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Temporal Metaphors as a Linguistic Phenomenon: Conceptual Frameworks across Different Languages

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ABSTRACT
Metaphors are not merely decorative linguistic devices but play a significant role in shaping cognition and cultural understanding. The influence of linguistic background on thought processes is central to the Sapir-Whorf Hypothesis, which posits that language shapes cognitive perception and cultural behaviour. This study aims to explore the relationship between language and cognition through the lens of temporal metaphors. By examining linguistic frameworks across diverse cultures, the research seeks to demonstrate how temporal metaphors influence cognitive processes, cultural practices, and perceptions of time. A qualitative approach was employed, synthesising theoretical and empirical literature on metaphor, linguistic relativity, and temporal cognition. The analysis focused on case studies from languages such as English, Mandarin, Hopi, and Aymara, highlighting both universal and culturally specific temporal metaphors. The study reveals that temporal metaphors vary significantly across languages, reflecting unique cultural perspectives while exhibiting shared cognitive patterns. For instance, English and Mandarin conceptualise time through horizontal and vertical orientations, respectively, while Hopi and Aymara temporal frameworks challenge conventional Western notions. The findings support the weaker form of the Sapir-Whorf Hypothesis, showing that language influences thought without rigidly determining it. Furthermore, the research demonstrates that temporal metaphors are essential cognitive tools, shaping abstract concepts and influencing behaviour across cultural contexts.
Keyword: Language and Cognition, Linguistic Relativity, Temporal Metaphors

1. Introduction

For many, metaphors are perceived as merely decorative elements of language, particularly within literary texts. However, research conducted over the past few decades has revealed that metaphors play a significant role in human cognition. Lakoff & Johnson (1980) contend that metaphors extend beyond linguistic ornamentation to constitute a fundamental mode of thought. They influence not only how individuals perceive and interpret the world but also how they act in specific contexts. For instance, the commonly used English metaphor *time is money* effectively demonstrates this phenomenon. By assigning economic value to time, it shapes not only the language used to discuss it but also the manner in which it is managed. Numerous English expressions—such as *borrow time*, *invest time*, *buy time*, *spend time*, and *waste time*—exemplify how time is unconsciously framed through an economic lens, highlighting the metaphor's pervasive impact on decisions and behaviour (Lakoff & Johnson, 1980).

It is important to note, however, that the metaphorical framing of time as a commodity is not universal across all cultures and languages. For example, the Indonesian expression *jam karet* (literally "rubber time") reflects a more flexible and relaxed attitude towards time (Magnis-Suseno, 1997). This example underscores the existence of cultural differences in time perception. Such linguistic variations demonstrate how different cultures map their lived experiences onto metaphors, ultimately influencing cognitive patterns in distinct ways.

An intriguing parallel can be observed in the spatial conceptualisation of certain cultures. The Kuuk Thaayorre, an Aboriginal community in Australia, conceptualise space in cardinal terms (north, south, east, west) rather than egocentric terms (front, behind, left, right) (Boroditsky, 2011). A similar phenomenon can be found in Javanese and Sundanese cultures. In Central Java, particularly in Yogyakarta, cardinal directions are frequently employed in everyday navigation. Furthermore, temples such as Borobudur are constructed in alignment with the four principal compass directions, indicating that cardinal points have historically played a significant role in structuring sacred spaces (Degroot, 2009). This evidence suggests that the Javanese exhibit both linguistic and cultural predispositions towards absolute (non-egocentric) spatial references.

Similarly, the traditional Sundanese worldview employs an absolute spatial reference system, wherein space is divided into cardinal directions with a central point serving as a key orientation marker. These cardinal directions and their central reference are pivotal when describing the location of specific places.

The proposition that language influences thought and shapes individuals' perceptions of reality is by no means a novel concept. In the early 20th century, the American anthropological linguist Edward Sapir and his student Benjamin Lee Whorf put forward similar ideas. (Indeed, even prior to their work, certain thinkers had already recognised and discussed the profound interconnection between language and thought.[1]) Although Sapir and Whorf did not co-author any publications or produce a unified theoretical framework, their individual writings strongly advocate the notion that language serves a dual purpose: it functions not only as a medium for expressing ideas but also as an active agent in shaping cognitive processes (Whorf, 1956).

This concept, widely known as the *Sapir-Whorf Hypothesis*, is traditionally delineated into two forms. The first, *Linguistic Determinism* (the stronger interpretation), posits that language entirely determines the ways in which individuals think and perceive reality. According to this view, if a language lacks specific vocabulary or grammatical structures for a given concept, its speakers will inevitably struggle—or even fail—to comprehend that concept (Sapir, 1929).

By contrast, *Linguistic Relativity* (the weaker and more broadly accepted version) asserts that while language shapes or influences thought, it does not rigidly determine it. This interpretation suggests that language facilitates access to certain concepts while rendering others less salient. For evident reasons, this more moderate perspective has garnered greater acceptance among scholars (Lucy, 1992).

The extent to which language influences thought processes remains a topic of considerable academic debate; however, several arguments lend support to this perspective. Empirical studies have shown that speakers of languages with distinct terms for various shades of a single colour are faster at distinguishing between those shades compared to speakers of languages that lack such lexical distinctions. For example, Russian employs two distinct terms for the colour blue: голубой refers to light blue, and синий denotes dark blue. Research has found that Russian speakers are quicker at differentiating between shades of blue than English speakers, whose language uses the single term "blue" to describe both (Winawer et al., 2007).

