CONJUNCTIVE ADVERBS AS ELEMENTS OF
METADISCUSSION IN RESEARCH ARTICLES IN THE FIELD
OF PSYCHOLOGY WRITTEN BY NATIVE AND NON-
NATIVE SPEAKERS OF ENGLISH

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Abstract: This paper aims to investigate the role of conjunctive
adverbs as resources of academic metadiscourse in research articles from the
field of Psychology. The research involved a small specialized corpus that
included a total of 124,657 words, and it was comprised of 24 research articles
written in English. Half of the articles were written by native speakers of
Serbian, and the other half by native speakers of English. The materials were
extracted from two leading journals in the field – Psihološka and The Journal
of General Psychology. The corpus was analyzed both in quantitative and
qualitative terms. Quantitative analyses involved statistical comparisons of
mean densities performed via repeated measures ANOVAs and independent
samples t-tests, while qualitative analysis was conducted in line with the model
of metadiscourse presented in Hyland and Tse (2004), and Hyland (2005). The
obtained results showed that native speakers of English used more
metadiscourse resources, and did so more consistently compared to native
speakers of Serbian. Additionally, conjunctive adverbs identified in the corpus
performed the functions of transitions, frame markers, code glosses, and
boosters.

Key words: metadiscourse, academic discourse, WordSmith,
conjunctive adverbs, transitions, frame markers, boosters.

1. Introduction

The present paper aims to explore the role of conjunctive
adverbs as metadiscourse resources in scientific articles from the field
of Psychology written in English, by native speakers of English and
native speakers of Serbian. The paper will combine a quantitave
approach aimed to reveal the frequencies and densities of target items
in articles from the two groups, and a qualitative approach based on
the model of metadiscourse presented in Hyland and Tse (2004) and
Hyland (2005), in order to precisely determine to what extent the
identified conjunctive adverbs from the corpus actually function as
elements of metadiscourse. In that sense, the analysis will include both
within- and between-group comparisons, and additional considerations concerning the use of target items in specific contexts.

The paper is organized as follows. After the introduction, the second section will outline the main elements of the theoretical framework which includes Hyland’s (2005) model of metadiscourse, and an overview of conjunctive adverbs. After a detailed outline of previous research in section 3, the fourth section will introduce the present research, along with the main research questions and methodology. The subsequent subsections will introduce quantitative and qualitative analyses, and the main results. Finally, the paper will turn to the general discussion and the main conclusions and suggestions for future research.

2. Theoretical Framework
2.1 Metadiscourse and Academic Discourse

Hyland (2009, 1) defines academic discourse as “the ways of thinking and using language which exist in the academy,” which also carries inherent links to the social context. Therefore, the notion of academic discourse is intimately bound to the notion of discourse communities which represent “constraining systems which focus on both texts and surrounding activities and which affect the manner and meaning of any message delivered within it” (Hyland 2009, 50). Such a position stresses the dialogic nature of discourse (Martin and White) where each novel utterance is actually constructed “against a backdrop of other utterances” (Bakhtin 281) of which a given discourse community will necessarily be aware.

Another important concept that addresses the interaction between writers and their construed audience is that of metadiscourse. More specifically, this concept stresses the dynamic nature of language as it foregrounds the effects that discourse can have on the audience, and reveals which linguistic devices writers normally employ to ‘guide’ their readers through the text (Hyland 2004, 135-136), thereby aligning them with a specific point of view (Martin and White). Hyland (2005, 37) provides his own definition of the concept, where metadiscourse is understood as

the cover term for the self-reflective expressions used to negotiate interactional meanings in a text, assisting the writer (or speaker) to express a viewpoint and engage with readers as members of a particular community.
Moreover, Hyland (2005, 38) introduces a modified model of metadiscourse (based on Hyland and Tse), with the following key principles: (i) “metadiscourse is distinct from propositional aspects of discourse,” (ii) “metadiscourse refers to aspects of the text that reflect writer-reader relationships,” and (iii) “metadiscourse refers only to relations internal to discourse.”

The first principle entails that metadiscourse does not deal with the propositional content alone, but rather with the issues of coherence, intelligibility, and persuasiveness of texts in relation to the construed audience, and the specific strategies that writers from various discourse communities choose to employ (Hyland 2005, 39-41). In relation to the second principle, Hyland (2005, 41) offers a functional perspective according to which “all metadiscourse is interpersonal,” since it needs to include both the experience and expectations of the audience, and the collection of rhetorical tools that are at writers’ disposal. Additionally, this is also due to the fact that it is difficult to make a clear distinction between the textual and interpersonal function of metadiscourse, since textual metadiscourse is only an aspect of interpersonal discourse (Hyland 2004, 137). For example, most authors ascribe conjunctions to the textual dimension of metadiscourse; however, as Hyland (2005, 41) points out, the signposting that conjunctions typically perform “can be orientated towards either […] propositional or interactional meanings.” Furthermore, Hyland (2005, 43) also proposes that textuality be treated “as a general property of the realization of discourse itself,” as it facilitates the construction of not only propositional, but also interpersonal dimensions of meaning. Finally, the third principle introduces a strict distinction between internal and external reference. Namely, internal relations link events that are situated within discourse and have only a communicative function (Hyland 2005, 45-46), while external relations provide a connection with the actual events in the world (Hyland 2005, 46-48).

