## Bidirectional Traffic Mechanism of Metaphor Comprehension

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## Abstract

Previous literature has either concentrated on the structure and topology of conceptual metaphor schemas or on nature of the conceptual projection and integration networks in metaphor comprehension. Little, if any, attention has been paid to the working of conceptual metaphor schemas and the relationship of conceptual schemas with language in interpretation of a linguistic metaphoric expression. This paper reviews the existing theoretical constructs and argues that metaphor comprehension is bidirectional traffic mechanism involving both perceptual schemas and language. For the purpose, several metaphoric expressions from the Holy Quran have been analyzed to explore the bidirectional traffic mechanism of metaphor comprehension. The findings reveal that metaphor interpretation is not a unilinear process of conceptual projection as conceptual metaphor theory holds nor it is simple online conceptual integration network as held by conceptual blending theories. Rather, metaphor interpretation needs multilinear process of conceptual projection and integration stimulated by language involving either a particular conceptual schema or multiple schemas and semantic structure. This study argues for, what lexical concept and cognitive model theory (LCCM theory) calls, front stage cognition to fully harness the cognitive function of thought and language. The findings also reveal that conceptual metaphor does not reside at the level of cognitive models as LCCM theory held. However, this study does not make any theoretical claim which can only be made after experimental research on how metaphoric expressions are processed and interpreted through fMRI neuroimaging studies.

**Key words:** Conceptual Metaphor, Conceptual schema, Conceptual projection, Blending, Sensorimotor neural structures, Experiential gestalts.

## **INTRODUCTION:**

How human understand language is the pivotal question in cognitive linguistics. Cognitive approaches within the tradition of conceptual metaphor argue that language and language comprehension is the surface realization of deep cognitive processes (Lakoff, 1993). This approach draws heavily on the structure of the human conceptual system, memory, brain, neuroscience, cultural variation and language structure. It marks a sharp deviation from the pragmatic and linguistic approaches to language comprehension, which situates meaning in the contextual use of linguistic forms. The cognitive semantic approach provides a dynamic and realistic model of language and language. Such issues in language has attracted robust research in various fields of linguistics, but this paper reviews the literature on the conceptual projection and integration mechanism in processing a metaphoric linguistic expression. Various proposals in cognitive linguistics have been proposed to elaborate the deep cognitive mechanism behind the metaphor comprehension and meaning construction in language. These proposals have argued extensively that linguistic expressions are the

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manifestation of deep cognitive operations entrenched in the human conceptual system with the help of sensorimotor neural structures. In other words, language is just a poor prompt in meaning construction, which as Fauconnier (1994, p. xxiii) says, is "tip of the iceberg", and that it guides the cognitive operations to construct meaning, but does not define it. But is language really an enervated prompt, having no role metaphor comprehension? This paper, following lexical concept and cognitive model theory (LCCM theory), argues for role of frontstage cognition in metaphor comprehension besides the backstage cognition. But contrary to LCCM theory, it will argue that conceptual metaphor does not reside in all cases at the level of primary cognitive models and that metaphor comprehension involves a multilinear process of more than one conceptual schema in a particular situational context. The metaphoric expressions for analysis have been taken from the Holy Quran, but it can be extended to any type of discourse. However, before going to examine specific metaphoric expressions, a brief overview of various theoretical proposals have been given below.

## **CONCEPTUAL PROJECTION AND INTEGRATION THEORIES:**

In cognitive linguistics, various seminal theories have been articulated to explain the relationship of language and experience in the human conceptual system. These are conceptual metaphor theory (hereafter CMT), Conceptual Blending theory (hereafter CBT) and Combined Input Hypothesis (hereafter CIH). These theoretical proposals are reviewed briefly below.

#### **CONCEPTUAL METAPHOR THEORY:**

Lakoff and his colleagues, following Reddy's (1979) concept of conduit metaphor, innovated the concept of metaphor by locating it in thought rather than in language (Lakoff, 1993; Lakoff & Johnson, 1980a, 1980b, 1999; Lakoff & Turner, 1989). The authors have argued that metaphor is a cognitive phenomenon, and its comprehension is automatically and unconsciously processed through the online projection of inferences from the source domain to the target domain in an asymmetrical fashion. This is because of the metaphorical nature of the human conceptual system. The sensorimotor neural structures help in building highly schematized knowledge structures in the human conceptual system through their interaction with the physical world. These rich experiential gestalts, encoded in the human conceptual system, map the abstract and less experiential gestalts asymmetrically, which help in metaphor production and comprehension of language. The neural circuity in human causes the mapping of different parts of the brain, as is the case with the mapping between the retina and visual cortex of the human brain, which helps in generation of spatial concepts in human language (Lakoff, 2008; Lakoff and Johnson, 1999).

According to CMT, the abstract domain of time is mapped by domain of space. The perceptual nature of space is more readily accessible through the human visual apparatus in the human brain. In simple words, metaphoric expressions are produced in language and comprehended through the projection of selected features from the source domain to target domain. It means that a particular linguistic metaphoric expression is produced and understood through a particular conceptual schema. For example, '*The time has come near*' draws on the conceptual correlation between an object moving in space and motion of time. There is a sequential unilinear projection of inferences from the domain of space to the target domain of time. The domain of time is mapped by domain of space, and, thus, there is a unilinear processing of conceptual schema. This conceptual schema generates both language and comprehension. CMT proved instrumental in metaphoric linguistic research in all kinds of discourses, such as political and ideological discourse (Charteris-Black, 2005; Goatly, 2007; Lakoff, 1991), religious and moral discourse (Berrada 2002; El-Sharif 2011;

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Jäkel, 2002; Sardaraz & Ali, 2016; Shokr, 2006), learning and educational context (Zheng & Song 2010), business discourse (Skorczynska & Deignan 2006) and language and emotions (Kövecses, 2003, 2008; Maalej, 2007). Diagrammatically, the conceptual metaphor ARGUMENT IS WAR is partially represented as below.



