European Journal of Philosophical Research. 2026. 13(1)
E-ISSN: 2413-7286
Volume-13/Issue-1/2026

Mental Representations of Linguistic Meaning: A Cognitive Approach to Meaning in Language

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Submission: 22.06.2025| Acceptance: 22.02.2026| Publication: 14.05.2026

Abstract:
Language is, above all, a natural phenomenon. Its study has undergone many developments across different eras. Due to huge advances in human knowledge and scientific and technological progress, the newer directions of linguistics — especially the cognitive approach — have tried to uncover one of the mysteries of this human phenomenon.
However, this time the questions are not only about language itself, but also about the physiological, biological and psychological mechanisms that comprise it. Alongside recent developments in neurological, technical and computational research, cognitive linguistics has demonstrated the pivotal role of the human brain in generating the mental patterns that form the conceptual content of language meanings and discourse structures in external reality.
Thus, it became possible to reveal the process through which mental mechanisms form meaning and how they connect to external reality — results that have become scientific facts.
Keywords: cognitive linguistics, cognitive studies, mental representations, cognition, linguistic meaning.

Introduction

Language is one of the key social phenomena that has attracted the attention of many scholars and researchers throughout history. Following the scientific progress experienced by humanity, especially in recent centuries, human thought has raised new questions in line with these modern developments.
Following a long engagement with various linguistic issues, such as the origin of human language, language origins, tracking their evolution, describing their structures and comparing them with one another, recent research has increasingly attempted to gain a deeper understanding of language's true nature. This has been achieved by investigating its processes and most important mechanisms of functioning.
In light of the technological advancements in knowledge across all fields today, linguistics scholars, like others, have turned to the results achieved in other sciences to solve linguistic problems, particularly in the areas of biology, logic, mathematics, computing and artificial intelligence. The convergence of findings from these sciences and linguistic research has led to a

major revolution in interdisciplinary studies, resulting in the emergence and growth of cognitive linguistics.

Cognitive linguistics seeks to develop general models and approaches for understanding and interpreting linguistic phenomena by drawing on linguistic and non-linguistic knowledge. Following significant research in this area, scientists have recently revealed some of the scientific secrets related to language, particularly by identifying the key biological regions responsible for certain mental processes involved in language production and use.

This is what this study will attempt to uncover. To achieve this, it will attempt to answer the following question:

How has the dynamic nature of language been explained in its mental environment through cognitive research? To what extent has cognitive linguistics succeeded in accomplishing this?

1. Cognitive Linguistics and the Linguistic System

1.1 The cognitive theory

In its broadest sense, the cognitive theory refers to a body of knowledge that studies the functioning of the mind and intelligence through the collaboration of multiple disciplines. These include philosophy, psychology, artificial intelligence, neuroscience, linguistics and anthropology(Al-Zanad, 2010, p. 15).

The main focus is intelligence in general, and human intelligence in particular. The theory attempts to explore the depths of intelligence and reveal its psychological, linguistic and anthropological manifestations. This is achieved by studying the brain at two levels:

1. The first level (the functional level) examines how information is processed and the methods used to process it.

2. The second level (the material level): This represents the physical system formed by internal neural connections(Dazhi, 2014, p. 51).

In other words, this type of study investigates the mechanisms of how the mind functions, especially those related to intelligence. The goal is to understand the structure and functioning of the human mind(Mansour, 2019, p. 147). Therefore, cognitive theory can be considered a scientific research project closely related to the natural sciences(Ahmad, 2014, p. 53).

As a result of recent developments, particularly in artificial intelligence, a distinction has emerged between two things:(Ahmad, 2014, p. 54)

- Knowledge (connaissance): meaning rationalised information resulting from conscious, culturally developed thinking.
- Cognition (cognition): meaning knowledge resulting from the innate processing of biological information by the brain.

Therefore, cognition is knowledge rooted in the properties of the brain that goes beyond conscious awareness and perception, yet is still suitable for scientific study.

Based on the above, researchers consider knowledge to be part of cognition, while cognition is broader and more comprehensive than knowledge.

Cognition aims to answer questions such as:
How do we think?
How do we acquire information?
How is it stored?
How is it retrieved and used?
As language is one of the topics addressed by cognitive research, work has increasingly focused on how the brain processes linguistic information — how it stores, analyses and produces it. Today, many sciences—such as neuroscience, logic, psychology, and linguistics—strive to uncover the secrets of these brain functions using methods that go beyond ordinary thinking and the usual scientific approaches(Ahmad, 2014, p. 53).