<table>
<thead>
<tr>
<th>Interactive resources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transitions</strong> – used to connect independent clauses and include primarily conjunctive adverbs and coordinating conjunctions (Hyland 2005, 49-50).</td>
</tr>
<tr>
<td><strong>Frame markers</strong> – typically refer to different stages of discourse, i.e. the schematic structure of the text (Hyland 2005, 51), and they include certain conjunctive adverbs (e.g. finally) and various phrases based on their semantic content (e.g. to conclude).</td>
</tr>
<tr>
<td><strong>Code glosses</strong> – supply additional information (Hyland 2005, 52) and</td>
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include certain conjunctive adverbs (e.g. namely) and various phrases based on their semantic content (e.g. in other words).

<table>
<thead>
<tr>
<th>Interactional resources</th>
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<tr>
<td>Boosters – used to emphasize writers’ certainty (e.g. in fact), and they enable him to close down the space for alternative opinions (in the sense of Martin and White).</td>
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Table 1 – Modified version of Hyland’s (2005) model of metadiscourse

In addition to these three principles, Hyland (2005, 48-49) stresses two main dimensions that characterize any communication. The first is the interactive dimension which concerns the organization of discourse and the level to which it is accommodated to readers’ expectations. This dimension is linked to interactive resources which are “used to organize propositional information in ways that a projected audience is likely to find coherent and convincing” (Hyland 2005, 50). Interaction resources include the following elements: transition markers, frame markers, endophoric markers, evidentials, and code glosses. The second is the interactional dimension which involves writers’ evaluation and engagement, and the degree of their interaction with the audience in the process of meaning construction (Hyland 2005, 49-50). Interactional resources include the following elements: hedges, boosters, attitude markers, self-mention, and engagement markers. The present paper will adopt a modified version of Hyland’s model in order to accommodate our research aims (Table 1). Namely, qualitative analyses of target elements identified in the corpus showed that they did not perform all the proposed functions along the interactive and interactional dimensions outlined in the original model. In effect, we introduced a modified version of the model by omitting the redundant elements from the two dimensions.

2.2 Conjunctive Adverbs

Conjunctive adverbs are used to signal the logical relationship between sentences, and unlike coordinating and correlative conjunctions they do not have a grammatical function, but only a rhetorical one (Quirk et al.). Consequently, they can be used to connect only independent clauses, and are understood as “signposts” (Lester 294) meant to guide the reader through the text by pointing out the intended relations between the ideas.

Pollock (65) offers an overview of some of the most common conjunctive adverbs, based on their meaning. These include the following: (i) addition (in addition, additionally, moreover, furthermore,
also); (ii) EXAMPLE (for example/instance, in fact); (iii) CONTRAST (however, on the other hand, on the contrary, instead); and (iv) RESULT (as a result, consequently, accordingly, hence, therefore). It is obvious that besides pure adverbs (e.g. consequently) these elements can also include multi-word phrases (e.g. as a result) that are typically listed under the common category of conjunctive adverbs. Finally, it needs to be stressed that “transitions, principally conjunctions, are central to academic writing as they represent writers’ attempts to ensure readers are able to correctly recover their intentions” (Hyland 2004, 140).

3. Previous Research

Hyland (2004) investigated the use of metadiscourse resources by advanced second language writers from Hong Kong. The research used a combined quantitative-qualitative approach which was applied to the corpus of 240 dissertations written by L2 postgraduates from six academic disciplines. Quantitative analysis was performed using MonoConc Pro software, which was then followed by qualitative analysis based on the metadiscourse model discussed above.

The results showed that hedges and transitions were the most frequent metadiscourse resources identified in the corpus. The high frequency of hedges shows that students demonstrated “a principal concern with expressing arguments explicitly and with due circumspection” (Hyland 2004, 140). Moreover, the high count of transitions (mainly conjunctions) also revealed that sequences in arguments in the analyzed materials were clearly linked. Comparisons of PhD and MA theses revealed a much higher frequency of metadiscourse resources in the writings of PhD candidates. This in turn suggests that the language of doctoral dissertations was more sophisticated as it revealed a higher degree of awareness of the role of readers, and more attempts to engage with them.