Figure 1. Conceptual metaphor mapping

Conceptual metaphor, no doubt, has psychological reality (Casasanto, 2010; Casasanto & Boroditsky, 2008; Gentner, Imai, & Boroditsky, 2002). Boroditsky (2000) demonstrated that time and space share the same conceptual structure, and that people reason about the temporal phenomenon in spatial language (Gentner et al., 2002). Casasanto (2010) experimentally demonstrated that the English people think of time using spatial language and spatial representations. However, the question is, do time and space have the same frame of reference? Evans (2003, 2013b) has demonstrated that time is durational in nature, having a temporal frame of reference. Evans (2013b) concedes that in linguistic metaphoric expressions of time, the basic structure might be retrieved from TIME-SPACE basic schema, but the concept of time is more complex, having its own structure (see also Moore, 2006).

But the pressing question is whether the projections from the source domain to target domain is positive, one-way and can explain all linguistic metaphoric expressions. The one way traffic of inferences from the source domain to the target domain would certainly reduce the target domain to a blank slate, having no role in cognitive operations or in meaning construction (Vervaeke & Kennedy, 1996, 2004). The target domain is not merely blank slate, but it contributes to the cognitive mapping, defining its source domain in a situational context (Ritchie, 2003). It means that conceptual projections are not static correspondence between target and source domains. Complex metaphors processing would certainly require a more dynamic model of cognitive operations and conceptual projections. In order to address such questions, Fauconnier and Turner (1994) offered four spaces model of conceptual projection and integration, as explained below.

## **CONCEPTUAL BLENDING THEORY:**

According to Fauconnier and Turner (1994), the four spaces model of conceptual blending consists of a generic space, a blend space, and two input spaces. The conceptual projection is not direct, one way and positive, rather, it is a dynamic all-encompassing array of cognitive processes. The generic space receives the abstract common structure from source

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input space and then projects it to the target space(s). The generic space is cross-domain mapping. But in generic space, there is no integration. The generic structure in the generic space along with other features from the two input spaces is projected to the blend space. The blend fuses structures of input spaces into new sturctures through composition, completes the new structures by recruiting structures from the background or context, which can be further elaborated through mental simulation imaginatively. Blending theory argues for activation of multiple input spaces during conceptual projection which makes it a dynamic model of meaning construction in a situational context (Fauconnier, 1997; Fauconnier & Turner, 1994, 1998, 2008). This model can explain complex metaphors, such as "*He is ahead of himself*" and "*to dig one's own grave*" which requires the blending space to fuse what is impossible in two input spaces (Fauconnier & Turner, 1994).

Conceptual blending and integration theory presents an impressive model of meaning construction. But blending theory appears more to be a framework of cognition than of language. It regards language as superficial reflections of abstract cognitive structures (Fauconnier, 1997). These abstract cognitive structures are, no doubt, guided by language, but are not inherently linguistic (Fauconnier & Turner, 1994). Blending theory, though presents itself as a model of meaning construction process, it faces various questions about its actual application in the real world including the problem of falsification (Gibbs, 2000). Blending theory mostly concerns itself with the nature and function of mental spaces, and how these spaces help in processing the meaning of linguistic and non-linguistic phenomenon. Thus, it focuses less on language than on cognitive phenomenon. In other words, as Fauconnier (1998) says, it deals with backstage cognition. Blending theory can be represented as below.



Figure 2. Conceptual Integration Networks

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Blending theory, undeniably, is a dynamic model of cognitive operations, but it looks more like an abstract theoretical construct with less or no empirical evidence from psychological or neuro-scientific evidence (Gibbs, 2000; Glebkin, 2015). The blending theory does not tell how the middle spaces are formed, and what factors lead them to produce the emergent structures in blend space? It talks about composition, but how the blends space selects features from the input spaces and the background during fusion, how it recruits structures from the background and what mechanism is behind the simulation to elaborate the new structures? The blending theory, obviously, speaks of linguistic forms which prompt the cognitive operations, but the question is how they prompt such simulations? It makes the blending theory an analytical philosophical approach to meaning construction (Brandt, 2005) or what Glebkin (2015, p. 100) calls it, an "ivory tower theory".

## **COMBINED INPUT HYPOTHESIS (CIH):**

de Mendoza and Carvel (Cervel & de Mendoza, 2002; de Mendoza Ibáñez, 1998) offers a marginal modification to the blending theory by contending that blending theory argues for the existence of mismatches and irregularities in the input spaces. It violates the invariance principle, but metaphor mapping always preserves the cognitive topology of source and target domain (de Mendoza, 1998). Cervel and de Mendoza (2002) and de Mendoza and Velasco (2002) proposes CIH model as an alternative model to blending theory. The alternative approach argues that cognitive topology of the source-target domain is strictly maintained in all cases, though different knowledge structures are invoked in the interpretation of metaphoric expressions. They propose projection space as an alternative for blend space. The projection space is continuous to previous cognitive operations. The conceptual projection and integration in projection space may involve diverse cognitive operations depending upon the context in the meaning construction of a metaphoric expression. They hold that metaphoric expression such as "You could see the smoke coming out of his ears" is the result of two conceptual metaphors, ANGER IS HEAT and PEOPLE ARE CONTAINERS, where two input source domains are combined to map the metaphoric target of anger. The main contention of combined input hypothesis is that metaphoric expressions maintain the cognitive topology, and need relevant conceptual and linguistic cues for interpretation.