1.2 Cognitive linguistics

Some contemporary linguists have attempted to develop a new approach to linguistic research, focusing on mental processes and the perceptual abilities involved in analysing and producing language(Dazhi, 2014, p. 51). Cognitive linguistics is based on the study of the relationship between human language and the mind(Ahmad, 2014, p. 55).
It aims to understand and explain the mechanisms through which language is structured, and how mental representations (i.e. imagery and conceptual models of language) are formed. It also examines the sources responsible for generating these representations and the interactive processes that control them. Therefore, cognitive linguistics is an attempt to study language from a conceptual perspective, assuming that language reflects the essential properties and design features of the human mind(Green, 2006, p. 5).
The history of cognitive linguistic research dates back to the mid-1970s of the 20^(th) century. Following Ferdinand de Saussure's idea that language is systematic and an internal science independent of external factors such as psychological, social and historical influences, Noam Chomsky later argued that linguistics is a branch of psychology and cannot be separated from it. Subsequently, efforts began to focus more strongly on the problem of linguistic meaning and the mechanisms by which meaning occurs at the mental and cognitive levels of human beings.
This development was also encouraged by the progress in computer software in the second half of the twentieth century, which acted as a powerful stimulus for this new type of linguistic research.
Important studies by researchers such as Ray Jackendoff, George Lakoff and Ronald Langacker succeeded in demonstrating the active role of meaning in language development. These studies also revealed the relationship between language structure and external factors such as neural, psychological and logical processes, as well as everything connected to the activities responsible for producing knowledge. As language is one of the most revealing manifestations of knowledge, cognitive linguistics adopted it as a central field of study, establishing itself as one of the most important branches of cognitive linguistics(Abdulrahman Muhammad Ta'ma, 2019, p. 96).

1.3 The Linguistic System and the Cognitive Perspective

If cognition is the mind's ability to process information, such as thinking, storing(Qariya, 2011, p. 14), executing and organising perceptions, then the linguistic system is part of cognition. Like other symbolic activities, it is a product of cognitive activity centred in the brain as a physical organ.

All mental activities occur in the brain. However, language, by its nature and organisation, is only one aspect of this mental activity. Consequently, language possesses cognitive (unconscious) characteristics that human beings are usually unaware of(Ahmad, 2014, p. 56). This is because these characteristics follow complex neural pathways. In short, both what we consciously perceive of language and what we do not are cognitive(al-Habacha, 2008, p. 59).

Therefore, the brain and all its processes are at the core of cognitive thinking, with language being the primary concern.

As cognitive sciences describe it, the brain is simply a natural biological capacity for processing information. Knowledge is the information that enters the brain and interacts with this built-in capacity, producing results that lead to new knowledge(Ahmad, 2014, p. 54). This process is known as cognition.

In general, research agrees that linguistic thinking can occur on three levels within the cognitive perspective: (Abdulrahman Muhammad Ta'ma, 2019, p. 16)

1. First level (biological level of the brain): This refers to the biological aspect, with millions of interconnected neurons organised in such a way as to form the mental structure of the human mind.
2. Second level (cognitive/perceptual level): This concerns the shaping of everything outside the mind (reality, the world or experiences) into conceptual images inside the human brain. These are usually called 'mental representations'.
3. Third level (information processing): This focuses on describing how information moves through the neural network and turns into a system of categories and concepts. These concepts determine how the world is represented, structured and modelled in the human mind.

From a cognitive point of view, language is the product of the brain's neural network. This network generates and analyses language through mental representations and special logical programs — from sound to word to sentence.

Specialists in this area believe that human language is essentially a cognitive ability governed by a set of abstract mental rules. These rules build concepts and mental representations that help the mind to understand, learn and communicate. All of this takes place in the brain(Abdulrahman Muhammad Ta'ma, 2019, p. 24).

2. The Cognitive Process in Shaping Linguistic Mental Representations

There is no doubt that, while living in a world full of objects and knowledge, human beings must first perceive and understand these things. Only then can they interpret them. Understanding and

perceiving reality and its meanings is crucial for people because it enables them to adapt and communicate.

Researchers assume that to achieve this — understanding and realising meaning — there must be strong connections between the objects a person perceives and the images or ideas of these objects in their brain. Based on this, scholars have theorised that there are mental conceptual groups within the brain whose primary function is to grasp the meaning of each experience a person has with their external reality.