Based on the obtained data, Hyland (2004, 148-149) concluded that the analysis of metadiscourse poses as a useful analytical tool that can reveal the structure of arguments, the way they are presented to the intended audience, and how a specific discourse community actually shapes and conditions the scope of metadiscourse.

Blagojević (2012a, 93-106) reports the results of a study that investigated the use of textual connectors for expressing logical relationships. The corpus included 40 research papers from the fields of Psychology, Sociology, and Philosophy, written in Serbian and English. The main aim of the study was to identify the connectors used to express logical relationships and classify them based on their
meaning, which was then followed by a contrastive analysis of the collected data (Blagojević 2012a, 94).

Corpus analysis revealed the following relations that discourse markers were used to convey: (i) elements expressing logical relations between sections, (ii) elements expressing spatio-temporal relations, (iii) elements that convey the order of propositional content, (iv) connectors used to remind of the already introduced content, (v) connectors used to announce propositional content, (vi) connectors used to emphasize the topic of propositional content, and (vii) elements used to rephrase the propositional content (Blagojević 2012a, 95). Finally, instead of comparing originals from the source language to their translation equivalents in the target language, the author gave a parallel overview of the identified discourse markers in each of the two languages, for the purpose of avoiding the effects of negative transfer (Blagojević 2012a, 105).

Blagojević (2009) examined the specific expressions that Serbian and English academic writers use in order to reveal their attitudes toward the content of their writing, and the identified expressions were compared in terms of linguistic form and frequency. The research included articles from the fields of sociology, social psychology, and philosophy. The identified attitude markers were classified into six groups identified in both languages, and these include the following: (i) adverbs and adverbial phrases, (ii) intensifiers, (iii) adjectives functioning as subjective complements, (iv) adjectives functioning as prenominal modifiers, (v) modal verbs for obligation, and (vi) nouns with specific semantic content (Blagojević 2009, 65). Quantitative analysis showed higher frequencies of attitude markers with Serbian writers, and this trend was present both when they were writing in their mother tongue and when they were writing in English. The author also concludes that writers “do not simply use attitude markers in order to indicate their presence in the texts, but also to guide their readers” (Blagojević 2009, 72).

Blagojević (2011) reports a study which investigated rhetorical strategies used by Serbian and English authors from the fields of social (sociology, psychology, and philosophy) and natural sciences (chemistry, geology, and ecology). The research employed a combined qualitative-quantitative approach, and the corpus included a total of 60 articles, with 5 articles per discipline in each of the two languages. In terms of the four relevant dimensions of persuasions, Blagojević (2011, 105-106) presents the following findings: (i) English academics are much more prone to the use of hedges, (ii) the use of emphatics is surprisingly higher with Serbian academics, (iii) Serbian academics
“tend to show their attitude toward the propositional content” (Blagojević 2011, 106), and (iv) the use of commentaries is almost the same in both groups of authors.

Blagojević (2012b) conducted a study in which she compared the use of signaling devices in academic articles from the fields of chemistry, geology, and ecology, written by English and Serbian academics in their mother tongue. The analysis largely relied on Hinds’ new language typology, and it also involved the systematization of linguistic devices into the following seven groups: logical connectors, sequencers, reminders, announcements, tropicalizes, reworders, and action markers (Blagojević 2012b, 81). The obtained results showed significantly higher counts of most target items in articles written by English academics (61.62 vs. 31.18 tokens per 10,000 words), which suggests that they are more orientated towards the readers compared to their Serbian counterparts.

Sudimac and Novaković (2017) conducted a study of academic articles written in Serbian by university teachers of Serbian, English and French, in order to investigate the levels of writers’ responsibility towards the readers between these three groups. The analyzed items included the seven groups of linguistic signals outlined in Blagojević (2012b, 81). Following the qualitative and quantitative analysis, the authors managed to construct a scale of writer-responsibility (Sudimac and Novaković, 204), where their data showed the greatest level of responsibility with teachers of English, and the lowest with teachers of French. Teachers of Serbian were located in the middle. Additionally, in terms of distribution of target items within articles, the authors concluded that the greatest number of targets was located in the middle sections of articles in all three parts of the corpus (Sudimac and Novaković, 204).

Novaković and Sudimac (2017) explored the discourse functions of pronouns I and we in academic writings of Serbian and English language teachers at university level when writing in Serbian. The corpus included 29 academic articles, with approximately 92,000 words per corpus section. Their analysis showed five discourse functions of the pronoun I, and nine functions for the pronoun we with teachers of Serbian; on the other hand, there were four discourse functions of the pronoun I and again nine functions for the pronoun we for teachers of English (Novaković and Sudimac, 92). Also, a surprising finding was that there were more instances of the pronoun I with teachers of Serbian, but overall, both groups of authors most frequently signaled their presence through the use of the pronoun we.
The monograph *Academic Discourse Across Cultures* (Lakić, Živković, and Vuković 2015) offers a number of studies that deal with differences in academic writing between Serbian and English academics. The remainder of this section will include only a brief overview of relevant chapters, while the reader is advised to consult the original reference for more details.