This model, though argues for linguistic cues and contextual relevance, falls back to one way positive mapping from the source to the target domain. It stands for invariance hypothesis, which has already been questioned in the literature for validity (Brugman, 1990). The invariance hypothesis cannot be maintained in all types of discourses, as demonstrated by Jäkel (2002) and Shokr (2006). A corollary of invariance hypothesis is the asymmetrical principle of image schema. It argues that TARGET DOMAIN IS SOURCE DOMAIN. It cannot be the other way round. LIFE IS JOURNEY cannot be JOURNEY IS LIFE. However, this thesis of CMT cannot account for metaphors like DEATH IS SLEEP and SLEEP IS DEATH. The image metaphors and nominative metaphors led Grady (1999) to give ground to resemblance based metaphors in addition to correlation based metaphors. Moreover, CIH (Cervel & de Mendoza, 2002; de Mendoza & Hernández, 2003) holds that explicatures and implicatures are not a linguistic phenomenon as Sperber and Wilson (1986) held, but they are the continuous stage of previous cognitive operations, which is called strengthening.

If CMT regards linguistic forms as the surface realization of cognitive processes and CBT regards them as poor prompts in conceptual projections, CIH regards the cataphoric and

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anaphoric references as continuation of the previous cognitive mapping with no role of language. All the backstage cognitive theories show a very interesting phenomenon of asymmetry: cognitive processes define language, source domain maps target domain, previous cognitive mapping constructs the current cognitive process. If all the conceptual projections are online, it raises the question, how the previous conceptual mapping stimulates the conceptual system for building more input spaces, and how features are recruited from those input spaces to the existing structures? But do the main claim of backstage theorists that language guides, but does not define cognitive operations in the construction of meaning holds ground? This necessitates a brief overview of the nature of both linguistic and conceptual system.

#### LANGUAGE AND HUMAN CONCEPTUAL SYSTEM:

There is unanimity among the researchers that conceptual system precedes the linguistic system because of the continuity of conceptual system across the species (Barsalou, 2005; Gilda-Costa et al., 2004). The mirror system hypothesis (Arbib 2005; Arbib & Rizzolatti 1996; Rizzolatti & Arbib, 1998), studies on comparative genomics reviewed in (Fisher & Marcus, 2006) and the existence of perceptual symbol system, mechanism of simulation, working memory and long-term memory in animals (Barsalou, 1999) testify the basic resemblance between human and non-human neural architecture. However, the evolution of the linguistic system in human beings had analogous development in the human brain and conceptual system in term of modalities and functions, such as enlargement of the pre-frontal lobe, parietal-frontal perceptuo-motor systems, parieto-occipito-temporal cortex, basal ganglia and cerebellum and increased ratio of the pre-motor cortex (Arbib, 2002, 2005, 2011). Besides, the evolution of language is not merely the result of biological changes, but also of cultural evolution (Arbib, 2005). It means that though conceptual system exists in human and nonhuman, there are striking differences in them and the main reason for the complex conceptual system is the evolution of language. In other words, human language is one of the reasons for the complex conceptual system and complex simulation system (Barsalou, 2005).

The linguistic system evolved correspondingly to the evolution of the human conceptual system. It reflects that linguistic symbol develops along-with perceptual symbol. Once the linguistic symbol is created, it shares features of the perceptual symbol. The working memory simulates linguistic symbol to extract schematic memories from the perceptual states, which are then integrated to simulators. The development of simulators for language links the simulators for concepts, which then play a controlling function in the simulation. When the word is heard or seen, the cognitive system activates the corresponding simulators for concepts, while some may link simulators for sub categories of concepts (Barsalou, 1999). It means that language indexes and controls the simulation system. The dual system of linguistic simulators and perceptual simulators makes human conceptual system unique in conceptual combination ability (Donald, 1993). The control function of linguistic simulators develops greatly the conceptual processes in a human which cannot be seen in non-human (Barsalou, 2005).

It refers to a complex phenomenon. When a word is heard or seen, it acts as a stimulus in the same way as a colour concept, when it is visually seen. It activates specific simulation of the corresponding perceptual simulators in the conceptual system. Each word has a form and a sound, which draws on perceptual experiences. Therefore, it would be more appropriate to say that even words are perceptual in nature. Their perceptual nature makes them the most important simulators. As they are recorded in human memory, they are also connected with other experiential concepts. The utterance of a specific word starts the simulation, which in combination with other words gives rise to a chain of complex simulation in the human conceptual system. The word *BLUE* has a specific form, which is connected to a range of perceptual simulators as referents. It means that if the perceptual concept of *BLUE* is both visual and auditory. But the

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simulation of a specific word is strongly dependent upon the situated context. As the linguistic and perceptual symbols are connected, it interacts together in a situated simulation for meaning (Barsalou, Santos, Simmons, & Wilson, 2008). As every lexical item has some specific form, it carries some definite aspect of meaning within itself. For example, the verbs WORK and WORKED have different forms, and hence, they have different semantic values of the present or past respectively. Some languages may have many other forms which sharply change their meanings. These digitized forms have a specific semantic structure, which plays a definite role in meaning construction (Evans, 2006, 2009b). It means that the linguistic and conceptual system work together in simulation. It reflects that meaning construction is not merely the product of backstage cognition, but the integrated function of backstage and front stage cognition (Evans, 2010).

The discussions show that the backstage cognitive theories give an imperfect description of the meaning construction. The reason is that they do not take into account language, linguistic forms and the relationship between lexical forms in a situational context. They regard metaphor comprehension as the one-way process from cognitive domains to linguistic expressions. The cognitive schemas generate not only language but also its comprehension. But the above discussion illustrates that metaphor comprehension needs a two-way process that is: language activates the cognitive schemas and the cognitive schemas on combination with linguistic structures help in meaning construction (See Also Zwaan, 2016). It means that the backstage cognition differs from front stage cognition (See Evans, 2009a). The front stage cognition includes the lexical form, semantic structure, and combination of lexical forms.

