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*Corresponding author
Bikhtiyar Omar Fattah
bikhtiyar.omar@koyauniversity.org

The Incorporation of Mental Space Theory to the Analysis of News Headlines

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Bikhtiyar Omar Fattah/ Department of English Language, Faculty of Education, Koya University- Koya, Kurdistan Region, Iraq

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Abstract

Mental space theory as one of cognitive-semantic theories considers the operational process of mental space in connection to rational connectors that operate to find a basis for gathering mental and linguistic constructions in order to arrive at the units of meaning while interacting. This theory plays a pivotal role in establishing a basis for understanding how interlocutors create and utilize mental representations of various thoughts, especially while indulging in intricate thought processes helping interactants to generate novel ideas and solutions by combining elements from different contexts. Due to the restrictiveness in the number of words, and the focus on the most important theme, news headlines require concentration and sophistication in the process of analysis. Sometimes the readers may not arrive at the precise analysis of them. Therefore, this study hypothesizes that mental space theory can highly contribute to the analysis of news headlines. This study aims at identifying this theory comprehensively, on the one hand, and illustrates its contribution in the process of analysing news headlines, on the other hand. The current study employs a qualitative method in the process of data collection. It is qualitative for analyzing six selected news headlines with the application of mental space theory. The most significant concluding point that this study has derived is that mental space theory actively engages in illustrating the role of mind in determining the conceptual meaning of news headlines constituents



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1. Introduction

This study aims at identifying mental space theory which was founded by Fauconnier to show how language operates and perceived in the mind of interactants, and to illustrate the application of this theory to language analysis, namely to the analysis of news headlines. Mental spaces are the essential elements of this theory which are recognized as fractional assemblies constructed as a consequence of our interactions in order to result in a precise understanding of the interactions and the way that we change our thoughts into interactions. The mental space is an approach within cognitive semantics associated with the possible worlds, but the element that differentiates mental space from a possible world is that a mental space has nothing to do with reality, but with an exemplified cognitive approach to language and meaning.

This study to a great extent draws on the studies and works by Fauconnier as he was the founder of the theory, and his works are those in which the mental space theory was introduced, clarified and developed. This study aims at achieving two main points: First, it comprehensively considers mental space theory including meaning construction in cognitive semantics, mapping of thought and language, mental space construction, and Tense and Epistemic distance in this theory; second, it examines the contribution of mental space theory in the analysis of news headlines.

This current study draws on a qualitative approach in the process of data analysis. It is qualitative for analyzing some selected news headlines as they are very intricately constructed because they usually represent complex ideas and perspectives; therefore, their interpretation requires a sophisticated cognitive integration. Thus, the purposes behind conducting this study are showing the difficulties that discourse analyzers face in the process of analyzing and interpreting news headlines, on the one hand, and approving the effectiveness of mental space theory in the analysis of such statements.

This study uses 6 selected English news headlines to answer two research questions which are: how could mental space theory be engaged in the process of language analysis? And how does this theory integrate in the analysis of news headlines? The significance of answering these questions lies in raising the awareness of researchers and discourse analyzers to the importance of integrating mental space theory in the process of analysis.

2. Mental Space Theory

Mental space theory is one of the theories on language and meaning which was first introduced in a book titled '*Espaces mentaux: Aspects de la construction du sens dans les langues naturelles*' (Mental Spaces: Aspects of Meaning Construction in Natural Language) by the French linguist Gilles Fauconnier in 1984. This theory was further elaborated and evolved in Fauconnier (1997) book '*Mappings in thought and language*' and in his co-authored book with Turner titled '*The Way We Think: Conceptual Blending and the Mind's Hidden Complexities*' which was published in 2002. Fauconnier in his 1984 study clarifies the operational process of mental space in connection to rational connectors that operate to find a basis for gathering mental construction and linguistic construction in order to get arrive at the units of meaning while interacting. Brandt (2005, p.1578) demonstrates that "mental constructions and their corresponding linguistic processes..... integrate objects into larger units of meaning, the description of which involves the enigmatic entities here represented by logical sets and called mental spaces".

Fauconnier (1997, p.11) defines mental space as "partial structures that proliferate when we think and talk, allowing a fine-grained partitioning of our discourse and knowledge structures". For

Fauconnier, mental spaces consist of elements which aim at identifying discourse elements that are based on the fixed domains that actively engage in making use of the available information in order to construct meaning in the mind of the interactants. Fauconnier adds that linguistic knowledge is not enough to get precise meaning of interactions, rather interlocutors should take into account the situational interferences including “highly structured background knowledge, various kinds of reasoning, on-line meaning construction and negotiation of meaning” (1997, p.8). Thus, based on this argument by Fauconnier, both linguistic knowledge and the discourse aspects of any interaction engage to have access to a precise meaning which results from the dynamic process of building and connecting mental spaces, known as *conceptualisation*.

According to Harder (2003), Fauconnier proposes mental space theory as a consequence of the absence of a suitable assumption to expose the bases of cognitive construction behind language use. Fauconnier (1997) states that assumptions from formalisms, truth-conditional semantics, theories about meaning in context, the structure of discourse and conversation, and many more theories about meaning could not provide a satisfactory identification to the notion of meaning and the nature of language use. Fauconnier (1997) adds that the situations, objects, and ideas are not reflected directly by language utterances and expressions, but they are maintained through the consideration of human cognitive constructions and construals. Stockwell (2002) classifies mental spaces into four main parts which are time spaces (tense and aspects), space spaces (geographical spaces), domain spaces (activity spaces, such as games and careers) and hypothetical spaces (conditional and assumed spaces).