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[1] Johann Gottfried Herder (1744–1803) (2002), in his *Treatise on the Origin of Language*, argued that language is integral to both cognition and cultural identity. He asserted that language and thought are inextricably linked, serving as the primary medium for conceptualising and interpreting the world. Herder (2002) also posited that each language embodies a distinctive worldview, shaping its speakers' perception of reality in unique ways. Wilhelm von Humboldt (1767–1835) similarly emphasised that language is not merely a communicative tool but an active, thought-shaping process (Humboldt, 1999). He introduced the concept of *Weltanschauung* (worldview), suggesting that the vocabulary and grammatical structure of a language profoundly influence how its speakers perceive and comprehend the world. In his seminal work, *On Language: On the Diversity of Human Language Construction and Its Influence on the Mental Development of the Human Species* (1999), Humboldt characterised language as a "formative organ of thought", underscoring its pivotal role in shaping human experience. Ernst Cassirer (1874–1945) further explored the role of language in shaping human understanding, particularly in the first volume of his *The Philosophy of Symbolic Forms*, titled *Language*. Cassirer described humans as inherently "symbolic animals", emphasising that their comprehension of the world is mediated through symbolic systems such as language, art, myth, and science. He argued that language is not merely a tool for communication but also a fundamental framework that structures human perception and conceptualisation. Through linguistic symbols, individuals interpret, organise, and translate their experiences. This process, Cassirer contended, not only shapes thought but also actively constructs reality (Cassirer, 2020).

In languages where nouns are categorised through grammatical gender, the assigned gender can influence the adjectives used to describe the associated objects. For instance, the German word for "bridge" (*die Brücke*) is feminine, while the Spanish equivalent (*el puente*) is masculine. As a result, German speakers are more likely to describe bridges using adjectives such as "beautiful" or "elegant", whereas Spanish speakers tend to associate bridges with descriptors like "strong" or "sturdy" (Boroditsky et al., 2003).

Another compelling argument arises from the spatial orientation skills demonstrated by speakers of languages that rely primarily on cardinal directions rather than egocentric ones. For instance, speakers of certain Australian Indigenous languages or Javanese, as noted earlier, exhibit an extraordinary capacity for orientation, regardless of their immediate environment (Levinson, 2003).

Despite the arguments supporting the Sapir-Whorf Hypothesis, the claim that language influences cognition and worldview has been met with substantial criticism. Many cognitive scientists argue that human cognition is predominantly universal and that language reflects rather than determines thought. Pinker (1994) posits that language is not a primary cultural construct shaping cognition but an innate capacity of the human brain—an instinct encoded in our genetic framework.

Furthermore, if the strong form of the Sapir-Whorf Hypothesis were correct, it would have profound implications for bilingual and multilingual individuals. They would presumably encounter severe cognitive dissonance when switching between languages with divergent conceptual frameworks and structures. However, empirical evidence suggests that bilingual and multilingual speakers do not exhibit radically different worldviews when transitioning between languages, although subtle differences associated with specific experiential domains may exist (Athanasopoulos et al., 2015).

Additionally, some researchers contend that if language determined cognition and different languages represented entirely distinct worldviews or concepts of reality, effective translation would be nearly impossible (Evans & Levinson, 2009). Although certain cultural connotations and nuances may be lost in translation (Huszka & Stark, 2013), the successful transfer of concepts between languages indicates the existence of language-independent ideas and concepts. This observation challenges the deterministic interpretation of the hypothesis, suggesting instead that cognition is not entirely bound by linguistic structures.

The question of whether thought influences language or language influences thought remains a complex and unresolved issue, with both proponents and critics resolutely defending their respective positions. Advocates and opponents of the Sapir-Whorf Hypothesis present compelling arguments; however, it is noteworthy that the weaker version of the hypothesis finds support in empirical evidence, while counterarguments frequently draw upon philosophical reasoning.

To further substantiate the weaker variant of the Sapir-Whorf Hypothesis, an additional example warrants consideration. Rather than employing grammatical tenses in the strict sense, Malay and Indonesian rely extensively on aspect markers, temporal adverbs, and contextual cues to indicate the timing of actions. In contrast, German employs a highly intricate tense system, with verb inflections signalling specific temporal frameworks. Consequently, while both linguistic systems achieve similar communicative purposes, the ways in which native speakers of Malay/Indonesian and German perceive, interpret, and process the temporal reality differ significantly.

Although humans are undoubtedly capable of conceptualising notions for which their native language lacks specific grammatical structures or lexical items, the influence of language on cognition is nonetheless evident. For instance, many German learners of English demonstrate a tendency to overuse or underuse the continuous aspect (e.g., *is doing*), a grammatical feature absent in Standard High German (Swan & Smith, 2001). Conversely, speakers of Malay or Indonesian typically encounter fewer difficulties when acquiring English, as their native languages possess analogous constructions expressed through aspect markers (e.g., *sedang*).

This disparity underscores the extent to which linguistic structures can shape cognitive patterns. While the concept of ongoing processes is universally comprehensible, the structural absence of the continuous aspect in German appears to influence how its speakers produce and understand such constructions in English. If cognition were entirely independent of language, and language exerted no influence on thought, such systematic errors would be far less likely to occur.