## INTEGRATION OF CONCEPTUAL AND LINGUISTIC KNOWLEDGE:

Evans (2006, 2009a, 2009b, 2010, 2013a) proposes LCCM theory to fill the gap of frontstage cognition left by back stage cognitive theories. The LCCM theory has extensively drawn upon the perceptual symbol system and situated simulation developed by (Barsalou, 1999; Barsalou et al. 2008). LCCM theory holds that words have fluid meaning and metaphor comprehension depends upon the fusion of the linguistic and conceptual knowledge in a situational context. The linguistic knowledge encoded in lexical concepts is parametric, relational and referential, while the conceptual knowledge, encoded in the cognitive models is schematic to which the lexical concept may get access, as mediated by the context. In other words, meaning is the result of the fusion of the semantic and conceptual structures in a situational context. This fusion is diagrammatically represented below.



Coherent body of multimodal knowledge Stored in Analogue form – Primary and secondary cognitive model profiles Conceptual metaphor Semantic Affordance Parametric - Past and non past like work and worked Topological-- Magnitude neutral, substance neutral, shape neutralNon-Analogue- Schematic abstraction of rich multimodal experience Referentiality- Anaphora and cataphora Relationality

Figure 3. Semantic representation in LCCM theory

Evans (2010) contends that LCCM theory is continuous with CBT, and also holds that conceptual metaphor might reside at the level of primary cognitive models (Evans, 2010, 2013a). This leads to an inherent contradiction in his approach. CBT claims that mapping is not between the source and target domain, but it is an integration of conceptual projections from multiple input spaces, some of which may not inhere in the target and source spaces. Such a position contradicts the invariance hypothesis of CMT. Evans has not clarified, how to reconcile the invariance hypothesis of CMT with CBT in LCCM theory, but has recommended further work on the mechanism of integration (Evans, 2010). Moreover, recognizing the role of conceptual metaphor at the level of primary cognitive models, Evans seems to argue for the unilinear process of conceptual projection from a single conceptual metaphor schema. In other words, Evans, no doubt, argues for the fusion of linguistic knowledge and conceptual knowledge, but the basis of a metaphoric expression is built on one conceptual schema. It shows that LCCM theory is more near to CIH than to CBT. But do all metaphoric linguistic expressions are the surface realization of one conceptual schema? Does the conceptual metaphor reside at the level of primary cognitive models in all cases? But before going to address the questions, it is important to turn back to simulator, simulation and conceptualization of concepts and language briefly.

As earlier discussed, simulators (concepts) are multimodal in nature and draw upon perception, proprioception and introspection (Barsalou, 1999). A concept or a simulator is not simulated in isolation, but with other simulators, and draw actively upon the context. This dynamic re-enactment of simulator representation results in situated conceptualization. A situated conceptualization of a concept cannot be divorced of the situational context, because of the situational nature of perception (Barsalou, 1999, 2003). When these situated conceptualizations become entrenched in the memory, they are automatically processed, except those which need detailed schematic simulation (Wu & Barsalou, 2009). The situated conceptualizations are multimodal and dynamic. When they become active, they not only configure the multimodal patterns of inferences, but also guide the way to a prediction about the future. Prediction plays a vital role in the comprehension of language. Language carries implicit perceptual information because simulators for words are integrated to simulators for concepts (Barsalou, 2009; Barsalou et al., 2008). Different neural structures such as perceptual, motor, somatosensory neurons activate the simulation in generating the meaning of different words in a sentence (Kaschak et al., 2005; Pulvermüller, 2005; Zwaan & Madden, 2005). It suggest that language comprehension is not one-way static process of backstage cognition, but it needs two-way projections from language symbols to perceptual symbols and from perceptual symbols to language symbols (Zwaan, 2016). In other words, it is not only the perceptual experiences which activate the conceptual system for conceptualization, but it is also the linguistic symbols or simulators which activate the conceptual system in meaning construction. It shows that language is not superficial to the cognitive mechanism, but integral to it in meaning construction.

From the above, it can be inferred that (a) language forms are perceptual which are stored in memory (b) language forms have distinct morphological forms carrying some semantic value (c) language forms integrate with perceptual simulators (d) language stimulates the conceptual system (e) simulators for concepts are multimodal (f) simulation of simulators are multimodal and situational (g) the conceptual combination is constructive and can form novel combination. It implies that language has an important role in meaning construction, and that metaphor comprehension is a constructive process which depends upon the fusion

of linguistic and conceptual knowledge. As conceptual knowledge is multimodal, therefore, metaphor comprehension is a multilinear process, which may involve a combination of multiple conceptual schemas and the nature of lexical combination.

## **BIDIRECTIONAL TRAFFIC MECHANISM OF CONCEPTUAL PROJECTION AND INTEGRATION:**

The backstage theories of cognition, (Sections 2.0, 3.0 and 4.0), deal with the one-way mechanism of metaphor comprehension. The differences among them are merely in the mechanism of conceptual projection and integration. The sole question which all these approaches face is to find a plausible answer for the function of language in meaning construction. Because these approaches ignore the perceptual nature of language itself and the semantic structure of language, they could not explain how the different cognitive operations work in combinatorial manner to generate meanings. CMT holds strictly to its principle of binary correspondence between two domains, CBT improves the one-to-one mapping to multiple mapping recognizing the role of target domain and background and CIH improves the blend space of CBT to recognize the role of different sub-schemas while maintaining the extended invariance hypothesis of CMT. But all these approaches face the joint issue of whether they may fairly be called the theories of language or cognition. Though these approaches analyze linguistic the data, yet they regard language as something superficial and superimposed. These approaches seem more abstract theoretical construct, because they do not in a plausible manner show what stimulate the string of cognitive operations in the conceptual system to generate meanings and under what principle, the different schemas get combined together in the simulation of a specific metaphoric expression. Therefore, these approaches, if proved instrumental in extensive linguistic research, also faced exhaustive criticism in literature from psycholinguistic and pragmatic approaches. The main issue which these approaches face, Evans (2010) correctly observes, is the lack of frontstage cognition.