2.1 Meaning Construction in Cognitive Semantics

Meaning construction in cognitive semantics depends on a sophisticated encyclopedic knowledge to stimulate a complicated conceptual operation. According to Evans and Green (2006, p.366), the meanings that are represented by linguistic units cannot fully represent the conceptual structure because “conceptual structure is underpinned by information derived from perceptual processes, including sensory and introspective (or subjective) experience.” Moreover, Moss et al. (2007) believe that conceptual structure is regarded to be perceptual in nature, whereas the contribution of semantic structure only provides some specific clues to the precise mental representation intended by the speaker. Another aspect of meaning construction in cognitive semantics is concerned with the assumption that conceptualization results from the use of language in context, because “conceptualization is guided by discourse context, which forms an integral part of the meaning construction process (Evans and Green, 2006, p. 367).

Thus, in brief meaning construction is regarded as a complex issue that can be deduced at the conceptual level, and the role and the contribution of linguistic elements such as words, phrases, clause, etc. are just “partial and impoverished prompts upon which highly complex cognitive processes work giving rise to rich and detailed conceptualization” (Evans and Green, 2006, p.367).

2.2 Mapping of Thought and Language

Mappings between cognitive domains play a great role in determining and identifying the way that we think and interact, in this respect Fauconnier (1997) sheds light on different sort of mappings in connection to language thought and meaning, namely projection mappings, pragmatic function mappings, and schema mappings.

In terms of projection mappings, mental space theory makes use of the nature of cognitive domain operations associated with drawing a boundary to establish a relationship between domains (target domain and source domain) as they are observed in the Lakoff and Johnson (1980) that deal with the interpretation of metaphor. For Lakoff and Johnson, source domain is used to understand what the target domain is about. For example, in a sentence like ‘I never win an argument with him’, the notion of argument which is a target domain is understood from the notion of ‘war’ which is a source domain because the word ‘win’ is a part of the war elements. Mental space theory also operates to some extent in a similar way that metaphor domains work as it shows how human’s psychological operations participate in meaning construction which refers to “the high-level, complex mental operations that apply within and across domains when we think, act, or communicate” (Fauconnier 1997, p.1).

Pragmatic function mapping is the second sort of mapping that takes into account “two relevant domains, which may be set up locally, typically correspond to two categories of objects, which are mapped onto each other by a pragmatic function” (Fauconnier, 1997, p.11). This sort of mappings is helpful to understand one of the domains in terms of their counterpart in the other domain. For example, inventors are matched with the invention that they invented, a training course participant are matched with the modules that are provided there, or a mall is matched with the sort of stuff that is sold there.

Schema mapping is the third sort of mapping concerned with the process through which “general schema, frame, or model is used to structure a situation in context” (Fauconnier, 1997, p.11). According to Langacker (1987), linguistic elements demand meaning schemas to determine their meanings. It is clarified in the analysis of the following metaphorical expression.

1. Life is a game

- Source schema is a *game* which includes players, instructions, aims, challenges and results.
- Target Schema is *life* which includes people, experience, efforts, challenges, success and failure.
- Pragmatic Function Mapping: The phrase is a metaphor that conceptualizes life events with a mindset similar to a game, where there are challenges, goals, and possibly rewards.
- Schema Mapping: people mapped to players, peoples’ aims mapped to players’ aims, game difficulties mapped to life challenges, success and failure in life mapped to winning and losing in the game.

In mental space theory, the domains are represented as spaces defined by Fauconnier & Turner (2002, p.40) as “small conceptual packets constructed as we think and talk, for purposes of local understanding and action”. Thus, mappings’ duty is to connect mental spaces; for example, in a sentence like “John believes that Marry is mistaken”, the mental space is built for the John’s belief, but in the sentence “John believes that last week Marry was mistaken”, here we build a space for ‘last week’ embedded in a belief space, itself embedded in a base space. Moreover, Lakoff (1987) considers mental spaces as a result of ‘idealized cognitive models’ which are also regarded as a sort of schema mappings.

2.3 Mental space Construction (Cognitive construction)

The main interest of ‘mental space theory’ lies in the meaning construction due to interlocutors’ psychological operation in a way that language is used. The interlocutors construct “domains triggered by linguistic information and current contexts, by which people accomplish meaning construction and realize mutual communication. These domains are called spaces by Fauconnier” (Liu and Gao, 2010, p.75). The main grammatical devices that engage in the process of cognitive construction are:

2.3.1 Space Builders

Based on the mental space theory, interactants establish mental spaces as a result of their thinking and speaking. According to Fauconnier (1997, p.38), a precise meaning cannot be derived from a language expression alone, rather it is the context that can provide the precise meaning of any expression and this required a complex cognitive construction that could be achieved through the establishment of “internally structured domains linked to each other by Connectors”. Fauconnier adds that the process of domain construction and the way they are connected can be considerably influenced by “contextual, and situational clues ... and Grammatical clues” that they engage in the process of space building (1997, p.38).

According to Evans and Green (2006, p.371), “Mental spaces are set up by space builders, which are linguistic units that either prompt for the construction of a new mental space or shift attention back and forth between previously constructed mental spaces”. Basically, mental spaces are built by space builders that can be exemplified in definite and indefinite articles (Fauconnier, 1985), tense (Fauconnier, 1997), subjunctive mood (Fauconnier, 1997), if-then conditionals (Dancygier and Sweetser, 1996), prepositional phrases, adverbs and connectors (Evans et al., 2007), and many more space builders which depend on contextual information from interactions and from the participants general information. Evans and Green (2006) adds that space builders could exist in different linguistic forms such as, prepositional phrases (after a brutal fight, behind the scene, in the garden), adverbs (fully, extremely, formally, rarely, generally....), connectives (in addition to, as well as, nevertheless, so as to, even though, etc.) and subject-verb combinations that precedes an embedded sentence (John believes [Suzan prefers swimming]). The point that is worth to be mentioned about space builders is that space builders expect from the listener to establish a scenario at present time which might past or future reality which can include “reality in some other location, hypothetical situations, situations that reflect ideas and beliefs, and so on” (Evans and Green, 2006, p.371).