The following sections of this paper seek to explore the intricate relationship between language and cognition through the lens of temporal metaphors. By analysing metaphorical frameworks across diverse linguistic and cultural contexts, it aims to demonstrate how temporal metaphors influence cognitive processes and cultural practices. Through a qualitative synthesis of historical, theoretical, and linguistic perspectives, the study highlights the cognitive implications of metaphors while aiming to contribute to the broader discourse on linguistic relativity.

2. Method

This paper adopts a qualitative methodology grounded in a comprehensive review of relevant literature. This approach synthesises historical, theoretical, and linguistic perspectives to provide an in-depth understanding of temporal metaphors across different languages and cultural contexts.

The study begins by tracing the historical development of the concept of metaphor, offering a foundational understanding of its evolution and significance within linguistic and cognitive studies. This historical overview contextualises the subsequent theoretical analysis, demonstrating the continuity and shifts in metaphor research over time.

Central to this inquiry is Cognitive Metaphor Theory (CMT), which serves as the primary theoretical framework. The study examines the foundational principles of CMT as articulated by Lakoff and Johnson, along with its subsequent iterations, empirical validations, and implications for understanding abstract concepts like temporality. By engaging with key developments in CMT, the paper aims to illuminate how metaphors function as cognitive tools that shape thought and behaviour.

Building on this theoretical foundation, the analysis transitions to an in-depth exploration of temporal metaphors. The nature of these metaphors is examined through their categorisation into spatial and directional frameworks, such as horizontal, vertical, cyclical, event-based, and reversed orientations. Each category is discussed comprehensively, with examples drawn from English, Chinese, Malay, Hopi, and Aymara to illustrate the diversity and complexity of temporal conceptualisations. These examples are critically analysed to highlight both their linguistic structures and cultural contexts.

The qualitative methodology employed ensures a holistic approach, integrating linguistic analysis with cognitive and cultural insights. This method enables a nuanced exploration of temporal metaphors, demonstrating how they operate within and across languages and how they reflect broader cognitive and cultural frameworks.

By combining historical, theoretical, and linguistic analyses, this study seeks to provide a cohesive and multidimensional understanding of temporal metaphors, their functions, and their implications for shaping human cognition and cultural identity.

3. Result and Discussion

3.1. Cognitive Metaphor Theory

Aristotle's *Poetics* is one of the earliest works to examine the concept of metaphor. According to Aristotle, metaphors involve the application of a word to an object or concept to which it does not literally belong. He identified four distinct types of metaphorisation:

1. **From general to particular**: This occurs when a general category is used to describe a specific entity. For example, referring to an individual as a "monster" or a "creature", where the terms "monster" or "creature" are broader than "person".
2. **From particular to general**: In this case, a term for a specific object is applied to a broader class of items. For instance, referring to all cutlery as "spoons", despite "spoons" denoting a particular type of cutlery.
3. **From particular to particular**: This involves substituting one specific term for another, such as using "cup" instead of "mug" or "jug".
4. **Analogy-based metaphorisation**: This type employs proportional relationships between pairs of terms, where X is to Y as W is to Z. For example, consider "old age" (X) and "life" (Y) compared to "sunset" (W) and "day" (Z). Using this analogy, one might metaphorically describe old age as the sunset of life.

Aristotle viewed metaphors as a means of understanding the unfamiliar through the lens of the familiar. Furthermore, he regarded the ability to form metaphors as a marker of intellectual capability, as it requires recognising and articulating underlying similarities (Aristotle, circa 335 B.C./1996).

While Aristotle is widely acknowledged as one of the earliest philosophers to explore metaphors systematically, other thinkers also addressed the topic. Quintilian, the Roman rhetorician, described metaphors in his treatise *Institutio Oratoria* (2001) as embellishments or ornamental figures of speech that enhance the aesthetic quality of language (Quintilian, 2001). Similarly, Cicero, the Roman statesman, orator, and

philosopher, discussed rhetorical devices, including metaphors, in his seminal work *De Oratore* (1942), emphasizing their significance in the art of rhetoric.

During the Classical Greek period and the Roman Empire, metaphors were primarily associated with enhancing rhetorical effectiveness and were regarded as intellectual devices for embellishing language. However, a more profound understanding of metaphors emerged in the 20th century with the publication of *Metaphors We Live By* by Lakoff & Johnson (1980). This transformative perspective has since evolved rapidly, exerting a significant influence on diverse disciplines, including linguistics, cognitive science, psychology, and philosophy.

Lakoff & Johnson (1980) proposed that language is saturated with metaphors, which fundamentally shape thought and, consequently, influence behaviour and worldview. Central to their argument is the concept of "conceptual metaphors", which are deeply embedded, largely implicit cognitive structures. The authors further posited that our physical, corporeal interactions with the world underpin our understanding of abstract concepts, resulting in metaphors that are grounded in tangible experiences.

Cognitive Metaphor Theory (CMT), as articulated by Lakoff and Johnson, revolves around two principal concepts: the source domain and the target domain. The source domain provides a conceptual foundation from which knowledge is drawn to interpret the target domain. Typically, the source is concrete and tangible, while the target is abstract and intangible. For instance, in the metaphor *time is money*, "money" serves as the source domain due to its measurable and tangible qualities, while "time" functions as the target domain, representing an abstract and elusive concept.

