

EGO-MOVING AND TIME-MOVING METAPHORS IN THE LANGUAGES OF BIH, AND THE ROLE OF EMOTIONAL VALENCE IN TEMPORAL COGNITION

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Abstract: This study explores how emotional valence influences metaphorical conceptualizations of time in the languages of Bosnia and Herzegovina: Serbian, Croatian, and Bosnian. Building on the cognitive linguistic distinction between ego-moving and time-moving metaphors, we hypothesized that speakers would be more likely to frame themselves as moving toward future events (ego-moving) when the events were positively evaluated, and to frame time as moving toward them (time-moving) when the events were negatively evaluated. To test this, we designed a structured questionnaire featuring twenty everyday scenarios involving future events with varying emotional valence. The questionnaire was distributed to 131 native speakers, who selected between metaphorical expressions and classified each event as either positive or negative. The results revealed a strong and statistically significant association between emotional valence and metaphor preference. Participants overwhelmingly favored ego-moving metaphors for positive events, emphasizing agency, progress, and intentionality, while time-moving metaphors were predominantly chosen for negative events, suggesting passivity, threat, or lack of control. These findings not only corroborate earlier research conducted in English but also demonstrate that the link between emotion and temporal metaphor preference extends into the South Slavic language complex. By focusing on three closely related yet culturally distinct linguistic varieties (Serbian, Bosnian, and Croatian), the study highlights both the robustness and the subtle variability of cognitive patterns underlying temporal discourse. The results contribute to a growing body of evidence that emotional framing plays a systematic role in shaping how speakers across languages conceptualize their movement through time.

Keywords: *temporal metaphors, ego-moving and time-moving perspective, emotional valence, South Slavic languages, cognitive linguistics.*

Field: Humanities

1. INTRODUCTION

Time, though abstract, is one of the most pervasively conceptualized experiences in human language and thought. Because we cannot perceive time directly, we tend to understand it through metaphor, most commonly by projecting it onto spatial domains. As claimed by Lakoff and Johnson (1980), Clark (1973) and Boroditsky (2000), one of the most widely studied metaphorical systems in this context is the contrast between ego-moving and time-moving metaphors, where either the speaker is construed as moving toward future events (e.g., "We're approaching the deadline") or the future is construed as moving toward the speaker (e.g., "The deadline is approaching").

While both metaphorical perspectives exist in many languages, their use is not arbitrary. Cognitive linguistics research has suggested that various psychological, emotional, and contextual factors may influence metaphor choice. For example, speakers tend to adopt an ego-moving perspective when discussing desirable, goal-oriented, or agentive events, and a time-moving perspective when discussing unpleasant, stressful, or externally imposed events (McGlone & Harding, 1998; Boroditsky & Ramscar, 2002; Matlock, Ramscar, & Boroditsky, 2011). This alignment has been linked to broader cognitive mechanisms involving agency, emotional valence, and construal of control (Margolies & Crawford, 2008; Radden, 2003).

Although the ego-moving vs. time-moving distinction has been explored in, for example, English and Mandarin Chinese (Boroditsky, 2001), little is known about how this metaphorical framing operates in South Slavic languages, particularly Serbian, Croatian, and Bosnian. These languages offer an especially interesting case for cognitive metaphor analysis: they share a common grammatical and lexical base, yet exist in distinct sociopolitical and cultural contexts, which may affect how speakers frame abstract

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concepts such as time.

Recent studies have further nuanced our understanding of how temporal metaphors influence cognition and perception. Research by Xu, Jia and Chen (2024) demonstrated that the use of ego-moving versus time-moving metaphors can significantly affect consumers' perceptions of temporal distance to future events. Specifically, ego-moving metaphors, which depict the self as moving toward an event, led participants to perceive events as more temporally distant compared to time-moving metaphors, where events approach the self. This effect was attributed to variations in psychological arousal elicited by the different metaphoric framings.