2.3.2 Elements

The mental spaces usually consist of elements “which are either entities constructed on-line or pre-existing entities in the conceptual system” (Evans and Green, 2006, p.371). According to Fauconnier (1997), noun phrases as one of the linguistic elements as in the proper names: *John*, *Napoleon*, *Obama*, and *Trump*; descriptions: *a fair judge*, *a vicious snake*, *a red car*, *a tough question*; and personal pronouns: *I*, *he*, *she*, *it*, *we*, *you*, *they*, etc.

2.3.3 Properties and Relations

The relations between the elements of mental spaces usually lead to meaning construction, and it is the function of space builders to identify the features designated to the elements and the nature of relationship among elements within a single entity, as it is further clarified in the following example.

2. In this class, John is cleverest.

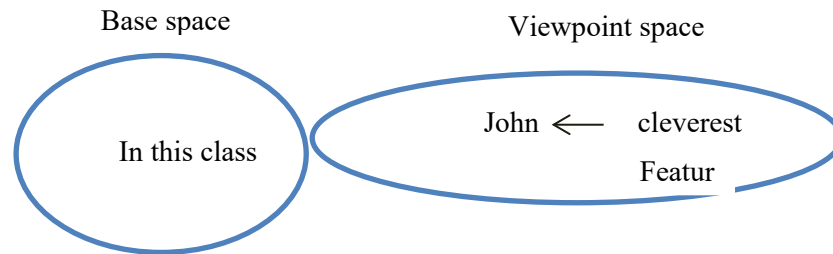


Figure1: Properties and Relation

As it is illustrated in the Figure 1, the space builder in the above example 2 is the phrase *in this class*, which establishes a mental space, and the name *John* introduces an element into the mental space, and the expression *cleverest* designate a feature to the element *John* which is seen in the ‘dialogue box’ next to the mental space.

3. 3. Maybe, Romeo is inLove with Juliet.

Example 3 is given by Fauconnier (1997, p.42) to illustrate how a base space builds a new space. The word ‘maybe’ functions as a space builder, the names Romeo and Juliet are elements within the base space, and these two names are connected with each other with a possible relation ‘love’, so this possible relation is represented in a new mental space.

2.3.4 Mental Space Lattices

When a mental space is constructed, it is sometimes connected with the other mental spaces that are set up meanwhile the conducting an interaction. So, one of paces is assigned as a base space which is regarded as source of constructing a new mental space. Let’s consider the following example:

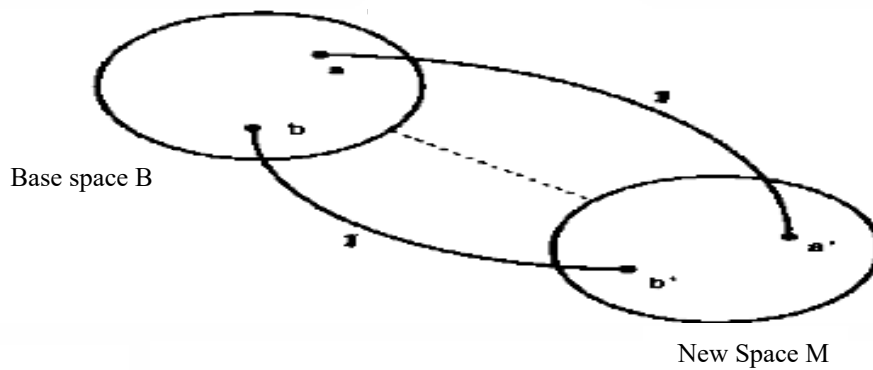


Figure 2: Mental Space Lattice (Fauconnier, 1997, p. 42)

Figure 2 clearly shows the process of building new spaces base on the base space, on the one hand, and how elements across the spaces (base space and new spaces) are interconnected with a possible relationship.

2.3.5 Counterparts and Connectors

The process of connecting the spaces with each other could be achieved by connectors that establish mapping between counterpart elements. According to Evans and Green (2006, p.375), “Counterparts are established on the basis of pragmatic function: when two (or more) elements in different mental spaces have a related pragmatic function, they are counterparts” which is mostly represented as identity. For example, the identities of ‘Donald Trump’ and ‘the current president of USA’ are similar as they refer to the same referent (person), so these two different elements in different mental spaces are connected by identity connectors.

2.3.6 The Access Principle

One of the roles of connectors is to get access to counterparts in various mental spaces and this task is called the access principle which Fauconnier (1997, p.41) defines it as ‘an expression that names or describes an element in one mental space can be used to access a counterpart of that element in another mental space’. Evans and Green (2006) elaborate on this point by stating that the outcome of the access principle is clarified as the expressions that denote a specific counterpart lead to get access to entities within the mental spaces from different directions that can ‘link upwards’ or ‘link downwards’ between spaces.

4. David can solve this problem.

In the above example, the mental space ‘David can solve this problem’ is used to get access to another mental space which is connected to ‘David’s experience’ which is regarded as the second mental space that is built on the bases of the first one.