Systematic mappings between the source and target domains are established based on structural parallels. These mappings facilitate the transfer of knowledge from the source domain to the target domain, enabling a more accessible understanding of the latter. Analysing the metaphor *time is money* reveals that the physical attributes of money—its scarcity, the effort required to acquire it, and its rapid expenditure—illuminate key characteristics of time, such as its value, fleeting nature, and the need for careful management.

The Invariance Principle (IP) in Cognitive Metaphor Theory (CMT), introduced by Lakoff (1990), asserts that when a source domain is mapped onto a target domain, the cognitive and topological organisation of the source remains consistent. In other words, metaphorical mapping preserves the intrinsic structure and relationships of the source while transferring them to the target domain.

For instance, in the metaphor *life is a journey*, "journey" functions as the source (concrete) domain, while "life" represents the target (abstract) domain. This mapping allows for the conceptualisation of "life" through the cognitive framework provided by "journey" (Lakoff & Johnson, 1980). Structural parallels between the two domains are evident: both "journey" and "life" have a defined beginning and end, involve challenges and potential deviations, and culminate in reaching a destination. According to IP, only those characteristics of the source domain that align with the structure of the target domain are retained during the mapping process. Features of the source domain that are irrelevant to the target, such as the mode of travel in a journey (by air or sea), are excluded. This selectivity ensures the coherence and interpretability of the target domain.

The Invariance Principle has several key implications:

1. **Selective Mapping**: As demonstrated by the *life is a journey* metaphor, the mapping process is inherently selective, preserving only those elements of the source domain that are structurally compatible with the target.
2. **Ontological Correspondence**: An ontological alignment exists between the source and target domains. The intrinsic qualities of the source must correspond to those of the target, and metaphors are rendered meaningful through these internal and structural similarities (Gentner, 1983).
3. **Cultural and Contextual Variability**: The selection of source domains can vary across cultural and contextual settings. Different cultural paradigms and individual experiences influence the choice of sources while ensuring that the coherence of the target domain is maintained (Kövecses, 2005).
4. **Cognitive Constraints**: While metaphors facilitate the comprehension of abstract concepts, they may also impose cognitive constraints. During the mapping process, certain structural elements of the source are emphasized, while others are obscured, potentially limiting the ways in which the target domain is understood (Lakoff, 1990).

Metaphors can be broadly categorised into two types: semi-universal metaphors, which emerge from shared human experiences, and culturally specific metaphors, which are deeply tied to particular languages and cultural contexts. Semi-universal metaphors are often grounded in physical sensations or interactions with the immediate environment. According to the theory of embodied cognition (Barsalou, 2008), our physical

engagement with the world significantly shapes cognitive processes. For instance, the act of bathing or hand-washing is frequently associated with moral purity, illustrating how the metaphor of "purity" arises from the intersection of physical and psychological experiences (Casasanto, 2008). Another example is the metaphorical association of spatial orientation with emotional states, where the directions "up" and "down" often symbolise positive and negative emotions, respectively (Lakoff & Johnson, 1999). English idiomatic expressions such as "upbeat", "feeling down", "on top of the world", and "hitting rock bottom" exemplify this pattern. However, these associations are not universally consistent: "up" can also convey negative connotations, as in "worked oneself up", while "down" can signify positive emotions, as in "falling in love". Despite these nuances, the frequent connection of locatives such as "up" and "down" with emotional states reflects the collective human experience underpinning such metaphorical mappings.

Not all metaphors, however, are universal. Many are deeply rooted in specific cultural frameworks and linguistic systems. For example, while the English expression "grasp an idea" employs a tactile metaphor, the Chinese verb *chī tòu* translates to "eats through" or "completely comprehends" an idea, and the Korean phrase *sokdam-eul masida* means "drinks a proverb" or "understands the essence of an idea" (Boroditsky, 2001). These examples demonstrate how the conceptualisation of "understanding" varies across linguistic and cultural traditions.

A similar phenomenon can be observed in the metaphorical representation of emotions, particularly anger, which often draws on the metaphor of "boiling fluid in a container". This metaphor is widespread across languages, as seen in English expressions such as "his blood was boiling" or "boiling over with rage". Yet cultural differences introduce notable variations in how anger is conceptualised. In Japanese, the expression *hara ga tatsu* translates to "becomes angry", but its literal meaning, "stomach stands up", suggests a conceptual link between anger and sensations of abdominal discomfort (Matsuki, 1995). By contrast, the Mandarin phrase *fā huŏ* ("emits fire") likens anger to a dangerous natural force (Yu, 1998). In Indonesian, anger is metaphorically described as transforming an individual into a wild animal, with the phrase *menjadi singa* translating to "becomes a lion".

These examples indicate that while the metaphorical representation of anger often originates from universal physiological responses—such as elevated body temperature, increased pulse rate, and heightened blood pressure—cultural differences persist. Such variations are shaped by distinct historical, environmental, and social factors, which influence how metaphors are constructed and understood within specific cultural contexts.

The Conceptual Blending Theory (BT), introduced by Fauconnier and Turner in their seminal work *The Way We Think: Conceptual Blending and the Mind's Hidden Complexities* (2002), represents a significant advancement in the field of Cognitive Metaphor Theory (CMT). This theory explores the cognitive process of "conceptual blending", which enables individuals to integrate distinct concepts or domains into novel mental spaces. Fauconnier & Turner (2002) elaborate on this intricate process, explaining how discrete input spaces—domains, concepts, or frames of reference—merge to create a blended space. Within this blended space, interactions between the input spaces yield emergent structures that were not originally present in the inputs themselves.