In a philosophical context, Baron et al. (2023) explored the relationship between temporal metaphors and temporal biases, such as future-bias and near-bias. Their study tested two hypotheses: the moving ego explanation, which posits that the perception of the self moving through time contributes to these biases, and the moving time explanation, which suggests that the perception of time moving toward the self is responsible. However, their empirical findings did not support either hypothesis, indicating the need for alternative explanations for these temporal biases.

Further exploring the impact of metaphorical framing, Stanojević et al. (2023) investigated how ego-moving and time-moving metaphors affect perceptions of climate change. Their study found that time-moving metaphors, which frame climate change as approaching the self, heightened participants' sense of urgency and perceived risk compared to ego-moving metaphors. This underscores the persuasive power of metaphorical framing in shaping public perception of critical issues.

Emphasizing the interplay between emotion and temporal metaphors, Piata and Soriano (2022) investigated how affective biases manifest in metaphorical representations of anticipated events. This study examined whether the association between time and affect emerges in naturally occurring language, particularly when both ego-moving and time-moving metaphors are available. The findings revealed a consistent pattern: positively anticipated events were more frequently described using ego-moving metaphors, whereas negatively anticipated events tended to be framed with time-moving metaphors. This suggests that emotional valence not only influences metaphor selection in experimental settings but also shapes metaphorical language use in everyday contexts, reinforcing the notion that our conceptualization of time is deeply intertwined with our emotional experiences.

Duffy and Feist (2024) provided a comprehensive overview of the role of metaphors in conceptualizing time. They emphasized that temporal metaphors are not merely linguistic expressions but reflect deeper cognitive processes that influence how individuals perceive and interact with time. Their work highlights the significance of metaphor in structuring temporal understanding across different contexts.

Moreover, while some research has explored cross-linguistic variation in temporal metaphors (e.g., Casasanto & Boroditsky, 2008), few studies have systematically examined the role of emotional valence as a determinant of metaphorical framing, particularly in empirical, scenario-based settings. This study addresses that gap by examining whether speakers of Serbian, Croatian, and Bosnian systematically vary their metaphor preferences based on the emotional framing of future events.

Building on previous findings, the current research seeks to test two specific hypotheses:

1. Ego-moving metaphors will be more frequently chosen when the event is evaluated positively, and
2. Time-moving metaphors will be preferred in response to negatively framed events.

To test these hypotheses, a structured survey was administered to 131 native speakers, who evaluated twenty future-oriented scenarios, choosing between metaphorically distinct expressions and classifying each event by emotional valence. The study aims to provide empirical data from a previously underrepresented language group and to contribute to the growing body of evidence that metaphor choice is not just linguistic, but deeply intertwined with emotion, cognition, and cultural perspective.

2. MATERIALS AND METHODS

Empirical studies on temporal metaphors have employed a range of methods to investigate how individuals conceptualize time. Prior research has included sentence completion tasks (Boroditsky & Ramscar, 2002), spatial priming experiments (Casasanto & Boroditsky, 2008), and controlled comprehension studies (McGlone & Pfiester, 2009), often designed to elicit preferences between ego-moving and time-moving metaphors. These metaphor types frame the relationship between the self and time differently: in ego-moving expressions, the individual moves toward a future event (e.g., "We're approaching the meeting"), while in time-moving expressions, the event moves toward the individual (e.g., "The meeting is approaching"). Such studies have shown that emotional or psychological context may influence metaphor choice, with positive or goal-oriented events tending to elicit ego-moving framing,

and negative or uncontrollable events more often described using time-moving language (Margolies & Crawford, 2008; Matlock, Ramsar, & Boroditsky, 2011).

Following the principles of these prior studies, the current research employed a scenario-based questionnaire to investigate the relationship between emotional valence and metaphorical framing in the languages of Bosnia and Herzegovina - Serbian, Croatian, and Bosnian. The questionnaire consisted of twenty short, future-oriented scenarios, each designed to reflect a plausible life event (e.g., an exam, vacation, interview, or medical procedure). For each scenario, participants were presented with two alternative sentences: one containing an ego-moving metaphor and the other a time-moving metaphor. The participants were asked to choose which sentence sounded more natural to them and to classify the event itself as either positive or negative in their experience.