Due to its enormous and very fast ability to understand, predict, guess and generate knowledge, scientists consider the human brain to be an exceptional 'information-processing model' that cannot be matched by any similar kind of programming(Abdulrahman Muhammad Ta'ma, 2019, p. 324). This is because the brain is the primary centre of mental and cognitive processes responsible for processing information from different centres of perception. Researchers call this the functional activity of the brain(Abdulrahman Muhammad Ta'ma, 2019, p. 16).

Given the importance of this brain activity and its cognitive capacities, many linguists, such as George Lakoff and Mark Johnson, have sought to uncover the secrets of these abilities. As a result of numerous experimental studies, they arrived at a significant concept that transformed the direction and structure of contemporary linguistic thought.

Lakoff argues that the human brain has a special cognitive mechanism that enables it to organise — or even create — a way of thinking with which to understand the world around it. He calls this mechanism 'conceptual metaphor'. He clarifies that, in this context, the term 'metaphor' does not refer to what is traditionally understood in classical linguistic or literary studies. Instead, it refers to basic conceptual metaphors that serve as the foundation for building new concepts, i.e. understanding one conceptual domain through another(Daniel Saputra Gurning, 2025, p. 147).

Conceptual Metaphor Theory (CMT):

Proposed by Lakoff and later developed by Johnson, CMT does not focus on words. Instead, it focuses on the human mind. Metaphor shapes the different ideas in our thoughts.

Our beliefs, whether religious, philosophical or cultural, are largely the result of our sensory experiences, and these experiences play a central role in forming these ideas. Metaphor exists in our thoughts and actions. It is responsible for forming our conceptual system, which plays a key role in how we think, experience things, and act every day(Johnson, 2003, p. 4).

Language is merely a reflection of what happens in our minds. In other words, linguistic expressions reveal the ways in which we think, which are known as conceptual metaphors(Kovecses, 2002, p. 6).

Supporters of this theory emphasise the close relationship between the external environment, the mind, and language. In this context, cognitive linguistics focuses on discovering the path of interaction between these elements. Since concepts are the main element shaping this path, many cognitive explanations have attempted to determine the nature of this path and describe how concepts are represented in the mind.

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2.1 Forming mental concepts and how they are organised

Cognitive linguists agree with other language scholars that the purpose of language is not just communication. It is strongly connected to thought. Language is its tool. It is a fundamental mental ability located in the brain that all societies depend on(Abdulrahman Muhammad Ta'ma, 2019, p. 66).

As experimental research in psychology and neuroscience has progressed, cognitive linguists have become convinced that the worlds of the mind and language are strongly connected in the creation of the different meanings and knowledge that human beings form while living their lives.

These three elements interact dynamically and reciprocally in the form of a 'loop' (a circular process). The process begins with a person's sensory experiences of the external world, then moves to the mental perceptions produced by those experiences. Next, it reaches the linguistic encoding that language provides for these perceptions. Finally, it returns to the external environment, but this time the experience is different and has a different meaning.

These linguists emphasise that, although all three elements are important in shaping meaning, language is the core that links and coordinates their interactions. The following diagram shows the most important relationships among these elements as cognitive linguists view them.

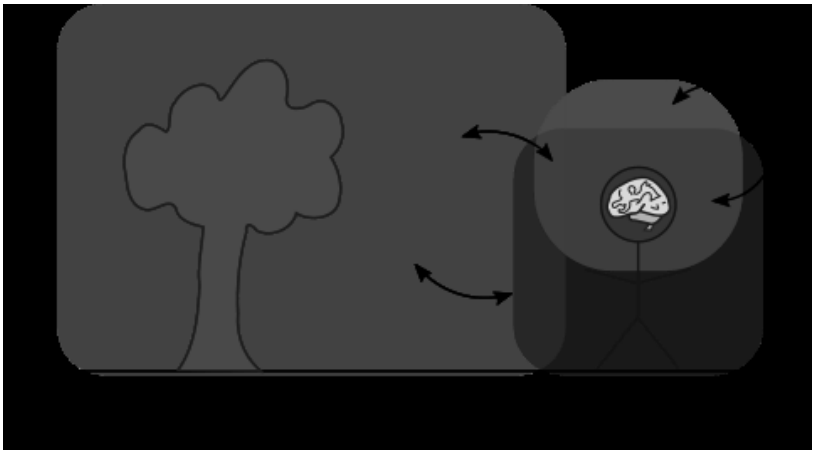

Diagram: Relationships between the three worlds (world, mind and language).

