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EVALUATING THE "DYNAMICS" OF A METAPHOR CLUSTER THROUGH THE RELEVANT DIMENSIONS OF INDIVIDUAL METAPHORICAL EXPRESSIONS

The paper aims to explore the dynamics of a metaphor cluster by assessing the levels of metaphoricity, familiarity, contextual aptness, and importance for text comprehension for each of the individual metaphorical expressions from the cluster. The cluster was comprised of 3 CONFLICT, 3 JOURNEY, and 4 CONTAINMENT metaphors. The research was conducted in two stages which involved (i) a quantitative analysis of a small specialized corpus, and (ii) a questionnaire-based study in which participants rated each of the target items along the four relevant dimensions on 6-point Likert scales. Quantitative corpus analysis showed the highest frequency for JOURNEY, CONTAINMENT, and CONFLICT metaphors, and this tendency was preserved in clusters. One-way repeated measures ANOVA showed significant effects for all four dimensions (p<.0005), while subsequent pairwise comparisons revealed significant differences between all items (p<.05), the only exception being ratings of contextual aptness between JOURNEY and CONFLICT metaphors (p=.381). A multiple linear regression model (metaphoricity, familiarity, importance for comprehension) was used to predict the variance in ratings of contextual aptness. The model was significant for all three groups of metaphors (p<.0005), accounting for 39.5% of variance in contextual aptness for CONFLICT metaphors, 33.7% for JOURNEY metaphors, and 25% for CONTAINMENT metaphors. The obtained results reveal a high degree of dynamics in the analyzed cluster.

Keywords: metaphor cluster, contextual aptness, metaphoricity, familiarity, WordSmith.

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1. Introduction

The paper aims to explore the dynamics of a representative metaphor cluster extracted from a newspaper corpus by evaluating the relevant dimensions of individual metaphorical expressions. These dimensions have been selected based on the relevant research from the field, discussed below, and include the measures of *metaphoricity, familiarity, contextual aptness*, and *importance of each of the target items for text comprehension*. The research will be conducted in two stages and it will include (i) a quantitative analysis of a small specialized newspaper corpus, followed by (ii) a questionnaire-based study in which participants will be asked to rate each of the target items along the four relevant dimensions. Such an approach has been adopted in order to increase the *ecological validity* of the study.

Namely, materials used in the questionnaire will be extracted from the corpus, thereby representing an instance of actual language use, rather than a selection of decontextualized, artificially constructed stimuli often used in psycholinguistic studies. Moreover, we will go beyond the corpus analysis alone, and try to assess the dynamics of a representative cluster as evaluated by our participants. Although an offline measure, we feel that the use of a questionnaire will also increase the *explanatory value* of the model, at least to a certain extent, inasmuch as it will offer mean objective assessments of the relationship between the target items, rather than providing subjective, qualitative conclusions based on corpus analysis alone. Such line of reasoning is further supported by recent research that has stressed the lack of convergent validity of data obtained from corpus studies and psycholinguistic research (BOEYNAEMS et al. 2017).

The paper is organized as follows. First, we will outline the main tenets of the theoretical framework, combined with the overview of previous research from the field. In the following section, we will outline the main aims and research questions that the paper has been designed to answer. After that, the paper continues with the two main sections of the present research that include (i) quantitative analysis of a small specialized corpus, and (ii) a questionnaire-based study. This will be followed by a general discussion, and the main conclusions and suggestions for future research.

2. Theoretical Framework and Previous Research

Conceptual Metaphor Theory (CMT; LAKOFF & JOHNSON 1980) foregrounds conceptual metaphor as an extremely salient cognitive mechanism that facilitates everyday interaction and communication, building on the idea

that the bulk of common concepts and categories is actually metaphorically structured. Moreover, CMT proposes asymmetrical, unidirectional cross-domain mappings from the source to the target domain (CROFT & CRUISE 2004: 194-197), which in turn also include the transfer of metaphorical entailments which constitute background knowledge pertaining to the source domain that is mapped onto the target (e.g. KÖVECSES 2010). In addition, Charteris-Black (2004: 244) stresses an important distinction between *conceptual keys, conceptual metaphors*, and *metaphorical expressions*. Namely, a single conceptual key (e.g. POLITICS IS CONFLICT) may encompass a number of conceptual metaphors (e.g. ELECTIONS ARE A BATTLE, PRESIDENTIAL DEBATE IS A STANDOFF, etc.), which can in turn yield a number of different metaphorical expressions.