Blagojević (2015, 8-11) reports the results of a study that involved the comparison of abstracts written by Serbian and English academics in order to explore the possible differences in rhetorical structures. The analysis involved the comparison of the five typical rhetorical moves (situating the research, presenting the research, describing its methodology, summarizing the results, and discussing the research). The most evident difference was identified in the third move, which shows that English authors paid a lot more attention to the description of research methodology. Additionally, Blagojević (2015, 12-14) also analyzes the use of discourse markers in the two groups of authors, focusing on *reminders, announcers, and discourse actions*. The results showed that these elements are twice as frequent in articles written by English authors compared to their Serbian counterparts. Finally, Blagojević (2015, 15) also explores the use of rhetorical units and sub-units, and concludes that, while the ratio of rhetorical units is 5.5 for English as opposed to 5.1 for Serbian authors, the ratio of sub-units is more pronounced with 4.2 in the former, and only 2.6 in the latter group.

Dževerdanović-Pejović (2015) performed a genre analysis of linguistic abstracts in Montenegrin and English, and as a result of the study offered a “6-move model indicating the structural pattern of this genre” (Dževerdanović-Pejović 21) that includes the following moves\(^1\): setting the scene, summarizing previous research, introducing purpose, describing the methodology, summarizing results, and key words. While the initial overview showed a high degree of similarity in structures between the two groups of authors, more detailed macro-analysis revealed that moves and steps were more clearly distinguished with English authors. Additionally, micro-analysis showed “the Anglo-Saxon emphasis on caution in speaking [as opposed to] the Middle Eastern discourse of the philosopher” (Dževerdanović-Pejović 40) identified with abstracts written in Montenegrin.

Lakić (2015) presents a 4-move model of rhetorical structure\(^2\) identified in article introductions from the field of economics, focusing

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\(^1\) For a detailed overview of moves and steps see Dževerdanović-Pejović, 22-39.

\(^2\) The model of rhetorical structure is motivated by Swales (1981).
on syntactic and lexical elements of these units. These moves include the following: establishing the territory, summarizing previous research, establishing a niche, and occupying the niche. The analysis was performed on a corpus of 80 article introductions, and it showed that the introduction structure was a function of introduction length, where in “longer introductions certain moves repeat cyclically” (Lakić 46). Based on the obtained results, the author also provided some main guidelines for the implementation of genre analysis into teaching ESP, stressing the necessity of separating the first two moves instead of joining them (Lakić 59-62). Šćepanović (2015) performed a similar study that dealt with genre characteristics of article introductions from the field of civil engineering. Additionally, Živković (2015) analyzed English and Montenegrin lecture introductions in linguistics, where she was also able to identify the existence of moves, steps, and sub-steps.

Vuković and Bratić (2015) performed a study designed to compare the rhetorical structure of research article conclusions from linguistic journals in Montenegro and in leading international journals. The results supported the initial hypothesis that there would be significant differences, in that the patterns extracted from international journals followed an 8-move structure whereas articles published in journals in Montenegro followed a much simpler 2-move pattern. Vuković (2015) compared the use of hedging in articles from the two aforementioned groups, where she specifically dealt with the use of weak epistemic modality in terms of weak epistemic adverbials, weak epistemic verbs, weak epistemic nouns, and weak epistemic adjectives. The results showed that hedging is much more frequent in articles published in international journals compared to those published in Montenegro.

Milivojević and Radojičić (2015) report a study that investigated university students’ ability to identify linguistic devices used for hedging and cohesion in scientific texts. The research included participants from the English Department, Physics Department, and Geography Department from the University of Novi Sad. The examination of hedges showed that students found examples without hedges more natural compared to the corresponding examples with hedges in all experimental contexts. When it came to the use and identification of cohesive devices, on the other hand, all participants performed much better. Based on the findings, the authors outlined the possibility of a novel approach to teaching English as a foreign language at the university level.

Đurić (2015) explores certain aspects of discourse markers in academic discourse through the framework of relevance theory, and
focuses on the following elements: *but*, *so*, *in fact*, and *kind of*. The analysis was performed on spoken academic discourse that included ten academic lectures in the fields of Electrical and Mechanical Engineering at MIT. Since it is relevant to the present research, we will review only the findings pertaining to *in fact*. Namely, Đurić (143) stresses that this element “instructs the addressee that the process of reanalysis is sought [and that it] requires previous discourse context […] of two adjacent utterances.” Additionally, the author also emphasizes that this discourse marker has the primary function of facilitating the addressee’s processing efforts, thereby serving a communicative purpose.