Unlike simple combination or fusion, conceptual blending involves a sophisticated integration of the input spaces, resulting in the generation of novel structures and insights. The process typically begins with the selection of two or more input spaces, guided by principles such as cause-and-effect relationships or analogy. These inputs are combined to form a generic space encompassing shared structural elements from the inputs. Subsequently, the interaction of these elements within the generic space facilitates the emergence of a unique blended space, incorporating structures that transcend the original inputs.

Fauconnier & Turner (2002) argue that conceptual blending is a fundamental aspect of human cognition, underpinning abstract reasoning and communication. This cognitive mechanism plays a critical role in the creation and comprehension of metaphors. For instance, the input spaces "time" and "motion" may combine to produce the metaphor "time flies". Here, the abstract concept of "time" is understood through the framework of "motion", even though "time" does not move in a physical sense.

The authors also address the potential neural underpinnings of conceptual blending. They propose that this process is facilitated by the brain's neural connectivity and its capacity for parallel processing. This ability allows for the rapid synthesis of information from multiple domains, enabling the formation of novel conceptual structures and providing a foundation for human creativity and innovation (Fauconnier & Turner, 2002).

Although Cognitive Metaphor Theory (CMT) is fundamentally a linguistic framework, both CMT and metaphors have profound implications for other scientific disciplines. Recent advancements in neuroscience, for instance, have identified a range of brain regions involved in metaphor processing. Notably, these regions

extend beyond the traditional language areas in the left hemisphere, such as Broca's and Wernicke's areas. Spatial metaphors, such as "looking forward to the future" and "moving forward", activate brain regions associated with motor activity and spatial orientation. Similarly, the processing of textural metaphors, such as "sharp critique", "rough day", and "soft heart", engages the somatosensory cortex, a region linked to the processing of physical sensations (Lacey et al., 2012). Action-related metaphors, including "I have to pull myself together" and "Do not throw away this opportunity", activate the motor cortex (Aziz-Zadeh et al., 2006). Furthermore, metaphors associated with emotions, such as "I poured my heart into my work" or "I have a burning desire to succeed", elicit increased activity in the amygdala, the brain region responsible for emotional processing (Citron & Goldberg, 2014).

Research into metaphor processing also provides valuable insights into the neural mechanisms underlying psychiatric disorders. For example, individuals with schizophrenia frequently exhibit diminished capacity for metaphor comprehension (Kircher et al., 2007). Moreover, metaphors are widely utilised in therapeutic settings, particularly in Cognitive Behavioural Therapy (CBT), where they play a critical role in restructuring negative cognitive patterns and distortions. By simplifying complex emotions or thoughts, metaphors enhance communication between therapists and patients, enabling both parties to develop a clearer understanding of the issues at hand. Metaphors can also facilitate the articulation of abstract or difficult-to-express emotions. For instance, rumination may be metaphorically described as a "hamster wheel", symbolising a repetitive and unproductive cycle. This visualisation can help patients recognise the futility of ruminative thought, fostering greater awareness and promoting behavioural change.

Metaphors also serve as a linguistic bridge, strengthening the therapeutic alliance and paving the way for more effective communication. For example, when a patient perceives their negative beliefs as "set in stone", a therapist might introduce the metaphor of "sculpting" to illustrate that thought patterns, like stone, can be reshaped. Meichenbaum (1995) further suggests that metaphors can assist in processing traumatic experiences. Instead of confronting distressing memories directly, patients may use metaphors to "box" these experiences, choosing when, or whether, to "open the box" and address them at a time of their choosing.

While metaphors are powerful tools in therapy, they are not universal solutions and must be applied judiciously. A metaphor that resonates with one patient may provoke an entirely different response in another. Consequently, their application must be carefully evaluated on an individual basis to ensure their appropriateness and effectiveness within the therapeutic context.

3.2. Temporal Metaphors

Metaphors shape and also provide information about how people comprehend and conceptualize the passing of time; consequently, temporal metaphors are in ingrained and present in everyday language use. We humans conceptualize *time* using two primary categories of metaphors: in the first one, the *observer* is moving (OMM), and in the second, *time* is moving (TMM). In OMM, *time* resembles a stationary landscape, and the *observer* passes through it in the direction of future events. This perspective underlines the active role of the observer as he moves along the timeline past-future. Thus, past events are behind and future events lie ahead of the observer. In the example *we are approaching the end of the year*, the observer is moving forward, from the past towards a point in the future (*the end of the year*). In TMM, on the other hand, the position of the *observer* is stationary, and *time* is like a river, but flowing backwards, drifting events from the future, past the present, and towards the past. In this perspective, the observer is passive, and time flows towards him, bringing future events closer, and finally, past the observer. In the example *the end of the year is approaching*, the observer's position is fixed, while the flow of time is drifting *the end of the year* towards him, from a point in future towards the past. Research suggests that the difference between these two conceptual frameworks is not just linguistic but also cognitive: shifting from one framework to the other leads to a significant delay in processing spatial-temporal information, which indicates that OMM and TMM are different not only in terms of their subjects (observer–time) but that they form two distinct systems on the cognitive level. Furthermore, the increased cognitive load and consequently, delay in processing spatial-temporal information associated with the sudden change between OMM and TMM is in all probability rooted in the possible number of reference points (Gentner et al., 2002). In OMM, there are only two of them: the observer (who imagines himself passing through time) and event (that is ahead in the future). TMM, however, can occasionally operate with three reference points: the observer (whose position is stationary), a future event (that is nearing the observer), and *another reference point* (another past or present event). The introduction of this third reference point is arbitrary though. For instance, in the sentence *Peter arrives ahead of Phoebe*, the observer has to keep track of two separate events (Peter's and Phoebe's arrival respectively), while he (the observer) is staying