An important tendency recorded in the literature is that of metaphor clustering (e.g. KOLLER 2003; CAMERON 2007), where a cluster represents a group of topically related metaphorical expressions found in ongoing discourse (FIGAR & ANTOVIĆ 2015). While the previous research predominantly addressed the issue of clustering from a corpus-theoretical perspective (e.g. CAMERON 2007; CAMERON & STELMA 2004; KOLLER 2003), the present study will attempt to also incorporate elements from psycholinguistic research on metaphor comprehension. Namely, metaphor has also received a lot of attention in the domain of psychology, where the three main approaches in research on metaphor comprehension include models relying on analogy, categorization, and conceptual mappings (HOLYOAK & STAMENKOVIĆ 2018: 642). As a detailed overview of each of these models is beyond the scope of the present paper, we will focus only on some of the most relevant dimensions of metaphor comprehension identified in the studies from this field.

In line with the import of metaphorical framing of events and their potential influence on readers' comprehension outlined in the domain of cognitive linguistics (e.g. CHARTERIS-BLACK 2004; FERRARI 2007; MIO 1997; LANDAU & KEEFER 2014), Allbritton also (1995: 38) proposed that metaphor-based schemas could affect readers' representation of a text. The author highlighted the idea that a prominent function of "metaphor is the creation of schemas for understanding abstract domains of experience" (ALLBRITTON 1995: 33). Such schemas can serve to "increase the coherence of text representations" (ALLBRITTON 1995: 34), which corresponds to the idea outlined in Koller (2004: 116-118), where a similar function is suggested for metaphor clusters.

In order to circumvent some of the confounding factors that prevented more comprehensive generalizations in previous research, Katz et al. (1988) preformed a study in which literary and nonliterary metaphors were analyzed

on 10 theoretically relevant dimensions considered important for metaphor processing. These dimensions included the following: comprehensibility, ease of interpretation, metaphoricity, metaphor goodness, imagery variables (metaphor imagery, subject imagery, and predicate imagery), and other sentence characteristics (felt familiarity, semantic relatedness, and number of alternative interpretations). The research revealed substantial correlations between the dimensions, thereby foregrounding the initial idea that the extensive norming the authors performed should afford greater control of the confounding factors.

Tourengau and Sternberg (1981) explored the role of aptness in metaphor comprehension, focusing on within- and between-domain similarity. The former refers to "the degree to which terms occupy similar positions relative to other member in their class," while the latter entails the "degree the classes resemble each other" (TOURENGAU & STERNBERG 1981: 31). Their study offered support for the hypothesis that within-domain distance correlates negatively with aptness, while the hypothesis that between-domain distance correlates positively with aptness was only partially supported (TOURENGAU & STERNBERG 1981: 50). Additionally, they also identified the relationship between comprehensibility and aptness, inasmuch as "comprehensibility contributes to the aptness of a metaphor" (TOURENGAU & STERNBERG 1981: 53).

Tourengau and Rips (1991) performed a series of experiments, where (i) in the first experiment they explored the characteristics of the grounds of metaphors and managed to identify the import of emergent features in metaphor comprehension; (ii) in the second experiment they explored salience, relationality, and distinctiveness of the features for tenors and vehicles; (iii) in the third experiment the authors investigated the relationship between emergent and shared features, and they again managed to identify the relevance of emergent features in metaphor comprehension. Still, based on the acquired data, apart from emergent features, important factors for ratings of metaphor goodness were also shared properties, salience and relationality (TOURENGAU & RIPS 1991: 467).

Blasko and Connine (1993) performed a series of five experiments to explore the effects of metaphor familiarity and aptness on metaphor processing. They concluded that both higher familiarity and aptness facilitate metaphor processing; moreover, even in cases of low familiarity, processing is faster if a metaphor was rated as highly apt (BLASKO & CONNINE 1993: 304). Thibodeau and Durgin (2011) explored the role of metaphor conventionality and aptness in metaphor processing, where "conventionality reflects the familiarity of a metaphor, whereas aptness reflects the degree to which a metaphor vehicle captures important features of a metaphor topic"

(THIBODEAU & DURGIN 2011: 206). Namely, some studies have shown a high degree of positive correlation between these two dimensions (e.g. JONES & ESTES 2006), which questions the actual explanatory value of previous measures of metaphor aptness. Based on their research, the authors concluded that measures of aptness did not reveal the actual explanatory construct of aptness, but had much more to do with the perceived processing fluency (THIBODEAU & DURGIN 2011: 220-221).