Dimković-Telebaković (2015) investigated possible correlations between sentence positions of Serbian and English adverbs, and the corresponding interpretations that they are assigned. The study included thirty three Serbian and English adverbs classified into the following groups: subject-orientated adverbs and manner adverbs, subject-orientated adverbs, stance adverbs, aspectual adverbs, and completion adverbs. We will provide additional details concerning the adverbs *nevertheless*, *moreover*, and *however*, classified as stance adverbs, since they appeared in our corpus as well. Namely, Dimković-Telebaković (171) proposes that *nevertheless* and *moreover* are used to “strengthen the existing assumptions [while *however*] has the function of expressing a contrast of ideas.” Finally, the author concluded that the semantics of adverbs is governed by their position in the syntactic structure, and that sometimes a single position can have two interpretations.

Based on the linguistic analysis of syntactic and semantic markers of written academic discourse, Tepačević (2015, 195) concludes that the main function of these elements is to “convey a message, inform, persuade and induc e.” In terms of persuasion, which is relevant to our research, the author stresses the importance of use of adverbs and adjectives which “seem to be the most convenient tools expressing agreement and persuasion” (Tepačević 192). Furthermore, the author also stresses the fact that metalanguage facilitates the comprehension of the proposed content.

4. Present Research: Main Aims and Research Questions

The present research aims to investigate the potential role of conjunctive adverbs as resources of metadiscourse in the scientific articles written in English by native speakers of Serbian and native speakers of English. In that sense, the paper will adopt a *top-down*
approach where the analysis will start from a predetermined list of target items. Specifically, the paper will be dealing with the overall rhetorical function of these elements, and the ways writers may use them to align the readers with a particular point of view. To that end, the paper will adopt a combined quantitative-qualitative approach, which is expected to afford a more comprehensive insight into the investigated phenomenon. In effect, the paper will attempt to provide answers to the following research questions:

1. Are there any differences in the distribution of conjunctive adverbs in the two sections of the corpus?
2. Are there any differences in the diversity of conjunctive adverbs between the two sections of the corpus?
3. How did the identified conjunctive adverbs behave in qualitative terms?

4.1 Corpus and Methodology

The corpus included 24 research articles from the field of Psychology, with the total length of 124,657 words, rendering it a small specialized corpus (Koester), and it included two main sections. The first section consisted of 12 articles written in English by Serbian authors, where all corpus units were selected from the scientific journal Psihologija, published in the period 2015-2016. The length of the first section of the corpus was 66,205 words, with an average of 5,530.92 words per article (SD=802.92). The second section of the corpus included 12 articles written in English by English authors, published in the Journal of General Psychology in the period 2015-2016. The length of this section of the corpus was 58,452 words, with an average of 4,871 words per article (SD=836.61). Independent samples t-test did not reveal a significant difference in mean lengths of articles between the two sections of the corpus (t(22)=1.97, p=.06). Additionally, article titles, author information, references, and tables and figures along with the corresponding captions were all manually excluded prior to the analysis. The two journals from which the corpus was compiled were selected as representative, leading journals in the field of Psychology3. Such an approach ascertained that the rating of the journals did not pose as a confounding variable. In addition to journal ratings, we also conducted preliminary comparisons

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3 With impact factors 0.333 for Psihologija, and 0.872 for the Journal of General Psychology.
to ascertain their comparability in qualitative terms according to the following criteria: (i) chronological overview of journal content in terms of most common research topics, (ii) article types, (iii) article length, (iv) number of articles per issue, and (v) number of issues per year.

While a larger corpus would certainly afford more reliable conclusions, we feel that the described small specialized corpus used in the present research is sufficient to reveal the general patterns and tendencies of academic writing in the two sections of the corpus, and in relation to the main research questions outlined above. In other words, the described sample of articles can be understood as representative of the general tendencies of academic writing in the two selected journals. Additionally, articles were selected based on the following criteria: (i) Year of publishing. We selected articles published in the period 2015-2016, which ensured both the online availability of articles in both journals, and the selection of recent representative academic writing in the field of Psychology; (ii) Article length. Based on the quantitative analyses of mean article lengths in the two sections of the corpus, all articles shorter than 4,000 and longer than 6,500 words were excluded, which in turn ascertained that there were no significant differences in mean article lengths between the two sections of the corpus; (iii) Article type. Only articles presenting findings of experimental research were included in the corpus; and (iv) Authorship. For articles published in the Journal of General Psychology we ascertained that they were written by native speakers of English by reviewing the authors’ biographies. Finally, it can be concluded that the methodology for corpus construction also met the requirement of using comparable corpora outlined in Moreno (2008) and Sanderson (2008).
All articles were first converted into plain text files and tagged manually for subsequent analyses in WordSmith Tools 6.0 (Scott 2010, 2014; Tribble). Namely, the concordancing function of this software provides a quantitative overview of target items both in the entire corpus and in each individual corpus unit, where the relevant parameters include the following: (i) density (normalized projected count per 1,000 words), (ii) frequency, and (iii) dispersion plots which provide a graphic representation of densities of targets within the corpus (Figure 1). The data obtained from WordSmith were then entered into a separate database where further statistical analyses using repeated measures ANOVA and independent samples t-tests were performed. Furthermore, to ensure the objectivity and reliability of inferential statistical comparisons, densities of target elements were used as the referent value.