This means that the lived world is a sensory, concrete world that a person experiences through all their senses: sight, hearing, smell, touch and taste. These senses expose a person to experiences that they can only truly understand through their mental perceptions.

Together, these perceptions aim to create a special language to express the experiences a person has undergone. Language then helps to reconstruct the experience in a way that allows a person's understanding of the world to expand further. Consequently, they develop new perspectives, ideas and beliefs that they did not have before. Cognitive linguists refer to this process as the way in which meaning is formed to understand and internalise the lived world.

To support the idea presented in the first diagram, scholars use the following diagram to explain how concepts move from observable reality to mental representation in the brain.

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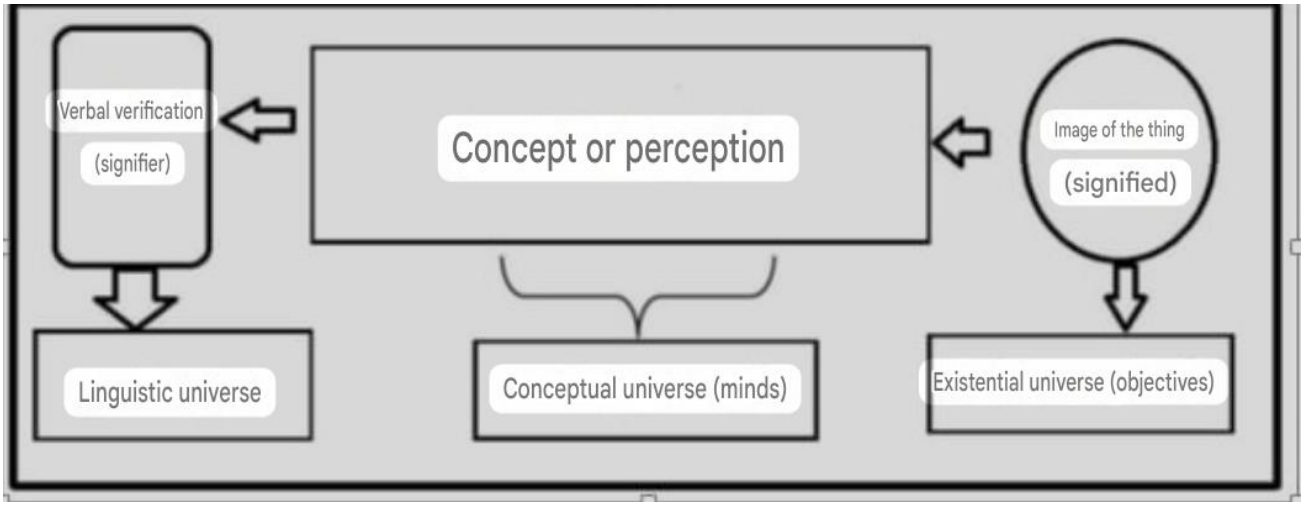

Sketch/schematic representation(Abdulrahman Muhammad Ta'ma, 2019, p. 67)

Researchers assume that the external environment contains many things, whether visible objects or sensory knowledge, that reach people's minds through the senses. Thanks to the innate cognitive ability present in humans from birth and the subsequent mental processes carried out by the brain, people are able to form their perception of the world and communicate it(Abdulrahman Muhammad Ta'ma, 2019, p. 67).

It is clear from this that there are major dynamic interaction relationships in the form of a loop connecting these factors. This can be represented as follows:

Environmental stimuli (sensory) → perception → mind (understanding) → language (meaning production) → experience again (speech production).

This represents the general structure of interaction between: (World – Mind – Language).

Stages of forming meaning:

The process of forming meaning can initially be divided into several main stages.

2.1.1 The Sensory Stage

It is scientifically established, based on many field studies, that children do not acquire the meanings of words until they have learned them from their external environment.

This means that, at the beginning of language acquisition, a child cannot express something they have never perceived. For example, a child cannot produce the word "father" (بابا) in the absence of seeing their father. However, if the child repeatedly hears their father use that word, they can learn to say it, even when their father is not present(Abdulrahman Muhammad Ta'ma, 2019, p. 71).