The study was conducted in April 2025. The final sample included 131 adult participants, all self-reported native speakers of Serbian, Croatian, or Bosnian. All participants were university students residing in Bosnia and Herzegovina. Participants completed the survey anonymously and voluntarily, with no personally identifiable information collected. Before starting the questionnaire, participants were informed of the purpose of the study and gave their consent by proceeding to the first page. Each participant completed all twenty items, yielding a total of 2,620 individual responses.

The questionnaire was constructed and administered in person, as a printed handout, with the sentence pairs randomized in order (i.e., ego-moving or time-moving first) to minimize positional bias. Each scenario was worded to convey emotional context but allowed for individual interpretation of valence. Importantly, while the metaphorical labels were assigned by the researchers, the participant responses reflected spontaneous judgments of linguistic naturalness and emotional categorization. After data collection, each response was coded for participant ID, scenario number, chosen metaphor type, and valence judgment.

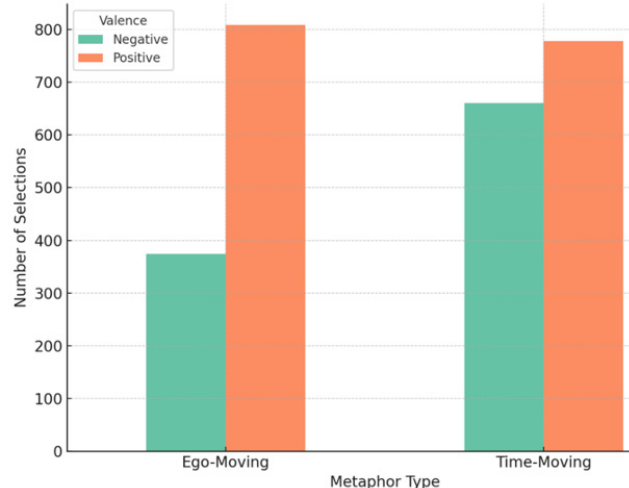
The data was analyzed using descriptive statistics and cross-tabulations of metaphor type by emotional valence. This analytical approach aimed to determine whether emotional framing systematically influenced participants' metaphor preferences across the languages under investigation.

3. RESULTS

The study collected a total of 2,620 individual responses from 131 native speakers of Serbian, Croatian, and Bosnian, each of whom completed a questionnaire consisting of 20 future-oriented scenarios. For each scenario, participants selected the metaphorical sentence that sounded more natural to them - one expressing an ego-moving metaphor (where the self moves toward the event) and one expressing a time-moving metaphor (where the event moves toward the self). Additionally, participants were asked to evaluate whether the event in question was positive or negative in their personal perception.

Of the 2,620 responses, 1,586 events (60.5%) were perceived as positive, while 1,034 events (39.5%) were judged as negative. Across all scenarios, 1,438 time-moving metaphors (54.9%) were selected, compared to 1,182 ego-moving metaphors (45.1%), suggesting a mild general preference for time-moving constructions. However, the picture becomes more nuanced when the data is examined in relation to emotional valence.

Figure 1. Metaphor type by emotional valence



Source: Authors' calculation based on the survey data

Figure 1 (see previous display) summarizes the interaction between metaphor choice and event valence. For positively evaluated events, participants selected ego-moving metaphors in 808 cases, amounting to 50.9% of all positive responses, while time-moving metaphors were chosen in 778 cases (49.1%). In these cases, metaphor preferences were relatively balanced, with a modest edge toward ego-moving framing.

In contrast, for negatively evaluated events, metaphor choice shifted more dramatically. Time-moving metaphors were selected in 660 cases, or 63.8% of all negative responses, while ego-moving metaphors were chosen only 374 times (36.2%). This indicates a substantial preference for time-moving constructions in situations where the event was perceived as threatening, stressful, or emotionally undesirable.