4.2 Article Structure

Based on the initial overview of article structure in the two sections of the corpus (Figure 2), a generalized schema for comparison was created. Namely, the preliminary analysis showed a certain degree of discrepancy in structure both within, and between the two sections of the corpus. This was primarily reflected in the lack of an explicit conclusion section, as in many articles this section was fused with discussion. Moreover, in the majority of articles theoretical framework was not explicitly separated from the introduction, and previous research was also typically presented within this joint section. Methodology, experiments, analysis and results, and research aims
showed a uniform representation across the corpus; however, some articles contained a large number of experiments which required different representations and organizations of sections and sub-sections. Additionally, the section dealing with methods was typically very short, so we chose to include it within the joint section methodology, results, and analysis.

Figure 2 – Comparison of article structure in the two sections of the corpus

Despite the typical structure of a research article outlined in Blagojević (2008, 24), which should include the Introduction, Method, Results, and Discussion, due to the arguments presented above we opted for a modified generalized article structure outlined in Figure 3. Such an approach afforded a detailed overview of densities of target elements not only within the entire articles, but also within the main sections of articles in both sections of the corpus.

Figure 3 – Generalized article structure
4.3 Quantitative Analysis and Results

4.3.1 Within-group Analysis

Figure 4 shows the distribution of mean densities of target elements in the first part of the corpus (Serbian authors) along the main sections of the articles. The curve shows a decrease in density in the middle section, compared to the two adjacent sections. Repeated measures ANOVA revealed a significantly lower density of targets in the analysis compared to the discussion section ($F=4.41$, df=9, $p=.04$, partial $\eta^2=.50$), while the comparison with the introduction did not yield significance ($F=4.41$, df=9, $p=.22$, partial $\eta^2=.50$).

![Figure 4 – Density in the first part of the corpus](image)

Figure 5 shows the distribution of mean densities in relation to article structure in the second part of the corpus (English authors). Targets revealed a different tendency compared to the first part of the corpus. Namely, there is a relatively flat distribution of densities between the three sections, with no significant differences in densities ($F=0.27$, df=9, $p=.77$, partial $\eta^2=.05$).

![Figure 5 – Density in the second part of the corpus](image)
In summary, the obtained results show that the distribution of target elements in relation to the generalized article structure for articles written by Serbian authors showed a decrease in the middle section. Moreover, this recorded decrease in density reached significance compared to the subsequent discussion section. Such findings suggest that Serbian authors tend to use fewer explicit rhetorical devices when presenting and analyzing data, while this tendency changes significantly in their discussion of the obtained results. A similar increase in density was also identified in introductions. Articles written by English authors revealed a different tendency, as conjunctive adverbs showed a uniform distribution across the main article sections. In effect, this suggests that English authors use explicit rhetorical devices equally throughout the articles, thereby maintaining their level of engagement with the putative reader.

4.3.2 Between-group Analysis: Comparison of Densities

Independent samples t-tests revealed a significant difference in total mean densities of conjunctive adverbs in favor of articles written by English authors (M_{English}=9.08, SD_{English}=2.08, M_{Serbian}=6.96, SD_{Serbian}=2.37, t(22)=-2.32, p=.03).

Figure 6 shows comparisons of mean densities of targets in each article section for the two parts of the corpus. Difference in densities between the two parts of the corpus in the first article section was significant (t_{intro.}(21)=-2.35, p_{intro.}=.03), in favor of articles written by English authors. Difference in the middle section did not reach significance (t_{middle}(22)=-2.01, p_{middle}=.06), and a similar tendency was identified in the final section (t_{final}(22)=0.03, p_{final}=.98).

![Figure 6 – Comparison of mean densities](image-url)
In summary, significantly higher densities of conjunctive adverbs identified in the second part of the corpus can be, in part, attributed to different levels of L2 proficiency in the two groups of authors. Furthermore, this also reveals a higher level of engagement with the readers for English authors, as they were more likely to use metadiscourse resources compared to their Serbian counterparts.

Analysis of article introductions also revealed a significantly higher density of targets in the second part of the corpus. Although it did not reach significance, the density of target items was also higher in the middle section, in favor of the second part of the corpus. Surprisingly, the density of conjunctive adverbs in the final section was almost identical in both parts of the corpus. To conclude, the difference in total densities between the two sections of the corpus reached significance only in the middle section, in favor of articles written by English authors.