2.3.7 Roles and Values

Another aspect of meaning cognitive construction is associated with the role and the value of definite Noun phrases that occur with definite articles such as ‘the manager’ or proper nouns ‘Sara’ which is believed that these sort of noun phrases do not necessarily refer to a referent (Evans and

Green, 2006). For example, ‘The manager is coming’, here the referent of the noun phrase ‘the manager’ is not clear, or we do not have a referent for this noun phrase in this context at all, and these usually lead to ambiguity. For further clarification, in an example like ‘Donald Trump is the president of the USA’, here the proper noun ‘Donald Trump’ is the value element within the base space connected with its role element ‘the president of the USA’ within a new base. In other words, in the preceded mentioned example, we can notice the relation between the value and the role represented by two elements which are ‘Donald Trump’ and ‘the president of the USA’ located in two different spaces: ‘Donald Trump’ in base space and ‘the president of USA’ in a new mental space.

2.4 Tense and Epistemic Distance

Time and epistemic are regarded as two significant dimensions of human thought. According to Fauconnier (1997, p.72), one can easily observe that significant grammatical materials are specified to both time and epistemic dimension by languages in general, and these two dimensions are “characterized in relative rather than absolute”.

2.4.1 Tense

In terms of tense, Fauconnier (1997, p.72) states that the participants in any interaction “must keep track of the spaces set up, their content, the links between them, and the order in which they appear”. This means that the participants, during the ongoing interactions, should know how to logically move from a space to another, i.e., the interactants should be able to recognize the base space and the space shows the viewpoint to function as bases for constructing other followed spaces including the space that the meaning is represented in.

The phenomenon of tense in mental space theory operates in a different way that we used to observe in traditional grammar. According to Evans and Green (2006), in order to gain insight into ‘tense’ we need to bring to the use new terms such as viewpoint, focus and event which are strictly connected to the condition of mental spaces in interactions. In order to consider the mental spaces from the perspective of time, we should be aware that the starting point in a specific interaction is the viewpoint which functions as a base for building the following spaces, for example in the ‘focus space’ any information is added and ‘event’ space is the representative of the time connected with the event that is identified and described. Let’s consider the following example to clarify tense.

5. Sara is thirty years old. She has lived in Iraq. In 2010 she lived in Erbil. Right now, she lives in London. Coming summer, she will move to Berlin.

In the above example, we can observe that it begins with a ‘base space’, but the base space is added with two sentences which are ‘Sara is thirty years old’, and ‘She has lived in Iraq’, so the base space can also function as the viewpoint space and focus space. Concerning the time and the tense of the above example, the present tense ‘is’ is the form of the first event which is regarded as the first space in this example. In the sentence ‘she has lived in Iraq’, the present aspect ‘has lived’ shows that there is still a relation to the current time in the base space but under the focus as we are building another space which is ‘space2’. Moreover, the sentence ‘In 2010 she lived in Erbil’ relates its new event structure to a past form (lived) to create a new space ‘space3’ which based on a space builder ‘in 2010’ and it is categorized as ‘event space’, i.e., due to the existence of the past form ‘lived’, the focus shifts to a new space. Another sentence in the given discourse example is ‘right now she lives

in London' which is in the form of present simple, and this brings us to the base space 'space1' in the discourse, and this space is related to by a time reference considered as viewpoint space as well. In the last sentence in the given example 'Coming summer she will move to Berlin', there is a modal auxiliary 'will' to denote future time, thus the verb phrase 'will move' with the space builder 'coming summer' together builds a new space 'space4'. So, the event that is described in the space 4 is future relative to the viewpoint, which still stays in the base space (space 1) i.e., the future tense which is the final sentence in the given example shows that the current space built by future space is still connected to the base space to which the discourse could return.

2.4.2 Epistemic Distance

Epistemic dimension is another dimension that considers the process of shifts among spaces. Not only does tense indicate the function of time reference, but also indicates epistemic distance (Fauconnier, 1997, p.72). Evans and Green (2006, p.394) further elaborate on the aspect of epistemic by stating that "tense can also signal epistemic distance" in a way that polysemy is not only connected with the lexical linguistic elements, but also can be attached to the tenses as well. Let's consider the following example to identify epistemic with it.

6. If the professor agreed with the PhD students' project proposal, then the PhD students would feel relaxed.

In the above sentence 'if' functions as a space builder and could establish a foundation mental space which is '*If the professor agreed with the PhD students' project proposal*', and there is also another mental space (the expansion space) '*then the PhD students would feel relaxed*' which is built by the space builder 'then'. This means that both '*If the professor agreed with the PhD students' project proposal*' and '*then the PhD students would feel relaxed*' construct two successive spaces. It can be noticed that both foundation space and the expansion space goes back to the base space, because the foundation space as a hypothetical one, and the expansion space as a fact which is built upon the hypothetical one refer to the base space. In other words, if the foundation space '*If the professor agreed with the PhD students' is fulfilled*', then the expansion space '*then the PhD students should feel relaxed*' starts to appear. Thus, in the above sentence expresses an epistemic distance which depends on the speaker's 'distance' from a particular expectation which shows the speaker's judgment regarding the probability of a particular expectation coming about.

3. News Headlines

News headlines and their interpretations have drawn the attention of scholars in the last four decades as they play a great role in facilitating news demonstrations. According to van Dijk (1988) and Dor (2003), a news headline usually summarizes the main theme of a topic; it is formulated in a way that can draw the attention of readers and provides them with hints about the topic. News headlines usually epitomize the whole text, expedite the comprehension process, and make the process of conveying messages easier (Geer and Kahn, 1993). Moreover, Rawson and Kintsch (2002) presents that news headlines highly contribute to the activation of readers' pre-existing knowledge to encourage them to read the article. Thus, Halliday (1985) considers headline as 'little text' as it represents the whole image of a topic with the use of a limited number of words.