The overall pattern, visualized in Figure 1, shows that positive emotional framing tends to elicit slightly more ego-moving metaphorical constructions, while negative framing strongly favors time-moving expressions. This suggests a cognitive association between affective stance and temporal perspective. When speakers are oriented toward a desirable or goal-directed event, they are more likely to imagine themselves moving forward, approaching the event intentionally. On the other hand, when the event carries negative connotations, speakers are more likely to construe time as moving toward them, suggesting inevitability, external pressure, or diminished control.

This pattern was remarkably consistent across scenarios. For example:

a) In scenarios describing upcoming vacations, birthdays, or graduation ceremonies, ego-moving expressions such as “približavam se ljetovanju” or “idem ka diplomiranju” were frequently selected.

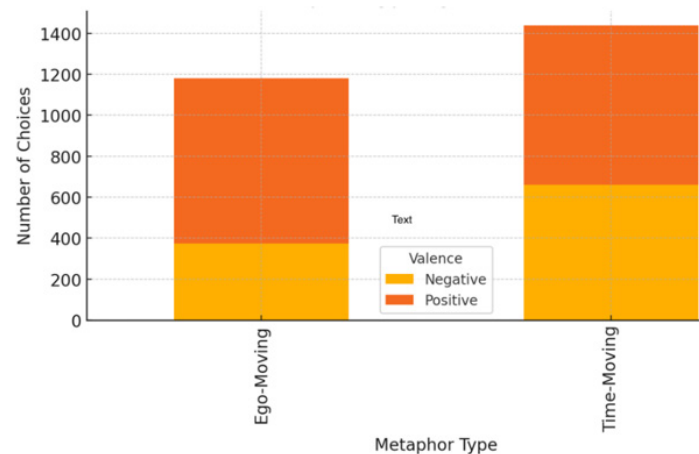
b) In contrast, scenarios involving medical procedures, stressful deadlines, or conflict-laden meetings saw frequent selection of time-moving expressions like “operacija dolazi” or “rok se približava.”

While participants had no explicit instruction or guidance on metaphor categories, their spontaneous preferences reflect a structured and reliable pattern: emotional framing appears to guide metaphor selection in temporal language use. This effect was not limited to a single language or demographic subset; rather, it was observed across the full range of participants, who represented diverse ages, regions, and educational backgrounds within Bosnia and Herzegovina.

These findings support the core assumption of this study that speakers' metaphorical choices in describing time are closely shaped by how they feel about future events. Positive emotions tend to evoke a sense of agency and forward momentum, while negative emotions align with metaphors of being approached by, or overtaken by, time itself.

Data can also be visualized as a stacked bar chart comparing metaphor preferences by emotional valence. Each bar represents one metaphor type, ego-moving on the left and time-moving on the right, and is subdivided into segments based on whether the underlying event was evaluated as positive (orange) or negative (yellow).

Figure 2. Distribution of ego-moving and time-moving metaphor choices by emotional valence



Source: Authors' calculation based on the survey data

Several key patterns emerge from this visualization:

a) The ego-moving bar is made up primarily of positive events, showing that participants were more likely to describe themselves as moving toward future events when those events were emotionally desirable.

b) The time-moving bar, by contrast, includes a much larger proportion of negative events, indicating that time-moving metaphors were frequently chosen when the event was emotionally negative or stressful.

c) The difference in the distribution of valence between the two bars is visually striking. While the ego-moving bar is relatively balanced (with a slight dominance of positive segments), the time-moving bar is clearly skewed, with negative segments dominating the total height.

This visual representation reinforces the descriptive analysis provided in the results: positive emotions correlate with ego-moving metaphors, while negative emotions are disproportionately associated with time-moving metaphors. The chart makes the cognitive pattern easy to grasp: when time is imagined as approaching the individual, it is more likely to involve something threatening or unwanted, whereas when the individual is moving toward time, the future is seen as a goal or opportunity.