Cognitive theorists argue that a person's senses are the primary source of information about their environment, whether through sight, hearing, touch, smell or taste. These senses operate through specific physiological and mechanical mechanisms that are innate to the individual. Once

external stimuli reach a person, their senses capture and convert them directly into special neural signals.

These signals then travel via nerve impulses and specialised neural networks created for this purpose through specific neural pathways, either for vision, hearing and other modalities, until they reach synaptic connections in the brain whose function is to decode these signals. One of the key features of this stage is that it lasts a very short time, not exceeding one second (approximately 100 to 500 milliseconds). During this stage, there is no cognitive processing of the received signals; they are merely recorded and transmitted(Baalawi, 2021, p. 51).

2.1.2 The perceptual (cognitive) stage

This stage begins when neural signals (stimuli) arrive at the brain regions responsible for processing them. These regions receive the signals and, through several chemical processes, select, identify and encode the stimuli — meaning they transform them from their natural form into a set of codes or symbols that carry meaning and can be processed further(Baalawi, 2021, p. 56). Each sensory input has its own code or symbol, called an optical (visual) code, auditory code, or other type depending on the sense involved(Baalawi, 2021, p. 51).

After encoding and coding, the next stage is distinguishing these symbols and categorising them to organise them into information units. This means classifying each piece of information into its appropriate category, such as classifying by shape, size, colour, taste or smell.

Thus, perception occurs at this stage: information is processed and organised into perceptual images, which are defined as “a set of mechanisms and processes through which a living being recognises the world and its environment based on information provided by its senses”(Baalawi, 2021, p. 51).

Perceptual images are the result of active mental processes that add meanings and connotations to different organisations derived from external knowledge and objects. They are essential for processing information, because understanding and meaning are achieved through them(Baalawi, 2021, p. 51).

This process is known as automatic reading (automation of reading). In other words, the mind can determine the semantic meaning of what it encounters through the perceptual mechanism it possesses, based on the representational patterns stored in its mental lexicon(Taouma, April 2025, p. 25).

Scientists have also observed that certain formal characteristics play a significant role in facilitating the perception of entities, such as colour and font type (straight or curved), among others. These features significantly influence mental retrieval processes during perception. John Stroop refers to this as Semantic Facilitation. Stroop’s theory suggests that colours, e.g. red or blue, function as stimuli that create strong compatibility between:

- The stimulus that activates mental representations stored in long-term memory, and

The concepts produced by the stimulus in short-term memory.

Therefore, colours facilitate the recall of the most appropriate representations(Taouma, April 2025, p. 36). Accordingly, the brain contains several different perceptual regions, such as areas specialised in colour perception and areas specialised in form perception.

2.1.3 Mental Visualisation Stage (Mental Representation)

This stage is considered one of the most complex stages involved in constructing meaning. After organising perceptual images, the next step is to subject these images to neural and chemical processes to convert them into mental concepts (also called conceptual images)(Abdulrahman Muhammad Ta'ma, 2019, p. 16).

Mental representation is a form of cognitive acquisition(Al-Amili, 2024, p. 65), meaning it is the mental process through which the mind either recognises or forms abstract meanings(Makhlouf, 2010, p. 136). These are ideal mental entities stored in the brain(Ta'mah, 2018, p. 60). In other words, mental representations correspond to the experiences and knowledge that human beings encounter throughout their lives.

Based on this stored knowledge, the brain compares these new representations with earlier stored images in order to analyse them and understand the intended meaning(Baalawi, 2021, p. 52). This process is managed by the memory system, an active cognitive function responsible for storing and retrieving information. It does this through several mechanisms that the mind relies on, such as:

- conceptual metaphor,
- metonymy/figurative transfer (metaphor-like processes);
- simulation and imagination, and
- relations such as causality.

Based on the above, scientists suggest that depending on whether the perceptual images are sensory or abstract, there are two routes involved in forming these mental concepts.

2.1.3.1 Formation of Sensory (Verbal) Mental Concepts

Cognitive neuroscience research argues that sensory (verbal) mental concepts are formed in a very important brain region called the Verbal Conceptual Association Area. This area carries out several mental processes which, together, produce a mental representation of external patterns(Abdul Rahman Muhammad Ta'ma, 2020, p. 67). In other words, the human brain is believed to have an innate capacity known as the 'internal language ability' — a built-in mental power whose function is to represent and organise external knowledge(Ghilous, 2020, p. 99).