The preciseness, accuracy, briefness and effectiveness as the essential characteristics oblige the writers to use sophisticated words and verbless structure. According to Bucaria (2004), the utility of sophisticated words and expressions that can comprehensively convey information is regarded as one of the headline construction traits. Regarding the syntactic structure, Quirk et al (1985) confirm that headlines are recognized by distinctive syntactic structure, and usually do not follow normal grammatical patterns. Moreover, Quirk et al (1985) list some essential syntactic traits of headline which are: 1. Auxiliaries and conjunctions are restrictedly used, 2. Headlines are usually formulated in simple present tense, 3. Transitive verbs are used as intransitive ones, and 4. Headlines are usually represented as complex noun phrases.

The characteristics of the headlines that are derived from descriptions provided above by van Dijk (1988), Dor (2003), Geer and Kahn (1993), Rawson and Kintsch (2002), Halliday (1985), Bucaria (2004) and Quirk et al (1985) confirms that the news headlines are distinguished by complexity and comprehensiveness, and these make the process of news headlines difficult and somehow misleading. Therefore, this study hypothesizes that the incorporation of mental space theory to their analysis can fulfill the purpose.

4. Methodology

This study makes use of a qualitative approach to the analysis of news headlines with the application of mental space theory. This study is qualitative for examining and exploring the news headlines via mapping of thought and language, identifying mental space construction, and determining tense and epistemic distance in the selected news headlines. This is helpful to determine precise meaning and interpretation of mental space theory with the use of mental spaces.

4.1 The Problems of the Study

Almost all the studies that are connected with the analysis of statements including news headlines usually either employ a model that conducts the process of analysis from a linguistic perspective, a semantic perspective, a pragmatic perspective or from a socio-cognitive perspective. However, with the incorporation of mental space theory linguistic elements, semantics, pragmatics, sociolinguistics and cognitive linguistics are all engaged in the process of analysis, and consequently this multidisciplinary incorporation results in obtaining a precise interpretation process.

4.2 The Research Questions

This study tries to answer the following questions.

1. How effective is mental space theory in the analysis of news headlines?
2. How does readers' pre-existing knowledge interact with the mental spaces constructed while reading news headlines?

4.3 The hypotheses

This study hypothesizes that:

1. Mental space theory can be effectively incorporated in the analysis of news headlines.
2. Readers' pre-existing knowledge interact with the mental spaces constructed while reading news headlines?

4.4 The Data

The data consist of 6 randomly selected news headlines taken from news websites and TV news programs that are available online. The employed headlines are of different registers including

political, economic, societal and technological headlines. Diversity consideration in the selection of the headlines ensures that the diversity in the headlines registers does not influence the applicability of news headlines.

4.5 The Model of Analysis

This study draws on the Fauconnier (1997) mental space theory of language analysis. This theory consists of conceptual operations, grammatical tools and time reference to incorporate in meaning construction. Based on the faconnair’s description, the model below is designed.

Mental Space Theory									
Mapping Language and Thought		Mental Space Construction						Tense and Epistemic Distance	
Projection Mapping	Pragmatic Function Mapping	Base space	Space builders	Elements	Properties and Relationship	New mental space(s)	Counterparts	Tense	Interactants distance from expectations

Table 1: Modal Designed Based on Fauconnier’s (1997) Descriptions of Mental Space Theory

The descriptions of the modal components are provided below.

1. Mapping Language and Thought (The connection between thought and language)
 - i. Projection Mapping (Relationship between base space and new spaces)
 - ii. Pragmatic Function Mapping (understanding an element in a space in terms of its counterpart in other spaces).
2. Mental Space Construction
 - i. Space Builder (prepositional phrases, adverbs, connectives, subject-verb combinations)
 - ii. Elements (noun phrases, proper nouns, pronouns)

- iii. Relationship (relationship among elements in different mental spaces that based on the assigned traits)
 - iv. Mental Space Lattices (the creation of new mental spaces)
 - v. Counterparts (elements in various mental spaces that have similar reference)
3. Tense and Epistemic Distance (tenses, aspects, and interactants' distance from expectation)

4. Data Analysis, Findings and Discussion

It is evident that mental space theory contributes to the foundation of mental spaces, which are tiny conceptual domains constructed during the process of thinking and interaction. These spaces are helpful to follow every piece of information and to build a bridge among them. This theory is helpful to identify mental spaces created by readers while analyzing news headlines. The determination and the analysis of mental spaces exist in any news headline contribute to the interpretation of the employed news headlines. The analysis of the selected news headlines is stated below.

- i. 'Biden signs a historical climate change bill aimed bipartisan support.'

Mental Space Theory											
Mapping Language and Thought		Mental Space Construction							Tense and Epistemic Distance		
Projection Mapping	Pragmatic Function Mapping	Base space	Space builders	Elements			Properties & Relationship	New mental space(s)	Counterparts	Tense	Interactants distance from expectations
				Noun phrase	Proper noun	Pronouns					
The relationship amongst <i>Biden, Climate change and bipartisan support</i> .	Understanding <i>bipartisan</i> (public and Democratic party) by Biden and vice versa.	Biden	1.signs , 2. aimed	1. a historical climate change bill	Biden		The relationship between <i>Biden Climate</i>	1. climate change bill 2. Bipartisan support		1. The act of sign shows the present time. 2. The aim was being active from past till present.	Interactants distance from expectations is very close.