Frontstage cognition provides the plausible solution to explain the mechanism of different cognitive operations in simulation of a metaphoric linguistic expression. Language is intrinsically perceptual (see Section 5.0) which not only acts as stimuli to activate the conceptual system, but also imports its own semantic structure to the whole process of conceptualization. Like perceptual simulators, language has its own simulators in the conceptual system which activates the conceptual system the same way as perceptual simulators activate them. But the language simulators are linked to the perceptual simulators and the activation of conceptual system by a linguistic or a perceptual stimulus would result in combinatorial multimodal simulation and conceptualization process. As the conceptualization is a multimodal and combinatorial process of different simulators, language can neither be divorced of cognitive operations nor of meaning construction (Barsalou, 1999; Barsalou et al., 2008; Zwaan, 2016). Keeping in view the multimodal and combinatorial nature of simulation and conceptualization process, it can be safely hypothesized that metaphor comprehension is a multimodal activation of conceptual projection and integration involving not only high level cognitive operations, but also linguistic cues. The linguistic simulators like the perceptual simulators have audioperceptual nature, and not merely symbolic forms (Section 5.0 and Section 6.0). In other words, in a single metaphoric linguistic expression, the linguistic simulators activate the

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cognitive operations in conceptual system, because they are integrated to perceptual simulators. The perceptual simulators combine together with linguistic simulators in the situational context to activate conceptual projection and integration from multiple perceptual schemas and linguistic cues for conceptualization of inferences and predictions. Language prompts projection of inferences from perceptual schemas in the same way as perceptual stimuli prompts cognitive operations for conceptualization. On other hand, the cognitive operations are activated to decipher the meaning of linguistic expression the same way as they are activated to decipher the meaning of the current perceptual experience. It can have the following diagrammatical representation.



Figure 4. Bidirectional integration mechanism

In the above figure, the linguistic form has audiovisual perceptual nature with a semantic value, and is integrated to perceptual concepts in memory. A linguistic concept along-with the situational perceptual concepts prompt the perceptual schemas in memory for cognitive operations to achieve an informational characterization, which may be different from the existing grounded perceptual concepts due to situational context. Either of these concepts may also generate the cognitive operations to achieve informational characterization. The cognitive operations assimilate the semantic structure of linguistic concepts or/and the current experiential concept for conceptualization of the utterance or/and current perceptual experience. These cognitive operations are not unlinear involving one conceptual schema, but may involve multilinear process of conceptual projections and

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integration from more than one conceptual schema and linguistic concepts in the situational context. In a metaphoric utterance, it involves a chain of conceptual projections from different schemas and linguistic concepts. This bidirectional mechanism of conceptual projections from multiple schemas and language is illustrated in the following expressions.

# METAPHOR COMPREHENSION, MULTIPLE CONCEPTUAL SCHEMA AND LANGUAGE:

A single metaphor linguistic metaphoric expression may draw extensively upon language, conceptual projection from multiple schemas and the situational perceptual context in meaning construction. The mechanism of coordination and integration of different knowledge structures can be illustrated by analyzing the following example from the Holy Quran.

يُجَادِلُونَكَ فِي الْحَقِّ بَعْدَمَا تَبَيَّنَ كَأَنَّمَا يُسَاقُونَ إِلَى الْمَوْتِ وَهُمْ يَنظُرُونَ

ʻyujādilūnaka fī l-ḥaqi baʿdamā tabayyana ka-annamā yusāqūna ilā l-mawti wahum yanẓurūna'

"Disputing with thee concerning the truth after it was made manifest, as if

they were being driven to death and they (actually) saw it." (Quran 8:6)

Following Lakoff and Johnson (1999), the metaphor is surface manifestation of conceptual metaphor DEATH IS LANDMARK IN THE BOUNDED SPACE. Because the spatial preposition ' $il\bar{a}$ ' is generated by visual apparatus of sensorimotor neural structures, it relates the abstract concept of death to landmark on the space. The abstract concept of '*l-mawti*' (death) is mapped as the landmark on the space with the help of spatial preposition ' $il\bar{a}$ ' and the verb ' $yus\bar{a}q\bar{u}na$ ' (they were driven), generated by locomotive motor neural structures in the brain. As the sensorimotor neural structures give the rich experiential gestalt of moving in the space, the abstract movement of someone to an event is conceptualized in spatial terms of movement in the space. In other words, movement in the space domain maps movement towards death (event domain). The abstract domain of time or event is simulated in the brain through the readily accessible domain of movement in the space (Lakoff, 1993; Lakoff and Johnson, 1980b). The linguistic expression is reflection of cognitive phenomenon.