Researchers assume that this region can:

- activate mental concepts for external things and store them simultaneously,
- generate abstract concepts and connect them to real existence.

It can also retrieve different stored perceptual concepts, relying on higher mental functions that organise concepts through relationships(Abdul Rahman Muhammad Ta'ma, 2020, p. 67), such as:

- The general–specific relation (metal–iron);
- The part–whole/additive relation (book–student);
- The causal relation (sea agitation–wind);

- The necessity/requirement relation;
- Other types of relations(Abdul Rahman Muhammad Ta'ma, 2020, p. 67).

2.1.3.2 Formation of abstract (semantic) mental concepts

Sensory (verbal) mental concepts are not the only type produced by language. Alongside them, there is a second type: abstract (semantic) mental concepts. These are concepts that do not have a direct, real 'ontology' in the outside world, such as generosity, courage and fear.

Researchers therefore assume that the brain recognises these concepts as a result of the practices/experiences produced by them. This prepares the mind to form a mental picture of them, resulting in a specific concept that corresponds to the way those concepts exist in real life. Unlike concrete objects and sensory things, these concepts are not based on a real, visible form(Abdul Rahman Muhammad Ta'ma, 2020, p. 70).

Abstract concepts such as argument, love and idea are more abstract than sensory concepts. If the brain wants to understand them, it generally relies on more concrete or material concepts. In this case, the 'abstract concept' is represented by a set of images(Kovecses, 2002, p. 6). It is stored in the brain with its own code/label and is recalled when the person needs to express it(Abdul Rahman Muhammad Ta'ma, 2020, p. 71).

Therefore, meaning, whether verbal or abstract, is formed as a result of the mental process carried out by the mind. Meaning is the mental representation produced in the mind about the referenced thing in the external environment or the person's lived experience.

However, researchers believe that the concepts formed in the mind do not necessarily match exactly what exists in the external world. For example, the concepts in the mind of a blind person do not have to match visual forms in the outside world. As they lack sight, they compensate through another sense, such as touch, which means their concepts differ from reality(Ghilous, 2020, p. 99).

Finally, the human brain can build new models based on stored concepts. By mixing and combining them, it can produce new mental concepts. This process is driven by another unique brain function known as the imagination mechanism — an inventive process that creates new mental models(Abdul Rahman Muhammad Ta'ma, 2020, p. 71).

Over time, as a person is exposed to more external experiences and more mental representations are formed and stored, this process results in experiences being stored within particular cognitive networks. The more concepts that increase, the more these networks grow, producing mental knowledge. As experience and learning continue, the mind becomes capable of building new concepts and forming new mental images that express new ideas. This occurs through logical mental mechanisms such as analogy and induction — mental processes that exist within the mind. Through these processes, the mind can create its own world of thoughts.

It should be noted that over time, the human brain can generate many new concepts based on primary concepts acquired from external experiences, especially through the mechanisms of imagination and construction. However, it can also produce a new mental concept by combining several concepts, according to the individual's perspective and the logical data with which their

mind is comfortable. In this way, ideas take shape in a person. Lakoff calls this process the 'Embodiment of Experience'.

Accordingly, scientists concluded that mental representations do not always reflect external reality. Rather, we perceive things according to our mental structures, i.e. the extent to which we can understand and interact with them. Therefore, what our minds produce does not necessarily match external reality. Thus, if a person wants to understand the external world, they need to understand it in terms of their own dimensions and how they perceive them. In this case, the person needs a set of interrelated dimensions, such as:(Ghilous, 2020, p. 100)

- The cognitive dimension, based on what the person's senses provide.
- The functional dimension, based on the person's conception of the external object's functions.
- The purposive dimension, based on how the person uses the object in particular situations.

Based on this interpretation, cognitive scholars argue that natural language is an encoded structure in the form of mental representations within the mind. The information contained in this encoded structure is formulated according to how the mind organises and imagines experience. Therefore, language does not refer to reality directly; rather, it arises from the mind's internal organisation of external experiences(Bibiya, 2021, p. 303).

Cognitive linguists such as Lakoff and Johnson clarified this under what they called embodied cognition (cognitive embodiment).

The overall conclusion that cognitive linguists reach regarding how mental concepts are formed, whether linguistic or conceptual, is that this is an internal mental process. This is based on the idea that meaning in general is not found in external reality itself, but rather exists within mental structures(Bennour, 2010, pp. 80-82).

