain for Even in “V+N” Structure

In the macro cognitive domain, 'tea' represents an objective entity—dried tea bush leaves—or the hot beverage produced by infusing these leaves with boiling water. However, in specific contexts, 'tea' can extend from entity reference to event reference, transitioning from the Cognitive Domain for Entity to the Cognitive Domain for Event.

Consider the following examples:

S7: 'The English love tea.' The noun 'tea' here transcends simple entity reference; it implicitly means 'drinking tea.' This interpretation becomes clear through qualia structure analysis:

Constitute: leaf

Formal: piece

Telic: drink

Agentive: planter, picker The telic role 'drinking' activates the function domain of tea, extending the noun's meaning from entity to associated event.

S8: 'I like meat too much to give it up.' Meat, fundamentally a food item, carries the primary function of consumption. This encyclopedic knowledge enables comprehension of the implied event—'eating meat'—without explicit verbal indication.

S9: 'I don't want pizza.' The function domain of the entity becomes salient, transforming the noun into an event reference. Common knowledge indicates eating as pizza's primary function, thus 'pizza' here implies 'eating pizza.'

S10: 'I began a book about a woman who had married a TV preacher.' The interpretation of 'book' in this context depends on the subject's role. If 'I' is a reader, 'book' implies 'reading a book'; if a writer, 'writing a book'; if an editor, 'editing a book.' Thus, the specific event referenced by the noun depends on contextual factors beyond the noun itself.

4.2.2 Cognitive Domain for Even in “Prep+N” Structure

English prepositions can activate entity functions in specific contexts. Within the 'prep + n' structure, this analysis distinguishes between two event types: function-related events and function-independent events. The former connects to the entity's inherent purpose, while the latter relates to events independent of the entity's primary function.

Consider these examples:

S11: 'So you can come with us to the soup place? No, you have a good lunch. I'll meet you here for the movie.' Two significant elements require attention here. First, the relationship between 'soup' and 'soup place' suggests a location for consuming soup. Second, 'for the movie' implies 'for watching the movie,' as viewing represents the primary function of movies.

S12: 'Do you look for consolation after a piece of bad news?' Here, 'news' implies 'hearing news.' The prepositional phrase activates the primary function of news—informing people—allowing the associated verb to remain implicit without loss of meaning.

S13: 'He has a way with children.' While 'children' fundamentally refers to young humans, in this context it implies an event—'taking care of children'—demonstrating how prepositions can trigger event interpretations unrelated to the noun's primary function.

S14: 'They predicted death within 1-6 months for patients with cancer receiving chemotherapy.' 'Cancer,' while primarily denoting a medical condition characterized by abnormal cell growth, here implies 'having cancer,' showing how prepositional phrases can transform state descriptions into event references.

5. Conclusion

This study has systematically investigated the polysemy characteristics of English nouns through the lens of cognitive domains, revealing how different cognitive domains contribute to meaning construction and extension. Based on our analysis, several significant findings emerge:

First, this research identifies two fundamental types of cognitive domains in English noun interpretation: Cognitive Domain for Entity and Cognitive Domain for Event. The distinction between these domains lies in whether the noun refers to an entity or an event in specific contexts.

The Cognitive Domain for Entity manifests particular qualities of the referenced entity through two primary mechanisms:

- The Macro Cognitive Domain exhibits conventional characteristics of entities and establishes fixed noun meanings
- The Micro Cognitive Domain reveals entity-specific qualities that only become salient in particular contexts

The Cognitive Domain for Event represents the transition from entity reference to event reference. This study identifies two key factors that facilitate this semantic extension:

- Qualia structure, which enables nouns to acquire event meanings through their functional properties
- Prepositional constructions, which can activate event interpretations of nouns

The analysis demonstrates that noun polysemy is not arbitrary but systematically motivated by cognitive mechanisms and contextual factors. The meaning potential of nouns is realized through the interaction between different cognitive domains and specific linguistic contexts.

This research contributes to both theoretical understanding and practical applications:

1. Theoretical implications:
   - Provides a systematic framework for analyzing noun polysemy through cognitive domains
   - Demonstrates the dynamic interaction between different types of cognitive domains
   - Reveals the cognitive mechanisms underlying meaning extension
2. Practical implications:
   - Offers insights for language teaching and learning
   - Provides a methodological framework for analyzing polysemous words
   - Suggests approaches for vocabulary instruction

Future research could further explore:

- Cross-linguistic comparisons of cognitive domain effects
- Corpus-based studies of cognitive domain patterns
- Applications in second language acquisition

In conclusion, this study not only advances our understanding of English noun polysemy but also provides a practical framework for analyzing and teaching polysemous words. The cognitive domain perspective offers valuable insights into how words acquire and maintain multiple related meanings within systematic cognitive frameworks.

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