Inhoff, Lima and Carroll (1984) explored the influence of context on reading times for metaphorical target sentences, where they manipulated the length (short/long) and type (metaphorical/literal) of priming contexts. The first experiment showed longer RTs for target metaphorical sentences read in the metaphorical compared to the literal condition when primed by a short context (INHOFF et al. 1984: 560). The second experiment did not reveal any significant differences between reading times for metaphorical and literal targets when primed via long contexts, which led the authors to conclude that "with sufficient contextual support, metaphors are comprehended as efficiently as literals" (INHOFF et al. 1984: 561). The authors also conducted a third experiment which showed that metaphorical target sentences were read faster following congruent metaphorical contexts than congruent literal contexts. This suggests that "readers established a conceptual frame of reference during the reading of the context sentence within which the target information was interpreted" (INHOFF et al. 1984: 562).

Bearing in mind that metaphor clusters have received only limited attention in the literature so far, with, at least to our knowledge, no empirical studies dealing with this phenomenon, we will attempt to explore possible interactions of individual metaphorical expressions within a cluster. To that end, we will adopt selected dimensions relevant for metaphor comprehension identified in the afore mentioned studies, and accommodate them to our investigation of clusters. Instead of aptness, we will use the construct of contextual aptness, i.e. how well each metaphorical expression from the cluster fits into the optimal sentence context. Additionally, we will also measure metaphor familiarity and metaphoricity. Moreover, since all metaphorical expressions are found in a wider optimal context, we will explore how important each of the target expressions was for text comprehension. Finally, we expect that the comparison of these four dimensions will offer sufficient insight into the levels of 'activation' of each of the target expressions, and outline the possible differences. We feel that these four dimensions will be sufficient for this preliminary investigation, and expect to use this study as a groundwork for future, potentially more comprehensive, empirical investigations of the phenomenon of metaphor clustering.

3. Present Research: Aims and Research Questions

In order to remedy the common shortcoming of psycholinguistic studies that often use 'artificial' stimuli that are not ecologically valid, as well as the fault of corpus studies that often tend to link metaphor frequency to comprehension strategies without any proper empirical validation, the present study will consist of two parts. In the first part, we will investigate a small specialized corpus and identify instances of individual metaphorical expressions and metaphor clusters. Based on the quantitative analysis of the corpus, in the second part of the study we will select a representative cluster that will be presented to the participants in a questionnaire where they will be instructed to rate each of the target items along the dimensions of *metaphoricity, familiarity, contextual aptness*, and *importance for comprehension*. These dimensions have been selected based on the previous research discussed above, and accommodated for the purposes of the present study.

The main aim of the present paper is to establish the level of 'dynamics' in the selected cluster as exhibited through the assessed levels of 'activation' of target items along the four dimensions. Additionally, we also aim to identify the most frequent groups of conceptual metaphors in the corpus, as well as the overall degree of clustering tendency. In that sense, the paper will attempt to provide answers to the following research questions:

i. Which were the most dominant metaphorical expressions identified in the corpus, and did they exhibit a clustering tendency?
ii. Are there any significant differences in ratings of *metaphoricity, familiarity, contextual aptness,* and *importance for comprehension* between the three groups of metaphors used in the target text?
iii. What percentage of variance of contextual aptness ratings for each group of metaphors from the target text can be accounted for by the corresponding ratings of *metaphoricity, familiarity,* and *importance for comprehension*?

3.1. Quantitative Corpus Analysis and Identification of Metaphor Clusters

The initial stage of the research involved a quantitative analysis of a small specialized corpus (in the sense of KOESTER 2010). The corpus consisted of 27 topically related articles extracted from the online editions of The New York Times between October 1st and October 7th, 2012. All articles were dealing with reports of the first presidential debate that took place on October 3rd, 2012, between Barack Obama and Mitt Romney. The total size of the corpus amounted to 26,025 words, with an average of 963.89 words per article.