However, is death literally a landmark or a place in the space? Is death simulator monomodal or multimodal? Its usage reflects its multimodal nature, because it has many different associations such as death, the end of life, the end of vitality, loss of senses, loss of intellect, barrenness (al-Isfahani, 1970; Ibn Fâris, 1979; Lane, 1968). Following Evans' (2006) terminology, the lexical concept '*l-mawti*' is schematic in content. It also includes the internal subjective experiences of an individual. As experience is durational, it takes the event structure. To put it differently, death is a specific event, which is experiential and subjective in nature. Because experience is durational in nature, it draws upon the temporal frame of reference instead of spatial frame of reference (Evans, 2013b). Being temporal in nature, it may either be of synchronic or protracted or compressed duration. The lexical concept '*l-mawti*' is durational nature, and is the most unacceptable and painful nature of this experience. The lexical concept '*yusāqūna*' is derived from the root '*sīn wāw qāf'*, which literally means 'drive cattle to water' (al-Isfahani, 1970; Ibn Fâris, 1979; Lane, 1968). On

combination with the lexical concept ' $yus\bar{a}q\bar{u}na'$  through the closed class lexical concept ' $il\bar{a}$ ', the lexical concept 'l-mawti' attains the semantic value of terrifying experience of death. The lexical concept 'ka' has anaphoric reference to the preceding sentence which further explains the metaphoric expression. The anaphoric reference explains that the metaphoric expression is a part of the parable, relating the fear of going to war to the fear of experiencing the pangs of death. Hence, the interpretation would be 'as if they were being driven (like cattle) to experience the poignant experience of death'.

This reveals that the death metaphor in the verse is not essentially based on spatial frame of reference, but on the experiencer based temporal frame of reference. Apparently, it might reflect that the conceptual metaphor structures the primary cognitive models, recruiting contents from the space domain to structure subjective experience of the experiencer or event, as Evans (2009a) held. Obviously, the sensorimotor neural structures are involved in comprehension of metaphoric language, but conceptual metaphor functions on static correspondence between the domains. The motor neural structure and visual perceptual apparatus define the mapping of driving to death as driving to some location. However, it is not death but the fear of death which is intended to be communicated. Motor neural structure and visual perceptual apparatus, assuredly, are inevitable, but they do not hinder other perceptual apparatus. Simulation in brain is not an isolated phenomenon, but rather, it is multimodal, and is strongly dependent upon the intrinsically perceptual context (Barsalou, 2003, 2009; Sedley et al., 2016; Zwaan, 2016). Destination in the space maps the event of death, but the linguistic expression in the situational context prompts more conceptual schemas. The fear of death is generated by DEATH IS AWFUL BEING and DEATH IS TASTING schema, because death in future is landmark, but death as experiential state is tasting and these both schema are generated by preceding clause combined through particle 'ka' and spatial preposition '*ilā*'; the verb '*yusāqūna*' reflects HUMAN BEHAVIOUR IS ANIMAL BEHAVIOUR; the spatial preposition ' $i l \bar{a}$ ' manifests the DEATH IS LANDMARK IN SPACE metaphor. Thus, metaphor is not merely a binary static relation of correspondences between two domains, but it has dynamic character. The simulation of linguistic and perceptual cues requires a more elaborate mechanism than merely conceptual metaphor to harness the meaning of the linguistic expressions. Language is not merely a weak prompt, but has been instrumental in increasing the ability of simulation system to comprehend non-existent situations in present, past or future. Language helps in coordination of simulations and compositionality (Barsalou et al., 2008).

Moreover, language imports its own semantic structure to conceptual structure for conceptualization. The morphological forms ' $YUS\bar{A}Q\bar{U}NA'$ , ' $IL\bar{A}$ ' and 'L-MAWTI' are perceptual in nature and are stored as distinct simulators in brain. Though they are integrated with perceptual simulators, they also retain their distinct forms with distinct abstraction of rich perceptual experiences. The forms ' $YUS\bar{A}Q\bar{U}NA'$ ' is different from ' $NAS\bar{U}QU'$ ', ' $S\bar{I}QA'$ ', ' $YAS\bar{U}QU'$ ' and ' $S\bar{A}QA'$ '. These are different parametrized forms which reflect different tense form and have different nominal and relational nature. For semantic structure see (Evans 2006, 2009b). The semantic structure fuses with conceptual structure to generate meaning of a metaphoric expression. It reflects that lexical morphological forms are not completely void slates, but contribute to the conceptualization process in metaphor comprehension. The whole process of conceptual chaining can have the following diagrammatical view.



Figure 5. Bidirectional Traffic Chaining Mechanism

## PRIMARY COGNITIVE MODELS AND CONCEPTUAL METAPHOR:

Evans (2010, 2013a) holds that conceptual metaphor structures the primary cognitive models. This paper argues that it does not hold true in all cases. For the purpose, EMOTIONS ARE FORCES metaphor has been analyzed. The emotion of fear is force which causes changes in human physiological state. This metaphor is contextually analyzed in the following verse,

وَلَا تَحْسَبَنَّ اللَّهَ غَافِلًا عَمَّا يَعْمَلُ الظَّالِمُونَ ۦ إِنَّمَا يُؤَخِّرُهُمْ لِيَوْمٍ تَشْحَصُ فِيهِ الْأَبْصَارُ

'walā taḥsabanna l-laha ghāfilan ʿammā yaʿmalu l-ẓālimūna innamā yu-akhiruhum <u>liyawmin tashkhasu fīhi l-absāru</u>'

"Think not that Allah doth not heed the deeds of those who do wrong. He but giveth them respite <u>against a Day</u> <u>when the eyes will fixedly stare in</u> <u>horror</u>," (Quran 14:42)