anchored in his position. This means another layer of complexity: the observer has to process / understand that Peter's arrival precedes that of Phoebe, while time is moving towards him and ultimately, past him.
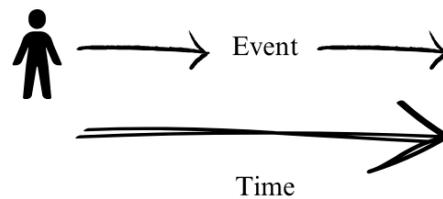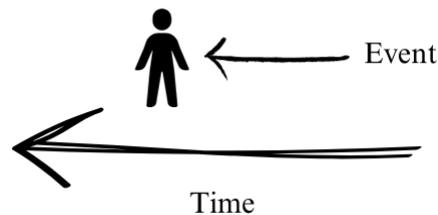

Figure 1. Observer-Moving Metaphor (OMM)

Figure 2. Time-Moving Metaphor (TMM)

Building on the theoretical framework of temporal metaphors and their cognitive implications, the subsequent section explores how time is metaphorically conceptualised across diverse linguistic and cultural contexts. This discussion examines spatial and directional metaphors—horizontal, vertical, cyclical, event-based, and reversed—highlighting their manifestations in languages such as English, Chinese, Malay, Hopi, and Aymara. These languages serve as representative examples, each offering distinct insights into the metaphorisation of time while acknowledging the overlaps and interplay between different metaphorical categories.

The analysis focuses on temporal expressions, including adverbs and other linguistic markers of temporality, alongside the gestures that often reinforce these metaphors. Additionally, culturally significant proverbs and expressions provide a lens through which to understand the broader societal and cognitive frameworks underlying these conceptualisations. For example, while English frequently employs horizontal metaphors to frame time, Mandarin combines horizontal and vertical orientations, reflecting a dynamic interplay of spatial metaphors. Similarly, the temporal frameworks of Hopi and Aymara challenge conventional notions by emphasising event-based and reversed orientations, revealing unique cognitive and cultural perspectives.

Given the limitations of space, this section selectively highlights these five languages to illustrate the rich diversity and complexity of temporal metaphors.

3.2.1. Horizontality and Verticality/Cyclicity in Temporal Frameworks: English, Chinese, and Malay

The conceptualisation of time in language reveals subtle yet profound differences in how it is perceived and expressed. Time is often metaphorically framed through notions such as its direction, flow, and value, reflecting broader cultural and cognitive frameworks.

In English, time is typically perceived as a linear or horizontal path, with the future positioned ahead and the past behind. Mandarin, in contrast, employs both horizontal and vertical conceptualisations of time. The horizontal metaphor is evident in expressions such as 以前 (*yǐ qián*, "before"), where *qián* denotes front or forward, and 以后 (*yǐ hòu*, "after"), where *hòu* means back. Vertically, Mandarin associates the past with 上 (*shàng*, "above" or "up") and the future with 下 (*xià*, "below" or "down"). Research based on the Centre for Chinese Linguistics corpus indicates that approximately 19.65% of spatiotemporal metaphors in Mandarin are vertical, while the majority (80.35%) adopt a horizontal orientation (Xiao, 2012, cited in Yang et al., 2022). This diversity underscores the dynamic interplay between language, thought, and cultural practices in shaping time metaphors. Furthermore, individual speakers' experiences, including their familiarity with other

languages such as English, may influence their temporal conceptualisations, demonstrating that time metaphors often exert "an in-the-moment effect" on cognition (Fuhrman et al., 2011).

The conceptualisation of time is also evident in proverbs and everyday expressions, which reflect cultural values and the significance attributed to time by different linguistic communities. In Mandarin, the proverb 时间不能倒流 (*Shí jiān bù néng dào liú*, "Time past cannot be called back again") shares thematic similarities with the Malay adage *Masa umpama pedang, jika tidak dipotong, ia memotong kamu* ("Time is like a sword; if you do not cut it, it cuts you"). Both expressions emphasise the irrevocable nature of time and the urgency of using it effectively. This perspective aligns with the common Mandarin saying 时间就是金钱 (*Shí jiān jiù shì jīn qián*, "Time is money"), reinforcing the metaphorical framing of time as a finite and valuable resource.

Another recurring theme across cultures is the association of time with progress and the importance of patience and perseverance in achieving goals. In Malay, the proverb *Sedikit-sedikit, lama-lama jadi bukit* ("Little by little, over time, it becomes a hill") encapsulates this notion by illustrating how incremental efforts accumulate into significant achievements over time. A comparable English expression is "Rome wasn't built in a day", while the Mandarin equivalent 有志者，事竟成 (*Yǒu zhì zhě, shì jìng chéng*, "Where there is a will, there is a way") similarly extols the virtues of determination and persistence.