In reality, a person's mental representation of the external world can never be identical to reality itself. It is merely an approximate, imagistic mental copy designed to help us understand the world. This explains why each group has its own way of understanding the world around it, including both things and meanings(Abdul Rahman Muhammad Ta'ma, 2020, p. 66). Each group has its own culture, beliefs, religion and specific behaviours.

2.1.4 The Linguistic Stage and Meaning Production

After the process of mental conceptualization carried out by the brain, comes the stage of linguistic encoding—that is, encoding those mental representations in order for linguistic signs (words), structures, and sentences to take shape. In this stage, the mind calls up from long-term memory the most suitable meanings associated with those mental representations, in order to encode them. It also calls up grammatical rules and structures, and selects the most appropriate ones based on the intended purpose, the temporal and spatial context, as well as the social context. All these factors are taken into account in order to produce the intended meaning.

This process occurs in short-term memory, which can retain information for a limited time, no more than 18 seconds(Baalawi, 2021, p. 55).

Studies in neuroscience emphasise that mental representations within the brain are distributed across different regions of the brain. Over time, these representations take the form of symbolic

neural codes (independent neural systems), formed through many associative processes after being matched with similar representations in the person's mental lexicon(Taouma, April 2025, p. 25).

Some studies based on magnetic resonance imaging research suggest that, in the case of concrete symbolic meaning (meaning related to what is physically perceivable) for a word, there is a type of neuron that directly represents the word's sensory-motor features (such as colour, shape and size). These features then serve as the basis for building a prototype closely linked to the word's imagistic circuit.

The representations of abstract symbolic meaning are completely different from those of concrete symbolic meaning. They are limited to partial representation and rely on neurons with partial overlap and indirect connections through multimodal neurons — neurons typically located in the brain cortex — which perform multiple operations to link the sensory and the abstract.

Once the brain has formed mental concepts, it takes a further step: It groups and links sets of mental concepts that are close in meaning, creating a semantic field in the mind(Taouma, April 2025, p. 30). The meaning of a mental concept is initially gained through the relationships that connect it to the other concepts forming that field. In other words, a concept cannot be understood in isolation; it must be referred to in relation to the other concepts included in its semantic field(Ghilous, 2020, p. 98). For instance, the concept 'branch' cannot be understood unless it is linked to a group of other concepts, such as 'tree', 'leaves' and 'trunk'. The same applies to any other concept connected with it within the same semantic field.

Therefore, the human mind always tends to group closely related concepts and organise them into one domain, forming semantic fields that express a certain kind of experience. Scientists call such a group a conceptual space, also known as a mental space. Taken together, these spaces form an interconnected network that can expand as a person thinks more(Al-Hamami, April 2022, p. 151). According to some scholars, the mental space is the smallest basic unit for organising knowledge in the brain(Al-Amili, 2024, p. 38).

For these scholars, the mental space is not something that individuals naturally create by instinct. Rather, it is the result of the experiences gained from the social and cultural environment in which the individual grows up(Makhlouf, 2010, p. 136). The individual views things and knowledge in the same way as their group and community. Thus, cognitive linguists construct mental spaces based on sensory and real-life experiences unique to each individual — experiences that differ from group to group, and even from person to person.

Conclusion:

If twentieth-century linguistics is mainly based on the systematic formal relationships among the different levels of language, then more recent cognitive linguistic studies address a crucial issue: How and by what mechanisms linguistic meaning comes into being at the human mental and cognitive level. After conducting numerous studies, researchers reached several key findings:

The brain is the centre of all embodied mental representations that stand for what exists in the external world.

Mental representations are a mental concept of what exists in external reality and resemble the brain's initial mental patterns that represent it.

Several complex and intertwined neural processes intervene, with the primary function of forming initial concepts and consolidating them, so that they are stored in specific regions of the human brain.

Mental representations can transform events and ideas into mental symbols and store them for later use.

There is no requirement for mental representations in a person's brain to be identical to information in external reality.

The human brain plays a decisive role in generating mental patterns that build the embodied conceptual content of the linguistic and discursive meanings surrounding us. Nevertheless, many linguistic, neurological and artificial intelligence studies continue to attempt to uncover the truth about how meaning is formed and understood. The aim of all this is to imitate brain functioning and use it for scientific and technological development. Despite enormous cognitive progress, the secrets of this human phenomenon remain difficult to fully grasp.

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