### 4.3.3 Between-group Analysis: Diversity of Conjunctive Adverbs

As discussed above, the main meanings conjunctive adverbs are used to convey include contrast, addition, example, and comparison (Lester 294). Based on Blagojević (2008, 102), the identified conjunctive adverbs have been classified into the following six groups, expressing: (i) contrast, (ii) addition, (iii) cause-effect relationships, (iv) order of propositional content, (v) paraphrase or example, and (vi) emphasis or additional information.

#### 4.3.3.1 Contrast

With conjunctive adverbs expressing contrast between ideas (Figure 7), paired samples t-tests revealed a significant difference only for however \((t(21)=-2.14, p=.044)\), in favor of English authors, while differences for the remaining items did not reach significance. Another important finding is the higher density for on the one hand/on the other hand recorded in articles written by Serbian authors. Also, surprisingly, still was recorded only in the first section of the corpus.
These adverbs can be understood as typical transitions. Namely, rhetorical markers such as however, still, or in contrast are not used merely as elements of textual metadiscourse, but they also have an inherent interactive function, so that writers can use them to present a particular perspective which they expect their readers will be willing to adopt.

1. [...] we can analyse age differences in regression analysis [...]. Still, based on the inspection of the number and values of standardised regression coefficients [...]. (S$^5$-2016-4)

2. Six classrooms studies in which delayed feedback did not improve follow-up exam performance [...]. In contrast, in the laboratory studies [...] the follow-up exam [...]. (E$^2$-2015-2)

3. [...] feedback also has a corrective effect [...]. However, there is no reason that the corrective effect would be greater for delayed feedback [...]. (E-2015-2)

For instance, in example 3 the author stresses the contrast between ideas in the two independent clauses, signaling to the reader that the second clause is likely to introduce some novel, contrasting information. A similar effect is achieved with the phrase in contrast (example 2), which arguably has even greater rhetorical potential as it explicitly signals a more direct opposition between ideas. Still (example 1) expresses some kind of a limitation that results from the interaction of propositions from the first and second clause. The function of these elements obviously goes well beyond the textual dimension alone, as

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4 Corpus units written by native speakers of Serbian.
5 Corpus units written by native speakers of English.
all of them reveal writers’ positions in relation to, and evaluations of the presented information.

4.3.3.2 Addition

With conjunctive adverbs expressing addition (Figure 8), a significant difference in density was identified for *additionally*, in favor of the second part of the corpus ($t(8)=-2.58$, $p=.032$). Differences for the remaining items did not reach significance. Figure 15 shows higher density in the second part of the corpus for *furthermore* and *moreover*, while with *also* and *in addition*, density was higher in the first section.

This group of elements does not merely signal the introduction of novel propositional content, but also has a rhetorical dimension, as they are typically used to signal a certain degree of emphasis. Their function is again not only textual, but also interactive and they function as *transitions*.

4. The results [...] indicated a weak saturation factor for this item. In addition, with the exclusion of this item, the reliability coefficient along the subscale of achievement orientation will increase [...]. Also, the coefficient of discriminativeness of this item has not proved satisfactory. (S-2016-2)

5. The development of personalized search engines [...] has led to the capability to track consumer choices and deliver advertisements [...] Moreover, developments in affective
computing [...] can take into account a computer user’s mental status. (E-2016-5)

6. Future studies need to [...] Additionally, future studies should examine the effects of items with a greater number of response options [...]. (E-2015-3)

Examples 4-6 demonstrate how conjunctive adverbs emphasize the semantic relations between clauses by pointing out that the propositions are not simply sequenced one after the other, but that the additional information is crucial for the construction of meaning. Consequently, these transitions facilitate writers’ interaction with the construed audience.

**4.3.3.3 Cause-effect**

In the case of conjunctive adverbs expressing causal relationships, the analysis revealed a significant difference only in the case of thus, in favor of articles written by English authors \(t(19)=-2.4, p=.031\). Differences for the remaining items did not reach significance, while Figure 9 shows higher densities in the second section of the corpus for all items except accordingly, which was, surprisingly, recorded only in the first section.

![Figure 9 - Cause-effect](image)

These adverbs are also another instance of *transitions*, and they enable the writer to emphasize the logical structure of his arguments and align the reader with a certain point of view. The use of
7. This result could be a consequence of a large number of secure attachment styles in our sample [...] consequently, it is difficult to determine specific profiles. (S-2016-4)

8. Finally, the study addressed [...] Thus, the findings may not generalize to other areas [...]. (E-2015-3)

4.3.3.4 Order of Propositional Content

Conjunctive adverbs expressing the order of propositional content did not reveal any significant differences between the two sections of the corpus. Figure 10 shows higher densities in the second part of the corpus for first, next, and subsequently, while for finally higher density was recorded in the first section of the corpus.