The cyclical nature of time is another notable theme in temporal metaphors. The Malay proverb *Bagaikan roda, kadang di atas, kadang di bawah* ("Like a wheel, sometimes on top, sometimes below") metaphorically represents time as a series of alternating fortunes. While it reflects a cyclical understanding, it also implies linear progression as events unfold. A similar English saying, "What goes up must come down", echoes this sentiment, highlighting the predictability of change over time. Both proverbs underscore the importance of balance and resilience in navigating the vicissitudes of life.

In summary, temporal metaphors in different languages not only reflect the structural and cultural nuances of their respective linguistic systems but also provide valuable insights into how communities perceive and engage with time. Through their diverse conceptualisations—whether linear, cyclical, horizontal, or vertical—these metaphors offer a window into the intricate relationship between language, thought, and cultural identity.

3.2.2. Event-Based Temporal Framework: The Example of Hopi

The conceptualisation of time in the Hopi language diverges significantly from the Western understanding of temporality, which typically employs linear frameworks. Hopi, a Uto-Aztecan language spoken by the indigenous Hopi community in North America, encapsulates a worldview and cultural identity distinct from those of Western languages. Hopi's linguistic structures have sparked extensive scholarly debate regarding their implications for cognition, particularly the perception of time. Malotki's seminal work *Hopi Time: A Linguistic Analysis of the Temporal Concepts in the Hopi Language* (1983) provides detailed insights into how the Hopi people conceptualise time. His findings suggest that Hopi frames time as a spatial progression with the individual at its centre, contrasting starkly with the binary tense system of past and future found in languages such as English. Hopi speakers perceive time as a series of discrete events or occurrences, emphasising their relationship with environmental contexts rather than rigid temporal units (Malotki, 1983).

This unique temporal framework has significant implications for the Sapir-Whorf Hypothesis, or Linguistic Relativity, which posits that language shapes thought and cultural practices. Scholars argue that the temporal framework of Hopi not only encodes their historical experiences but also influences societal behaviours, including future-oriented planning. For instance, research indicates that speakers of languages with explicit future tense markers might exhibit less concern for future consequences, illustrating the interplay between language, thought, and social norms (McCluskey, 1985; Sinha & Bernárdez, 2015). Therefore, the study of Hopi temporality transcends linguistic inquiry, extending into anthropological and cognitive scientific domains. It challenges conventional notions of temporality and highlights the embedding of social norms and cultural values within linguistic structures. Furthermore, it underscores the importance of appreciating diverse temporal perspectives to understand human experience and foster intercultural communication.

The historical trajectory of the Hopi people is marked by environmental interaction and subsequent European contact. By 1500, Hopi culture was firmly established, with well-defined social structures, ceremonial cycles, and agricultural methods adapted to arid conditions. The Hopi historical period began in 1540 with their first encounter with Spaniards led by Francisco Vásquez de Coronado, whose search for the legendary Seven Cities of Gold resulted in violent conflicts and the destruction of part of a Hopi village. These events had enduring implications for the Hopi community. Given that the Hopi language serves as a repository for cultural values, traditions, and spiritual beliefs, its preservation is crucial for ensuring cultural continuity.

However, modernisation and globalisation pose significant challenges, prompting ongoing efforts to document and revitalise the language.

As noted, the Hopi language adopts a distinctive approach to temporality. Malotki's analysis remains the most extensive to date, detailing a temporal framework structured around non-future and future tenses, in contrast to English's primary distinction between past and non-past. This framework, which centres on self-oriented spatial progression, refutes earlier claims by Benjamin Lee Whorf that Hopi lacks a temporal structure and instead conceptualises time as cyclical or static (Whorf, 1956). Malotki (1983) meticulously catalogued temporal adverbs and constructions, revealing a nuanced system tied closely to environmental and social contexts rather than rigid metrics like minutes or hours (Sinha & Bernárdez, 2015). This perspective places greater emphasis on events and their interrelationships, allowing for a fluid conceptualisation of time (McCluskey, 1985).

Comparable frameworks have been observed in other indigenous languages, such as Huni Kuï, Awetý, and Kamaiurá in Brazil. These languages similarly employ environmental and social indices to reckon time, eschewing conventional systems based on uniform temporal units. Such parallels suggest the existence of a cognitive framework that prioritises contextual understanding over numerical measurement. The absence of metric time in these languages underscores the diversity of temporal cognition and highlights how linguistic structures can shape societal attitudes towards time (McCluskey, 1985).

The study of Hopi temporality, alongside comparative linguistic analyses, reinforces the Sapir-Whorf Hypothesis by demonstrating how linguistic structures influence thought and cultural practices. Paul Kay's characterisation of language as a "conceptual toolbox" aptly captures this dynamic, where linguistic choices reflect broader cultural values and societal needs. The Hopi language's emphasis on manifested versus unmanifest realms illustrates a fundamentally different perspective on time, challenging traditional notions of universality in temporal concepts. Hopi speakers appear to perceive time through the lens of physical phenomena rather than the strict past-present-future trichotomy prevalent in many other languages. This insight prompts further inquiry into the universality of temporal cognition and its cultural variability.

The practical implications extend beyond theoretical discourse, offering valuable perspectives for cross-cultural communication and cognition. Linguistic relativity suggests that speakers of different languages may perceive reality in divergent ways, potentially leading to misunderstandings in multilingual contexts. For example, a Hopi speaker might approach planning and punctuality differently from an English speaker, influencing intercultural interactions. While critiques of the strong interpretation of the Sapir-Whorf Hypothesis argue against the idea that language rigidly constrains thought, research such as Malotki's demonstrates that linguistic and cultural factors significantly shape perception without fully determining cognitive abilities.