Table 2: The

Analysis of the Headline: 'Biden signs a historical climate change bill aimed bipartisan support'

The above news headline consists of three mental spaces joined by space builders. The first mental space is *Biden* which is recognized as a base space that shows the role of Biden as a powerful person. *Historical climate change bill* is a new administrative mental space created by the base space. The space *climate change bill* is assigned with the property of being historical and very important. The base mental space and the new mental space are connected by the space builder *sign*. The third mental space *bipartisan support* is built to show the willingness of cooperation among traditionally opposing political parties (Republican and Democratic Party) in the USA. The correlations amongst these three mental spaces illustrate that climate change is a very important issue, and all the American people of different ideologies and political views affirm the significance of signing an agreement on climate change. Moreover, *Biden*, in the base space, is recognized as the USA president by the space builder *sign* and the created mental space *historical climate change* because signing bills and having agreements on such global issues is the responsibility of powerful and official figures. This headline is formulated in the form of simple present tense to show that the interactants distance from their expectation (signing climate change bill and its implementation) is very close.

ii. ‘British journalists withdraw from leading Washington Posts’ newsroom.’

Mental Space Theory											
Mapping Language and Thought		Mental Space Construction						Tense and Epistemic Distance			
Projection Mapping among mental spaces	Pragmatic Function Mapping	Base space	Space builders	Elements			Properties & Relationship	New mental space(s)	Counterparts	Tense	Interactants distance from expectations
				Noun phrase	Proper noun	Pronouns					
1. British journalists	Understanding <i>British journalists</i> by the trait of <i>leading Washington Posts’ newsroom</i>	British journalists	1. withdraw	1. British journalists	2. Washington posts’ newsroom	Washington Post	Leading shows he relationship between <i>British journalists</i> and <i>Washington Posts’ newsroom</i>	1. leading newsroom	2. Washington posts	1. The act of withdraw shows the present time. 2. The feature of leading was effective from past till now.	Interactants distance from expectations is close.
2. leading											
3. Washington Posts’ newsroom											

Table 3: The Analysis of the Headline: ‘British journalists withdraw from leading Washington Posts’ newsroom’

The above news headline involves three mental spaces. The first mental space is *British journalists* that functions as the base space for the following spaces. This mental space introduces a group of people with British nationality and work as journalists. *Washington Posts newsroom* is a new mental space created by the space builder *withdraw* which illustrates the act of withdrawing from an activity. The created mental space theory is assigned with the property of *leading* as it functions as the third mental space and demonstrates the quality of the second mental space. Thus, it illustrates that British journalists have regressed in their leading status used to have in Washington Posts’

newsroom. Regarding the time and epistemic distance, the act of withdrawing has already started, but the process of withdrawing is executed gradually, so the interactants distance from their expectation about the British journalists’ withdrawing is close and still active.

iii. Poverty in Lebanon tripled over a decade.

Mental Space Theory										
Mapping Language and Thought		Mental Space Construction						Tense and Epistemic Distance		
Projection Mapping among mental spaces	Pragmatic Function Mapping	Base space	Space builders	Elements			Properties & Relationship	New mental space(s)	Counterparts	Tense
				Noun phrase	Proper noun	Pronouns				
1. Poverty	Understanding the degree of poverty by the space builder tripled	Poverty	1. in Lebanon	Poverty	Lebanon		Tripling connects the degree of poverty to Lebanon	1. Lebanon		he act of <i>tripled</i> shows present perfect tense.
2. Lebanon		2. Tripled								
3. A decade										
										Interactants distance from expectations is very close

Table 4: The Analysis of the News Headline ‘Poverty in Lebanon tripled over a decade’

The above news headline is made of three mental spaces and two space builders. The first mental space which functions as the base space is *poverty*, and it functions as a founder of two other mental spaces. The second mental space is Lebanon as it represents the investigated field, and the second mental space is the quantitative change *tripled* as it considers the temporal change of the degree of poverty in Lebanon over ten years (a decade). In the employed news headline, *tripled* and *in Lebanon* function as a space builders as well. Thus, the above news headline introduces the graduate increase in the degree of poverty over ten years in Lebanon. The employed news headline is formulated with present perfect tense to show the graduate increase in the degree of poverty in the past and still it is increasing at the present time.

iv. ‘Twenty first century is the end of privacy’.

Mental Space Theory											
Mapping Language and Thought		Mental Space Construction							Tense & Epistemic Distance		
Projection Mapping among mental spaces	Pragmatic Function Mapping	Base space	Space builders	Elements			Properties & Relationship	New mental space(s)	Counterparts	Tense	Interactants distance from expectations
				Noun phrase	Proper noun	Pronoun					
1. Twenty first Century	21 st century is characterized by the end of privacy	Twenty first century	Is	1. Twenty first Century			21 st century is connected with privacy degree	The end of privacy		Simple present is used to talk about fact.	Interactants are close to their expectations
2. The end of privacy		2. The end of privacy									

Table 5: The Analysis of the News Headline ‘Twenty first century is the end of privacy’

The above news headline consists of two mental spaces. The base space is the time space *twenty first century* that identifies a certain period of time. This space is connected with a new created mental space *the end of privacy* with the use of the space builder *is*. The second mental space embraces two noun phrases *the end* and *privacy* in which the first noun phrase *the end* functions as attached modifier to the noun phrase *privacy*. *Twenty first century* represents the age of technological development, one the one hand, and the increase in the individualistic behavior and perspectives, on the other hand. The word *privacy* represents the individuals’ privacy. The phrase *the end* shows the relationship between the developments of technology and the decrease in individuals’ privacy. In the analysed headline, simple present tense is used as it talks about a fact, and illustrates the closeness of interactants to their expectation about the end of privacy in twenty first century.