Corpus analysis was conducted in two stages: (i) the first stage involved the identification of *individual metaphors* which was performed in line with the methodology proposed by the Pragglejaz Group (2007), (ii) while the second stage involved the identification of *metaphor clusters*, also performed in line with the main guidelines from previous research in the field (e.g. KOLLER 2004; FIGAR & ANTOVIĆ 2015). Namely, all articles were first analyzed and tagged manually for instances of individual metaphorical expressions, after which a 'concordance over tags search' was conducted using WordSmith Tools 6.0 (SCOTT 2010). This afforded an overview of dispersion plots which revealed sections of articles with potential metaphor clusters, which were then further analyzed to ensure that they were topically related.
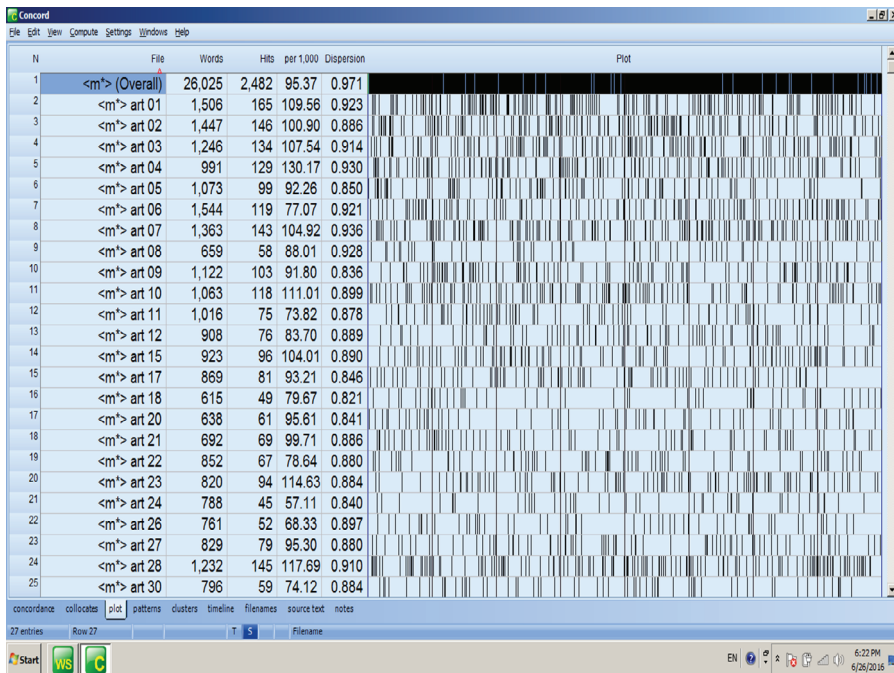

Figure 1 – WordSmith dispersion plots

Results of quantitative analysis showed that the most frequent conceptual metaphors belonged to the conceptual keys of JOURNEY, CONFLICT, and CONTAINMENT. Moreover, the analysis of metaphor clusters showed that this tendency was also preserved in clusters, as the three most common groups of clusters contained JOURNEY, CONFLICT, and CONTAINMENT metaphors as the most frequent ones. Additionally, the number of clusters per article ranged from 6 to 25, while the average cluster size per article ranged from 4 to 7. The analysis also revealed that the number of occurrences of clusters as a function

of their size was relatively stable for 3-, 4-, and 5-metaphor clusters, while starting with 6-metaphor clusters the number of occurrences in the corpus decreased exponentially.

In addition, the total number of identified metaphorical expressions amounted to 2,482, with the density (number of occurrences per 1,000 words) of 95.37, and an average of 91.93 metaphorical expressions per article. The number of clusters amounted to 386, with an average of 14.30 clusters per article. Also, 86.95% of all metaphors identified in the corpus appeared in clusters.
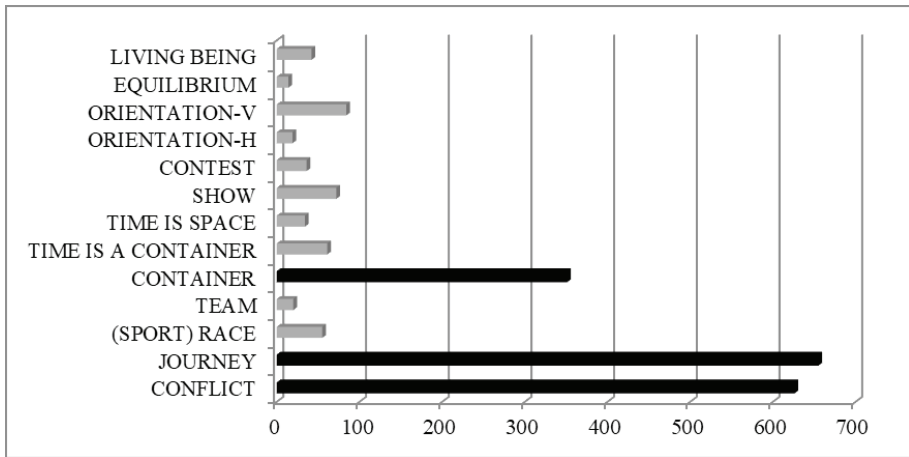