4. DISCUSSIONS

The findings of this study offer compelling evidence that emotional valence significantly influences the metaphorical framing of time in the languages of Bosnia and Herzegovina. Across 2,620 responses collected from 131 native speakers of Serbian, Croatian, and Bosnian, clear patterns emerged linking positively evaluated future events with ego-moving metaphors, and negatively evaluated events with time-moving metaphors. While the overall distribution of metaphor choices leaned slightly toward time-moving expressions, it was the interaction with emotional context that revealed the most telling cognitive patterns.

This result supports and extends previous research conducted in English and other typologically unrelated languages. For instance, Boroditsky and Ramscar (2002) demonstrated that speakers' metaphorical construal of time shifts depending on affective framing: when anticipating pleasant events, individuals are more likely to adopt an ego-moving perspective, while unpleasant or stressful situations tend to elicit time-moving framing. Similar conclusions were drawn by Margolies and Crawford (2008), who found that negative events are frequently perceived as metaphorically "coming toward" the individual, evoking threat, pressure, or inevitability. Our findings align with this body of work and suggest that these metaphor-valence associations are not limited to English but appear to be robust across the South Slavic linguistic context as well.

What distinguishes the current study is its systematic application of this metaphorical framework to three closely related language varieties, namely Serbian, Croatian, and Bosnian, within a shared cultural and grammatical environment. The consistency of results across participants, regardless of regional or linguistic identification, suggests that the observed metaphor preferences are not primarily shaped by morphosyntactic variation but instead reflect deeper cognitive and affective structures that cut across these languages.

The data also allows us to make more fine-grained interpretations. The fact that ego-moving and time-moving metaphors were nearly equally chosen in positively framed events indicates that both

metaphors are grammatically and semantically acceptable, but speakers tend to prefer ego-moving expressions when they imagine themselves progressing toward desirable goals (e.g., vacations, promotions, or celebrations). In contrast, the strong preference for time-moving expressions in negatively framed events (e.g., surgery, job stress, legal proceedings) suggests a metaphorical construal in which the speaker is passive, stationary, or even vulnerable — a target approached by the future rather than an agent moving toward it.

This cognitive alignment between affect and metaphor is particularly significant because it reflects how abstract temporal reasoning is grounded in embodied experience. Positive emotional states promote metaphors of motion, agency, and control, while negative states are associated with metaphors of encroachment and lack of agency. Such patterns are congruent with broader theoretical accounts in cognitive linguistics that frame metaphor not merely as a rhetorical tool, but as a mechanism for conceptual structuring of experience (Lakoff & Johnson, 1980).

Additionally, the use of scenario-based elicitation in this study, with everyday, contextually grounded examples, adds ecological validity to the findings. Participants were not prompted to analyze or reflect on metaphors, and instead, they made intuitive choices about which sentence “sounded more natural,” and this naturalness was consistently shaped by the emotional valence of the event in question. This design demonstrates that metaphorical framing operates not only at the conscious level of linguistic awareness but also at the implicit level of emotional-conceptual mapping.

Taken together, the findings suggest that emotion is not merely content within language, but a structuring force that shapes how we conceptualize and linguistically express time. In the context of Bosnian, Croatian, and Serbian, speakers appear to share a cognitive blueprint in which positive futures are approached, and negative futures arrive — a subtle but powerful asymmetry in the metaphorical organization of experience.

5. CONCLUSION

This study provides clear evidence that metaphorical framing of time in Serbian, Croatian, and Bosnian is systematically influenced by emotional valence. Through a large-sample, scenario-based design, we demonstrated that ego-moving metaphors are more likely to be used for positive future events, while time-moving metaphors are predominantly associated with negative ones. These findings reinforce the view that temporal language is not neutral, but rather shaped by deeply embodied emotional and cognitive processes. By extending previous work into the South Slavic context, this research contributes to a broader understanding of how affect and metaphor interact across languages, cultures, and speaker communities.

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