Following the CMT, the linguistic expression is the manifestation of conceptual metaphor EMOTION IS A FORCE WHICH CAUSES PHYSIOLOGICAL CHANGES. According to LCCM theory, conceptual metaphor structures the primary cognitive models. The primary cognitive model profile are equivalent to the roots in Arabic language (Sardaraz & Ali, 2016). Analyzing the linguistic metaphoric expression, the lexical concept 'tashkhasu', derived from the root 'shīn khā sad' means ascending, rising, towering of something (Ibn Fâris, 1979; Lane, 1968). The lexical concept *'al-abṣāru'* means 'eyes, looks, gaze, vision, sight'. When lexical concept 'tashkhasu' combines with 'al-absar, it means 'the looks will become raised'. But the target domain of the cause of physiological change is missing. In other words, the lexical concept 'tashkhasu' carries no agent. Literally, the perception of sight or vision cannot be raised. The eyelids are raised and the eyes become widely opened. The linguistic expression would, literally, mean that eyes will become fixedly open. Moreover, the lexical concept 'tashkhasu' is 3rd person verb in indicative mood which shows the imperfect sense of the action. Hence, it means that they will remain opened. No doubt, the retrieval of perceptual effects of the occurrences in the context by the visual apparatus combined with somatosensory neural system causes the psychosomatic-cum-physiological change in the beholder. But the cause of change is missing. It means that simulators for 'tashkhasu' and 'al-ab $s\bar{a}ru$ ' get combined with other simulators in the situational context for conceptualization. The situational context is provided by the lexical concept 'yawmin'.

The lexical concept 'yawmin' is conceptually of greater significance. It gets two conceptual schemas which superficially are both spatial in nature. The spatial preposition 'li' reflects TIME IS LANDMARK ON THE BOUNDED SPACE. But the spatial preposition 'ft' through referential pronoun 'hi' reflects TIME IS BOUNDED SPACE. Different prepositions give the same lexical concept different conceptual schemas. It reflects that the simulator of 'yawmin' is not processed in isolation, but in combination with other simulators for conceptualization, and different conceptual schemas are at work in processing the same concept in the same context. But is time processed as space? The lexical concept '*yawmin*' is durational in nature. It shows the moments of time, which may lie on a linear path in subjective experience of the experiencer. The preposition '*li*' gives it the moment sense as definite point but the preposition ' $f\bar{t}$  gives it durational sense of an event. It shows that even a single lexical concept in a situational context is processed in combinatorial manner with other simulators in multimodal process. It can have the following diagrammatical view, where A represents the present moment of observer PP, while B represents the future event moment and C represents the durational event of paralysis of eyes after the future moment B has happened.



Figure 6. Moment and Durational sense of time

It is evident from the above that the concept 'yawmin' has many association areas. It is multimodal, and its simulation in a situation is perceptual. In the situational context, it has cataphoric and anaphoric references. The close class lexical concepts 'fee' and 'he' gives anaphoric reference to the open class lexical concept '*yawmin*'. The lexical concept '*yawmin*' anaphorically refers to 'al-ḥisābu' in verse (Quran 14:41). Similarly, the lexical concept 'tashkhasu' cataphorically refers to the lexical concepts of ' $l\bar{a}$  yartaddu' and 'hawāon' while the lexical concept 'al-ab $\overline{x}aru$ ' cataphorically refers to 'tarfuhum' and 'wa-afidatuhum'. On the other hand, both the lexical concepts anaphorically refer to the time of their accountability for their deeds in the preceding sentence of the verse. Hence, the verse (Quran 14:42) has to be read with verse (Quran 14:43) for comprehension of the utterance in focus. These references relate the functions of eyes to the brain which is metonymically represented as 'afidatu' 'hearts'. It refers to the terror on the Day of Judgement. This terror shall paralyze the people. They shall be frenzied with horror, surprise and loss of intellect on sight of the calamity. Thus, their eyes shall remain widely opened in horror, fear and surprise. They will see but they will not understand. The nervous breakdown is denoted by *'wa-afidatuhum hawāon'* (and their hearts are empty). This will lead to the uninterrupted opening of the eyes. Hence, the interpretation of the sentence is 'when the eyes will remain in it fixedly open (moving neither way) uninterruptedly (in horror)'.

The metaphoric expression has the working of two conceptual schemas, EMOTIONS ARE FORCES WHICH CAUSE PHYSIOLOGICAL CHANGE and TIME IS SPACE. But both conceptual schemas are interrelated and if one is removed, the other schema will lose its present form. It means that concepts are multimodal in nature and are processed contextually in combinatorial manner for conceptualization of inference. Referentiality is not merely the working of previous cognitive mappings as (de Mendoza & Hernández, 2003) held, but is potentially prompted by the linguistic stimuli to simulate the concepts for informational characterization (Barsalou 2003; Barsalou et al., 2008; Zwaan, 2016). It also shows that metaphor comprehension is not merely the result of static correspondences between two conceptual schemas, but is net value of the fusion of both linguistic and conceptual knowledge in a situational context. The example also support the findings of earlier studies such as (Glucksberg, 2003; Glucksberg & Keysar, 1990; Glucksberg, Keysar, & McGlone, 1992; McGlone, 1996) that after the metaphor has been explained, the conceptual metaphor is identified. The conceptual metaphor does not lie at the level of

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primary cognitive models, but when the metaphor is interpreted linguistically, the conceptual metaphor is recognized. It means that Evans' (2010, 2013a) assumption that conceptual metaphor resides at the level of primary cognitive models is not true in all cases. Similar findings can be found in other metaphors involving biophysical change as a result of emotions, image metaphors and novel metaphors. Moreover, the results also show that the linguistic knowledge plays a dominant role in establishing links between lexical concept and conceptual knowledge. The referential nature of lexical concept has a vital role in defining its cognitive model (Evans, 2010, 2013a). The same mechanism is also evident in the following conceptual metonymic expressions.