Figure 2 – Individual metaphors

3.2. Instrument, sample, and methodology

Based on the results of corpus analysis, we excerpted and modified a metaphor cluster that reflected the overall clustering tendencies identified in the corpus. The cluster was taken from the article *Obama Outspending Romney on TV Ads* (published on October 2nd, 2012 in the NYT online edition). Consequently, the target text contained 3 JOURNEY, 3 CONFLICT, and 4 CONTAINMENT metaphors (Table 1).

The <u>positions</u><*m-journey*> in<*m-containment*> the <u>political ad wars</u><*m-conflict*> <u>have led to</u><*m-journey*> worry among Republican strategists outside<*m-containment*> the campaign that Mr. Romney's team has simply been <u>outgunned</u><*m-conflict*> by Mr. Obama's in<*m-containment*> its approach to advertising and <u>the way it goes about</u><*m-journey*> buying ad time on television in<*m-containment*> most <u>battleground states</u><*m-conflict*>.

Table 1 – Target text

The target text was presented to participants in the form of a questionnaire, where they were first instructed to translate it into their mother tongue (i.e. Serbian), after which they were asked to rate the target items on 6-point Likert scales along the following dimensions: (i) metaphoricity, (ii) familiarity, (iii) contextual aptness, and (iv) how important the target item was for text comprehension. The study included 81 2nd and 3rd year advanced EFL students from the English Department, Faculty of Philosophy, University of Niš. There were 53 female and 28 male participants, with the average age of 21.02 (SD=0.84).

3.3. Analysis and results

To investigate potential differences in ratings of the four dimensions between the three groups of metaphors, we performed one-way repeated measures ANOVAs for the computed overall mean tendencies for each metaphor group.

Statistical analysis showed a significant effect of metaphoricity between the three groups of metaphors (Wilks' Lambda=.113, F(2, 78)=305.44, p<.0005 multivariate partial eta squared=.887). Pairwise comparisons revealed significant differences in metaphoricity ratings between all items: $M_{conflict}$=5.15, $SD_{conflict}$=0.69, $M_{journey}$=3.17, $SD_{journey}$=0.87, $M_{containment}$=2.38, $SD_{containment}$=0.78, $p_{conf./jour.}$<.0005, $p_{conf./cont.}$<.0005, $p_{jour./cont.}$<.0005.

Repeated measures ANOVA also revealed a significant effect of familiarity (Wilks' Lambda=.316, F(2, 79)=85.61, p<.0005, multivariate partial eta squared=.684). Pairwise comparisons again revealed significant differences in familiarity ratings between all items: $M_{conflict}$=3.84, $SD_{conflict}$=1.09, $M_{journey}$=5.11, $SD_{journey}$=0.68, $M_{containment}$=5.63, $SD_{containment}$=0.68, $p_{conf./jour.}$<.0005, $p_{conf./cont.}$<.0005, $p_{jour./cont.}$<.0005.
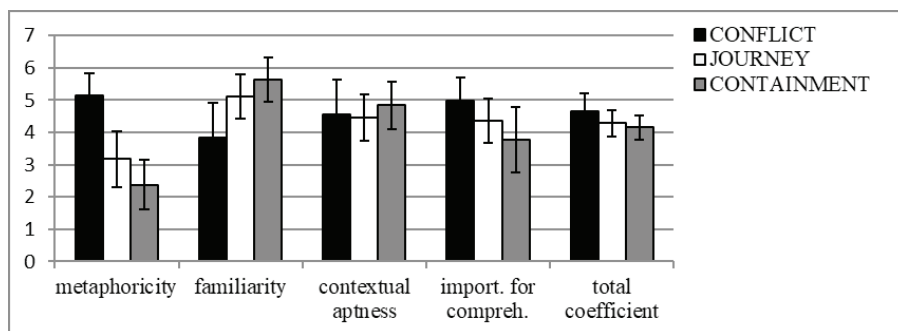