In conclusion, the Hopi language's unique temporal framework offers profound insights into the interplay between language, thought, and culture. It underscores the embeddedness of temporal concepts within linguistic structures and highlights the multifaceted nature of human cognition and experience.

3.2.3. Reversed Temporal Framework: Aymara

The Aymara are an indigenous group residing in the Andean region of South America. They are renowned for their rich oral traditions and mythological heritage. Through storytelling, they have maintained a profound spiritual connection with nature and the cosmos, which continues to be central to their cultural identity. Unlike many indigenous groups whose linguistic and cultural identities were heavily influenced by external forces, the Aymara have preserved their distinctive worldview, even in the face of colonial forces (Cooperrider & Núñez, 2016; Mallaeva et al., 2020). Historically, the Aymara inhabited several independent states across the Andean highlands, with their presence in the region dating back to pre-Columbian times. Their cultural resilience is evident in their ability to withstand both the Incas and the Spanish while maintaining their linguistic and cultural identity.

The Aymara conceptualisation of time is particularly striking and challenges the assumption of universality in temporal cognition. For most cultures, time is perceived as a linear progression on a horizontal axis, with the past behind and the future ahead. By contrast, Aymara speakers conceptualise the past as positioned in front of them and the future as situated behind them. This complete inversion of conventional temporal metaphors underscores the intricate interplay between language, culture, and cognition. By positioning the past as visible and in front, Aymara speakers reflect a cultural emphasis on known history and experience, while the unseen future remains abstract and behind them. This conceptual framework not only influences their temporal reasoning but also affects cultural practices such as storytelling and decision-making,

where a greater focus is placed on tangible, past knowledge. Linguistic studies reveal that this temporal framework is reflected not only in language but also in gestures, with Aymara speakers gesturing forward for

past events and backward for future ones. Such gestural evidence substantiates the cognitive basis of this unique temporal conceptualisation.

The Aymara worldview perfectly aligns with the principles of Conceptual Metaphor Theory, which postulates that abstract concepts are typically understood through concrete experiences. In this case, Aymara speakers map temporal concepts onto spatial experiences in a way that contrasts sharply with Western perspectives. This perspective highlights the critical role of cultural context in shaping cognitive frameworks and contributes to the broader discourse on linguistic relativity.

Language plays a pivotal role in Aymara cultural identity, with over a million speakers currently using the language across Bolivia, Peru, and Chile. The language is recognised for its intricate structure, requiring verb suffixes to convey mood, modality, and number. These features not only reflect grammatical sophistication but also encode cultural nuances, such as spatial and temporal relations, which are integral to the Aymara worldview. It holds official status in Bolivia and Peru, reflecting its importance in preserving cultural heritage. A distinctive feature of the Aymara language is its verb structure, which requires at least one suffix to render it grammatical. These suffixes convey mood, modality, and number, while certain verbal and transpositional suffixes allow transformations between word classes and encode information such as the direction of motion. This linguistic system encapsulates the Aymara temporal framework: the past, as a known and visible realm, is conceptualised as in front of the speaker, whereas the future, as an abstract and unknown entity, is situated behind (Kranjec & Chatterjee, 2010).

In addition to its theoretical implications, the Aymara conceptualisation of time has practical applications. Insights into this reversed temporal framework can inform teaching strategies in multilingual and multicultural educational settings by addressing potential misunderstandings rooted in conflicting temporal metaphors. Moreover, these findings enhance cross-cultural communication, fostering greater awareness of diverse cognitive and cultural frameworks.

The Aymara perspective on time also invites a re-evaluation of assumed universals in human cognition. It underscores the importance of studying linguistic diversity to uncover how different cultures navigate temporal complexities. Such research not only enriches linguistic and cognitive science but also has practical implications for developing culturally sensitive communication strategies and educational methodologies. Additionally, it deepens our understanding of cultural diversity and human thought by demonstrating how language shapes cognitive and social practices. By examining how languages like Aymara shape temporal cognition, scholars can further illuminate the multifaceted nature of human experience and the profound interconnections between language, culture, and cognition.

4. Conclusion

This study underscores the pivotal role of metaphors, particularly temporal ones, in shaping cognition and cultural understanding. By examining diverse linguistic frameworks, the paper demonstrates that temporal metaphors are not merely linguistic artefacts but cognitive tools that structure abstract concepts and influence behaviour. The findings support the weaker form of the Sapir-Whorf Hypothesis, illustrating that language shapes thought in nuanced ways without rigidly determining it.

Temporal metaphors, as evidenced through examples from languages such as English, Mandarin, Hopi, and Aymara, reveal both universal cognitive patterns and culturally specific conceptualisations. These differences underscore the profound interplay between language, thought, and culture, challenging assumptions of cognitive universality while highlighting the diversity of human experience. The study reaffirms the importance of metaphorical frameworks in cross-cultural communication and cognitive research, offering valuable insights into how linguistic and cultural contexts shape perceptions of time.

In conclusion, this paper contributes to a deeper understanding of the dynamic relationship between language and cognition, advocating for continued exploration of how metaphors mediate human experience across diverse linguistic and cultural landscapes. These insights have broad implications, ranging from linguistic theory to cultural anthropology, fostering a richer appreciation of the complexity and variability of human thought.

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