ʻyawma <u>tabyaddu wujūhun</u> <u>wataswaddu wujūhun</u> fa-ammā alladhīna is'waddat wujūhuhum akafartum baʿda īmānikum fadhūqū l-ʿadhāba bimā kuntum takfurūna'

"On the Day when <u>some faces will be (lit up with) white</u>, and s<u>ome</u> <u>faces will be (in the gloom of) black</u>: To those whose faces will be black, (will be said): "Did ye reject Faith after accepting it? Taste then the penalty for rejecting Faith."" (Quran 3:106)

Following the CMT, the linguistic expressions are the manifestations of HAPPINESS IS BRIGHT (Grady, 1997) and SAD IS BLACK. But the linguistic expressions do not reflect conceptual metaphors at the levels of primary cognitive models as Evans (2003, 2010) held. Linguistically, the lexical concept 'tabyaddu', derived from the root ' $b\bar{a} y\bar{a} d\bar{a}d$ ', means 'to become white' or 'to lit up with white' (al-Isfahani, 1970; Ibn Fâris, 1979). Brightness or whiteness maps the faces of the faithful. But face of faithful cannot become, literally, white or lit up with white. Rather, it refers to circumstances, which will cause this state of whiteness. The target domain of happiness is missing in the metaphoric expression. Happiness is emotion which causes biophysical change in facial complexion. But no linguistic item expression shows the cause of lightening or darkness on the faces. Hence, the whiteness and darkness are not literal, rather they refer to the states of the believers and disbelievers, which shall be manifested on their faces. Hence, it owes its structure to conceptual metaphor EMOTIONS ARE FORCES WHICH CAUSE BIOPHYSICAL CHANGE. But there is no linguistic item in the sentence to show the force which results in change of facial complexion. It can only be inferred through referential nature of the lexical concepts.

The lexical concept 'yawma', according to CMT, is manifestation of the TIME IS LANDMARK ON THE SPACE. But the 'yawma' is used as relational lexical concept to relate experiential state to some temporal duration. Time as Space has already been questioned in literature (See Evans, 2003, 2013b; Moore, 2006, 2016). It relates the experiential state scaffolded by the lexical concept 'tabyaddu' and 'taswaddu' to the temporal duration. This temporal durational lexical concept is simulated along-with other lexical concepts through anaphoric reference to 'adhābun 'azīmun' (a punishment great) as mentioned in verse (Quran 3:105). Thus, the temporal lexical concept 'yawma' sets the context for the whole verse. The succeeding lexical concepts achieve informational characterization in the situational context, which is intrinsically perceptual. It shows that the

lexical concepts activate the conceptual system for conceptualization of emotional states of happiness and fathomless despair. No doubt, the role of conceptual correspondences between the target domains and source domain cannot be denied, but it is neither static nor one-way traffic as CMT held. The simulation of a concept and its conceptualization for inference is a dynamic and constructive process. The conceptual projection and integration is prompted by the linguistic and conceptual cues to generate inference.

Emotional states belong to the realm of introspection in the conceptual system. Emotional states are prompted by perceptual stimuli, causing psycho-physiological change in human. But so long as the agent or the cause of the physiological change is not expressed, the metaphoric expressions do not have conceptual metaphor at the primary cognitive models. In other words, the metaphoric expression is to be interpreted in order to find out the conceptual metaphor. In Arabic some metaphors may either miss the target domain or the source domain. All these expressions are to be analyzed contextually for informational characterization.

Moreover, the above example also shows the function of linguistic knowledge in meaning construction. It is the relational and referential nature of lexical concepts, which prompt the correlation and fusion of previous and current cognitive operations in metaphor comprehension in a discourse. The linguistic cues activate the conceptual system to process a metaphoric expression in situational context, drawing on the stored conceptual knowledge and the existing perceptual stimuli in the situation. The morphological forms of language gives stable digitized semantic structure which contribute to the metaphor comprehension (Evans, 2009b, 2010). It also shows that language forms are not completely void of meanings, but they give the abstraction of rich conceptual knowledge in digitized form. Depending upon the situational linguistic context, a lexical concept gives access to cognitive model, which may either be primary or secondary. Hence, in the present context, the meaning of the sentence is 'On the Day (of Judgement) some faces (the faces of the faithful) shall be lit up (due to their psycho-emotional state of happiness and contentment) and some faces (faces of the disbelievers) shall become black (due to their psycho-emotional state of utter gloom and despair)'.

## CONCLUSION:

Metaphor comprehension, the findings reveal, is not a static binary online conceptual correspondence between target and source domain, nor is it merely cognitive operations involving the conceptual projections and integration of different spaces where language has no intrinsic role. The findings supports that metaphor comprehension depends upon the net value of total effects of linguistic and conceptual cues in a situational context. Backstage cognition needs front stage cognition for a comprehensive theoretical framework for comprehension of figurative language. Language, not only, prompts cognitive operations but import significant semantic value to the conceptualization process. This study argues that language is part of the cognition as language is itself perceptual, and forms its own semantic structure and semantic pattern in conceptual system besides its integrative role with other perceptual concepts. Metaphor comprehension is not merely one-way traffic from the entrenched schemas to linguistic expression, but rather, it is bidirectional traffic from language to entrenched schemas and from entrenched schemas to linguistic expression. The findings also show that conceptual schemas may have multiple combinations in processing a metaphoric linguistic expression. In other words, the linguistic and contextual cues prompt multiple domains to project inferences, which then fuse

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together with each other and the imported semantic structure to generate meanings. The study also finds that the Evans' (2010, 2013a) claim that conceptual metaphor resides at the primary cognitive models is not true in all cases. The study infers that metaphor production and comprehension is neither merely the product of language nor of binary domains mapping, but of the context which prompts both language and thought involving the fusion of multiple domains and multiple knowledge structures. This study needs validation from psycholinguistic and neuroimaging studies which empirically test the two-way projection and integration mechanism of multiple schemas in a situational context.

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