Figure 3 – Overview of mean values

A similar analysis was conducted to test for the effect of contextual aptness which also showed significance (Wilks' Lambda=.790, F(2, 79)=10.48,

p<.0005, multivariate partial eta squared=.210). Pairwise comparisons revealed significant differences in ratings of contextual aptness between journey and containment metaphors ($M_{containment}$=4.84, $SD_{containment}$=0.74, $M_{journey}$=4.46, $SD_{journey}$=0.73, p<.0005), and conflict and containment metaphors ($M_{conflict}$=4.57, $SD_{conflict}$=1.05, $M_{containment}$=4.84, $SD_{containment}$=0.74, p=.029). The difference between journey and conflict metaphors did not reach significance ($M_{journey}$=4.46, $SD_{journey}$=0.73, $M_{conflict}$=4.57, $SD_{conflict}$=1.05, p=.381).

Finally, repeated measures ANOVA showed a significant effect for ratings of the importance for comprehension (Wilks' Lambda=.499, F(2, 79)=39.73, p<.0005, multivariate partial eta squared=.501). Pairwise comparisons revealed significant differences between all items: $M_{conflict}$=4.99, $SD_{conflict}$=0.71, $M_{journey}$=4.36, $SD_{journey}$=0.70, $M_{containment}$=3.76, $SD_{containment}$=1.01, $p_{conf./jour.}$<.0005, $p_{conf./cont.}$<.0005, $p_{jour./cont.}$<.0005.

Based on the mean ratings for each of the four relevant dimensions, we calculated a 'total coefficient' for each group of metaphors. Namely, this coefficient was calculated as a mean sum of ratings along all four dimensions for each of the three groups of metaphors, respectively. Repeated measures ANOVA showed a significant effect of metaphor group (Wilks' Lambda=.593, F(2, 78)=26.76, p<.0005, multivariate partial eta squared=.407). Additionally, pairwise comparisons showed significant differences between all metaphor groups, with CONFLICT metaphors exhibiting the strongest influence: $M_{conflict}$=4.64, $SD_{conflict}$=0.56, $M_{journey}$=4.28, $SD_{journey}$=0.42, $M_{containment}$=4.15, $SD_{containment}$=0.37, $p_{conf./jour.}$<.0005, $p_{conf./cont.}$<.0005, $p_{jour./cont.}$=.016.

In order to see to what extent ratings of metaphoricity, familiarity, and importance for text comprehension can be used to reliably predict the variance in ratings of contextual aptness, a multiple linear regression analysis was performed.

For CONFLICT metaphors, the multiple linear regression model showed that the R Square=.395, which means that our model (metaphoricity, familiarity, importance for comprehension) explains 39.5% of variance in ratings of contextual aptness (Adjusted R Square=.371). Additionally, the model reached statistical significance (p<.0005). Evaluation of independent variables showed that importance for comprehension gave the strongest unique contribution to explaining the dependent variable, and it was also significant (Standardized Beta Coefficient=.575, p<.0005). The contribution of the remaining two independent variables did not reach significance (Standardized Beta Coefficient$_{metaphoricity}$=.069, p=.447; Standardized Beta Coefficient$_{familiarity}$=.165, p=.075).

In the case of JOURNEY metaphors, the model showed that the R Square=.337, which suggests that the model explains 33.7% of variance in ratings of contextual aptness for the second group of metaphors (Adjusted R

Square= .311). The model reached statistical significance (p<.0005). Evaluation of independent variables showed significance for all three items, while ratings of familiarity gave the strongest unique contribution to explaining the ratings of contextual aptness (Standardized Beta Coefficient$_{familiarity}$=.359, p<.005; Standardized Beta Coefficient$_{importance\_for\_comprehension}$=.272, p=.006; Standardized Beta Coefficient$_{metaphoricity}$=-.250, p=.009).