v. ‘Renewable energy is the lighthouse in a stormy sea’

Mental Space Theory											
Mapping Language and Thought		Mental Space Construction							Tense and Epistemic Distance		
Projection Mapping among mental spaces	Pragmatic Function Mapping	Base space	Space builders	Elements			Properties & Relationship	New mental space(s)	Counterparts	Tense	Interactants distance from expectations
				Noun phrase	Proper noun	Pronouns					
1. renewable energy	The significance of renewable energy is recognized by the significance of lighthouse in a stormy sea	Renewable energy	Is	1. renewable energy			The relationship between the renewable energy and lighthouse is rhetorical.	Lighthouse in a stormy sea		Simple present is used to associate the feature of importance to lighthouse	Interactants are close to their expectation
2. light house		2. light house									
3. stormy sea		3. stormy sea									

Table 6: The Analysis of the Headline ‘Renewable energy is the lighthouse in a stormy sea’

This news headline is made of two mental spaces. The base mental space is *renewable energy* is connected to a new mental space *the lighthouse in a stormy sea* by the space builder auxiliary verb ‘is’. The new mental space involves two elements *the lighthouse* and *a stormy sea* connected by the preposition *in*. The function mapping in the new mental space illustrates that just as a lighthouse gives guidance and hope during a stormy sea, renewable energy sources supply stability and certainty to humans’ life and progress. The employed headline uses simple present tense to associate the feature of importance to the lighthouse during a stormy sea, and also to show that the interactants are close to their expectations based on the fact that renewable energy is very important at the present time.

vi. ‘Universities see surge in applications despite tuition hikes’

Mental Space Theory								
Mapping Language and Thought		Mental Space Construction					Tense and Epistemic Distance	
Projection Mapping among mental spaces	of Pragmatic Function Mapping	Base space	Space builders	Elements			New mental space(s)	Counterparts
				Noun phrase	Proper noun	Pronouns		
1. Universities	Understanding application in terms of university and tuition fees.	Universities	1. See, 2. Despite	1. Universities, 2. Surge	The relationship is observed among universities, application and tuition.	1. Surge in application	Simple present tense is used to talk about a constant steady change.	Interactants' distance from their expectation is close.
2. Surge in application		3. application, 4. Tuition		2. Tuition hikes				

Table 7: The Analysis of the News Headline ‘Universities see surge in applications despite tuition hikes’

The above news headline consists of three mental spaces. The word *universities* is the base mental space that demonstrates the notion of universities in general. This base mental space results in the creation of two new mental spaces *surge in application* and *tuition hikes*. The second mental space consists of two elements *surge* and *application*. The element *surge* shows a financial issue related to joining university measures, and the element *application* represents the application process needed to join university. The base mental space is connected with the newly created spaces by the space builder *see*. Thus, the main clause *universities see surge in applications* states the increase in the number of applicants willing to join university. Moreover, the word *despite* functions as a space builder for one more mental space *tuition hikes* which shows the contrast in the relationship with the preceding mental spaces in the main clause. In the employed news headline, simple present tense is used to depict that the increase in the tuition fees does not deter the increase in the number of applicants to join universities.

Mental space theory highly contributes to the process of news headlines analysis. The determination of base mental space, the underlining of all the created mental spaces, identifying space builders, demonstrating the relationship among the elements located in different mental spaces, and

considering the tense of the headlines and the closeness of interactants from their expectations are helpful to precisely understand and interpret the examined news headlines in accordance with mental space theory. However, pronouns and counterparts are not detected in the selected news headlines because headlines are characterized by accuracy and briefness. Therefore, any sort of repletion effort is avoided in their constructions.

Moreover, the keywords in news headlines are usually informative and evoke curiosity and concern; therefore, readers' prior knowledge to a great deal engages with the elements in various mental spaces while reading news headlines. In addition to the prior knowledge and experience, the cognitive process indulges in conceptualization of each element in each mental space. Thus, the analyses of the above news headlines affirm the effectiveness of mental space theory in the process of analysis in general, and in the process of news headlines analysis in particular.

6. Conclusions

Mental space theory is founded to show how language operates and perceived in the mind of speakers and hearers, i.e. how interactions are interrelated based on mental spaces. Mental space in connection to rational connectors operates to find a basis for gathering mental construction and the linguistic construction in order to arrive at the units of meaning while interacting. In mental space theory, explicit linguistic components act as space builders to establish mental spaces, certain conceptual organizers or socio-physical forces which are all taken into account in the process of deriving the precise meaning of utterances in general.

News headlines show a positive reaction to the implementation of mental space theory in their analysis. The current study confirms that, except pronouns and counterparts, the implementation of all the mental space theory components: the identification of base mental space, the recognition of created mental spaces, determination of space builders, demonstration of the relationship among the elements located in different mental spaces as well as the consideration of the tense of the headlines and the closeness of interactants from their expectations highly contribute to precisely interpret the examined news headlines.

Although mental space theory is founded to show how language functions from a cognitive perspective, mental spaces as the essential components of this theory are defined in respect of discourse, rather than in respect of mind. Mental space theory is designed to consider the phenomenon and the nature of thought and language in general, so it is a universal theory and deals with all the forms of language including news headlines. Thus, this theory and its assumption and operation can be applicable to different forms of language.