With CONTAINMENT metaphors, the model showed that the R Square=.250, which suggests that the model accounts for 25% of variance in the dependent variable (Adjusted R Square=.221). This model also reached statistical significance (p<.0005). Ratings of metaphoricity and familiarity showed significant contributions, with metaphoricity ratings giving the strongest unique contribution to explaining the variations in rating of contextual aptness for this groups of metaphors (Standardized Beta Coefficient$_{metaphoricity}$=-.358, p=.001; Standardized Beta Coefficient$_{familiarity}$=.283, p=.007; Standardized Beta Coefficient$_{importance\_for\_comprehension}$=-.055, p=.585).

4. Discussion

In the present section we offer answers to the three main research questions outlined above.

RQ1. Which were the most dominant metaphorical expressions identified in the corpus, and did they exhibit a clustering tendency?

Quantitative corpus analysis showed that the most dominant individual metaphors belonged to conceptual keys of JOURNEY, CONTAINMENT, and CONFLICT. A similar tendency was also preserved in clusters, where the greatest number of clusters by far contained JOURNEY metaphors as the most frequent ones, followed by clusters that showed the dominance of CONFLICT and CONTAINMENT metaphors, respectively. Additionally, the clustering tendency was very pronounced, with 86.95% of all metaphorical expressions identified in the corpus also appearing in clusters, and with an average of 14.30 clusters per article.

RQ2. Are there any significant differences in ratings of metaphoricity, familiarity, contextual aptness, and importance for comprehension between the three groups of metaphors used in the target text?

One-way repeated measures ANOVA showed a significant effect for all four dimensions, i.e. metaphoricity, familiarity, contextual aptness, and importance for text comprehension (p<.0005). Subsequent pairwise comparisons also revealed significant differences between all items (p<.0005),

the only exception being ratings of contextual aptness between JOURNEY and CONFLICT metaphors (p=.381). Comparison of total coefficients for each metaphor group also showed a significant main effect of metaphor group (p<.0005), while pairwise comparisons revealed significant differences between all items.

As shown in Figure 3, based on the comparison of total coefficients, CONFLICT metaphors showed the highest level of activation, followed by JOURNEY and CONTAINMENT metaphors, respectively. This affords a threefold metaphorical structuring of the target text, with different levels of activation of the three metaphor groups. In turn, the finding also highlights a high degree of interaction, and, in effect, a high level of dynamics in the analyzed cluster.

In terms of metaphoricity, CONFLICT metaphors received the highest rating, followed by JOURNEY and CONTAINMENT metaphors, respectively. In terms of familiarity, on the other hand, the situation was reverse, with CONTAINMENT metaphors receiving the highest rating, followed by JOURNEY and CONFLICT metaphors, respectively. For contextual aptness, CONTAINMENT metaphors scored highest, while there was no significant difference between JOURNEY and CONFLICT metaphors. Finally, ratings of importance for comprehension followed a similar trend identified for metaphoricity; namely, CONFLICT metaphors received the highest rating, followed by JOURNEY and CONTAINMENT metaphors.

Based on these findings, it can be concluded that CONFLICT metaphors were rated as highly metaphorical and most important for text comprehension. But surprisingly, they were also the least familiar. In terms of metaphoricity and importance for text comprehension they were followed by JOURNEY metaphors, while in terms of contextual aptness they were judged as important as JOURNEY metaphors. Taking this into consideration, and based on the ratio of means for the total coefficient, CONFLICT metaphors seem to be the most 'activated' group in the present cluster, thereby guiding the metaphorical framing of the text. This is evidenced mostly by their high metaphoricity and import for text comprehension. Additionally, their low rating of familiarity can be understood as a correlate of low conventionality. In effect, as less conventional than JOURNEY and CONTAINMENT metaphors, it can be expected that CONFLICT metaphors will assume a more prominent role in the structuring of the text, as shown by our findings.

Equal ratings of contextual aptness for JOURNEY and CONFLICT metaphors suggest that these two groups serve as very suitable conduits for the structuring of discourse in the present cluster. Namely, the image-schematic nature of JOURNEY metaphors seems to complement the dynamic nature of CONFLICT metaphors, where conflict and motion go hand in hand. CONTAINMENT metaphors, on the other hand, appear as highly conventional and highly

contextually apt, thereby providing an additional, perhaps underlying layer of textual cohesion, by 'filling the blanks' between JOURNEY and CONFLICT metaphors in the cluster.

Finally, based on the presented findings, we conclude that the four selected dimensions of *metaphoricity, familiarity, contextual aptness*, and *importance for comprehension* indeed appear to be representative of cluster dynamics, insofar as our analysis has revealed a high degree of interaction between the three metaphor groups along these dimensions.

> RQ3. What percentage of variance of contextual aptness ratings for each group of metaphors from the target text can be accounted for by the corresponding ratings of metaphoricity, familiarity, and importance for comprehension?

Multiple linear regression was performed to test whether ratings of metaphoricity, familiarity, and importance for comprehension could be used to reliably predict ratings of contextual aptness. The model was significant for all three metaphor groups (p<.0005), and it predicted 39.5% of variance for CONFLICT metaphors, 33.7% for JOURNEY metaphors, and 25% for CONTAINMENT metaphors. Additionally, with CONFLICT metaphors, importance for comprehension gave the strongest unique contribution; with JOURNEY metaphors the strongest unique contribution was recorded for familiarity; and with CONTAINMENT metaphors, metaphoricity afforded the strongest unique contribution.

Such findings suggest that there is a certain degree of interdependence between the four dimensions that have been taken into consideration. Consequently, in addition to the already identified interaction between the three groups of metaphors, there also seems to be a dynamic relationship among the discussed dimensions within each group.

5. Conclusions and suggestions for future research

The present paper was designed to investigate the level of dynamics in a representative metaphor cluster extracted from the corpus. Such a twofold approach involving corpus analysis and a subsequent questionnaire-based study was undertaken to increase both the ecological validity and the explanatory value of the study. Namely, the use of corpus-based materials reflects actual instances of language use, while the questionnaire study offers a more objective approach for measuring the relevant dimensions. The obtained results showed a high degree of activation of all three metaphor groups, as well as significant differences between groups. This suggests a hierarchical

threefold metaphorical structuring of the cluster, with CONFLICT metaphors as the most dominant. Furthermore, results of multiple linear regression also revealed interactions between the four relevant dimensions along which the target items were rated. Consequently, the obtained data suggest a high degree of interaction and dynamics of target items from the analyzed cluster.

However, the obtained results remain constrained by the target cluster, inasmuch as there is no ground for serious extrapolation of the conclusions apart from the fact that interaction between elements in a cluster should be expected. Nevertheless, we feel that the results obtained from this preliminary, exploratory study are promising, and provide sufficient ground for future, more comprehensive investigations along the guidelines outlined here. In that sense, future research should include more extensive lists of target materials, as well as additional dimensions relevant for metaphor comprehension. Using factorial designs, these dimensions could be reduced to a more reliable set, or be used to identify potentially hidden, underlying dimensions that have not yet been recognized. Finally, we feel that empirical approaches to the study of metaphor clusters will afford a greater level of understanding of both their dynamics and the more general strategies of meaning construction that are at work.

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OCENA DINAMIKE GROZDA METAFORA POSREDSTVOM RELEVANTNIH DIMENZIJA INDIVIDUALNIH METAFORIČKIH IZRAZA

Cilj rada je da ispita dinamiku grozda metafora kroz ocenu nivoa metaforičnosti, poznatosti, prilagođenosti kontekstu i značaju za razumevanje svakog od pojedinačnih metaforičkih izraza. Istraživanje je sprovedeno u dve faze, pri čemu je najpre sprovedena kvantitativna analiza malog specijazovanog korpusa, nakon čega je ispitanicima dat upitnik u kojem su ocenjivali ciljne elemente prema četiri prethodno uvedene dimenzije. Najfrekventniji metaforički izrazi u korpusu pripadali su metaforama PUTOVANJA, SADRŽATELJA i KONFLIKTA. ANOVA sa ponovljenim merenjima pokazala je značajan efekat za sve četiri dimenzije (p<.0005), a dodatna poređenja pokazala su značajne razlike između većine elemenata. Višestruka linearna regresija pokazala je da se ocene metaforičnosti, poznatosti i značaja za razumevanje mogu pouzdano koristiti kako bi se predvidele ocene prilagođenosti kontekstu, a modeli su bili značajni za sve tri grupe metafora (p<.0005). Ovakvi rezultati ukazuju na visok nivo dinamike u analiziranom grozdu metafora.

Ključne reči: grozd metafora, prilagođenost kontekstu, metaforičnost, poznatost, WordSmith.