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ئاخاندنى تيورى مەوداي ھزرى لە شىكارى سەردىرەكانى ھەوال دا

بەختيار عومەر فەتاح

بەشى زمانى ئىنگلىزى، فاكەلتى پەرودە،

زانكوى كويە- كويە، ھەولير، ھەريىمى كوردستان، عىراق.

bikhtiyar.omar@koyauniversity.org

پوختە

تيورى مەوداي ھزرى يەككىكە لە تيورىيە مەعريفىيە واتايەكان كە پروسەى كارپىكردى مەوداي ھزرى پەيوەست بە بابەتە مەعريفىيەكانەوہ لەبەرچاو دەگریت لە پىناو دۆزىنەوہى بنەمايەك بۆ بەيەكگەياندى بنیاتنانى ھزرى و بنیاتنانى زمانەوانى بە مەبەستى گەيشتن بە يەكەكانى مانا لەكاتى گەتوگۆكرىندا. ئەم تيورىيە رۆلىكى سەرەكى دەگریت لە دامەزراندنى بنەمايەك بۆ تيگەيشتن لەوہى كە چۆن گەتوگۆكرەران تيروانىنە جۆراو جۆرەكان دروست دەكەن و كەلكيان ليوەردەگرن، بە تايبەت كاتىك كار لەسەر خستە روى بىركردنەوہ ئالۆزەكان دەكریت. ئەم بىردۆزە ھاوكارىكى باش دەبیت بۆلىكۆلینەوہ لە شىوازى دروستكردى بىرۆكەى نوى و زالبون بەسەر گرافتەكاندا لە ريگەى بەھەند وركرتنى ھۆكار و دۆخى جىاوازا، شىكاركردى سەردىرى ھەوالەكان كرادارىكى ئالۆزە بەھوى سنوورداربونى ژمارەى وشەكان و فراوانى لە واتادا، بەمەش سەردىرەكانى ھەوال پىويستيان بە سەرنج و ووردروانىنىكى زۆر ھەيە لە پروسەى شىكاريدا، ئەمەش وادەكات ھەندىك جار خويەران نەگەنە تيگەيشتنى دروستى ئەم سەردىرەكانە. ئەم ليكۆلینەوہى و دەروانىت كە تيورى مەوداي ھزرى دەتوانیت بەشدارىيەكى كارىگەرى ھەبیت لە شىكردەوہى سەردىرەكانى ھەوال دا. ئامانج لەم تويزىنەوہى ناساندنىكى گشتىگى ئەم تيورىيە، لە لايەك، وە خستەرووى رۆل و كارايى ئەم تيورىيە لە پروسەى شىكردەوہى سەردىرى ھەوالەكاندا، لە لايەكى ترەوہ. ئەم تويزىنەوہى شىوازىكى چۆنايەتى لە پروسەى كۆكردەوہى زانبارىيەكان بەكاردەھىتت لە ريگەى شىكردەوہى شەش مانشىتى ھەوالى ھەلبژىردراو بە بەكارھىنانى تيورى فەزاي ھزرى. گرنگترىن دەرنەجام كە ئەم تويزىنەوہ پىيگەيشتوہ ئەوہى كە تيورى مەودا ھزرى ئەتوانیت رۆلىكى زۆر كارىگەر ببىنیت لە شىكاركردى سەردىرى ھەوالەكان و ديارىكردى ماناى دروستى چەمك و ووشە پىكەپىنەرهكانى دا.

ووشە سەرەكییەكان: تيورى مەوداي ھزرى، سەردىرى ھەوال، مەعريفى واتايى، بنیاتنانى اتا، بنیاتنەرى مەودا

استخدام نظرية الفضاء الذهني في تحليل عناوين الأخبار

بختيار عمر فتاح

قسم اللغة الانكليزية، كلية التربية،

جامعة كويە- كويە، اربيل، اقليم كردستان، العراق

bikhtiyar.omar@koyauniversity.org

ملخص

نظرية الفضاء الذهني باعتبارها إحدى النظريات المعرفية الدلالية تنظر إلى العملية التشغيلية للفضاء الذهني بالارتباط مع موصولات عقلانية تعمل على إيجاد أساس لجمع البناء العقلي والبناء اللغوي من أجل الوصول إلى وحدات المعنى أثناء تفاعلها. تلعب هذه النظرية دوراً محورياً في إنشاء أساس لفهم كيفية قيام المحاورين بإنشاء واستخدام التمثيلات العقلية للأفكار المختلفة، خاصة أثناء الانغماس في عمليات التفكير المعقدة التي تساعد المتفاعلين على توليد أفكار وحلول جديدة من خلال الجمع بين عناصر من سياقات مختلفة. ونظراً للتقييد في عدد الكلمات، والتركيز على الموضوع الأكثر أهمية، فإن عناوين الأخبار تتطلب التركيز والتطور في عملية التحليل. في بعض الأحيان قد لا يصل القراء إلى التحليل الدقيق لها. ولذلك، تفترض هذه الدراسة أن نظرية الفضاء الذهني يمكن أن تساهم بشكل كبير في تحليل عناوين الأخبار. وتهدف هذه الدراسة إلى التعرف على هذه النظرية بشكل شامل من ناحية، وتوضيح مساهمتها في عملية تحليل عناوين الأخبار من ناحية أخرى. تستخدم الدراسة الحالية المنهج النوعي في عملية جمع البيانات. والتي تقوم بتحليل ستة عناوين إخبارية مختارة مع تطبيق نظرية الفضاء العقلي. إن النقطة الختامية الأكثر أهمية التي استخلصتها هذه الدراسة هي أن نظرية الفضاء الذهني تشارك بنشاط في توضيح دور العقل في تحديد المعنى المفاهيمي لمكونات عناوين الأخبار.

الكلمات المفتاحية: نظرية الفضاء الذهني، عناوين الأخبار، الدلالات المعرفية، بناء المعنى، بناء الفضاء