These elements can be understood as frame markers used to signal the transitions between various stages in the text, thereby guiding the reader in accordance with his “discourse expectations” (Kaplan 4). In effect, these elements also play an important function in interaction between the writer and his audience. Firstly, the writer can utilize these resources in order to organize the information based on importance. Secondly, by adhering to such a structure he is in effect signaling his awareness of readers’ expectations. Examples 9-11 present instances of some typical frame markers from the corpus.

9. There are a couple of ways that attractiveness might impact teaching effectiveness. First, it is possible that the attractiveness of the instructor [...]. (E-2016-3)
10. A participant’s ratings across the seven groups were averaged […]. Next, the degree to which participants have a hostile attribution bias […]. (E-2016-6)

11. Finally, the third aim was to investigate the effect of expertise […]. (S-2015-3)

4.3.3.5 Paraphrase or Example

With conjunctive adverbs used for paraphrase or to offer examples (Figure 11), a significant difference was identified only for *for instance* in favor of the first part of the corpus (t(3)=7.36, p<.001), while the remaining items did not reach significance. In the case of *for example* and *in other words*, higher density was recorded in articles written by English authors, while for *in short*, higher density was recorded for Serbian authors.

![Figure 11 - Paraphrase or example](image)

These adverbs can be understood as *code glosses*, the function of which is to enable the readers to more easily “grasp the function of ideational material” (Hyland and Tse 169). *For example* can be used to strengthen the presented arguments (example 12), while *in other words* can be used to clarify the presented data (example 13). Additionally, some of these resources can even appear in clusters, like in example 12 where a paraphrase is followed by an additional example.

12. The AP assesses association strength by measuring reaction time […]. In other words, it evaluates how the prime […] facilitates evaluation of subsequently presented target […]. For example, positive attitude […]. (S-2015-4)
13. [...] reporting of causal information was the highest in the Audio Cause condition [...]. In other words, participants were able to correctly report the causal information [...]. (E-2015-7)

### 4.3.3.6 Emphasis or Additional Information

No significant differences were identified for any of the items from the group of adverbs used to express emphasis or to provide additional information. However, Figure 12 shows differences in densities in favor of articles written by Serbian authors for *namely* and *interestingly*, while in all of the remaining cases higher density was recorded for English authors. Moreover, *likewise* was recorded only in the first part of the corpus, while *in fact*, *generally*, and *importantly* were recorded only in the second part of the corpus.

![Figure 12 - Emphasis or explanation](image)

These elements can function as either *boosters* (for emphasis) or *code glosses* (for providing explanations). For instance, *in fact* or *indeed* can be understood as boosters used by the writer to express his certainty in the presented ideas (examples 14-15). Such rhetorical devices are meant to enable the author to convince and align the audience with a desired point of view more easily. *Namely* (example 16) can be understood as a code gloss that performs functions already discussed above.

14. This is an important limitation of previous studies [...]. *Indeed*, it is difficult to make a distinction between perceived stress and emotional distress [...]. (S-2015-1)
15. In fact, there was no evidence that participants were biased [...]. (E-2015-6)

16. There are similarities between the structure of traits [...]. Namely, experts’ estimations show that the psychopaths successfully adapted to environmental conditions [...]. (S-2015-2)

4.3.4 Discussion

With adverbs expressing contrast, a significantly higher density for however was identified with English authors, suggesting that they were more likely to use this transition as a rhetorical tool to align the putative reader with their point of view. Surprisingly, the use of still was recorded only with Serbian authors, and higher density was also recorded for the structure on the one hand/on the other hand, which shows that Serbian authors also use some specific contrasting devices to engage the audience.

With adverbs expressing addition (also typical transitions), a significantly higher density in favor of the second section of the corpus was identified for additionally, while in addition was more frequent in the first part of the corpus (although this difference was not significant). The density of furthermore and moreover, which apart from simple addition also entail a certain degree of emphasis, was higher in articles written by English authors, which shows that they were again more likely to use more salient rhetorical markers compared to their Serbian counterparts.

With adverbs expressing cause-effect relations, higher densities were recorded in the second part of the corpus for all items except for accordingly, which appeared only in articles written by Serbian authors. This again goes in favor of the idea that English authors were more aware of the audience, and, consequently, more likely to use explicit rhetorical markers.

Adverbs used to express the order of propositional content showed higher densities in articles written by English authors in all cases except finally. This shows that, in the present corpus, these authors were more likely to use explicit frame markers to point out the progression between the adjacent stages of discourse compared to Serbian authors. In effect, this renders the articles from the second part of the corpus more coherent.

Adverbs expressing paraphrase or providing examples revealed similar tendencies in both sections of the corpus, which shows that both groups of authors utilized this strategy equally. With these
adverbs, *in fact, generally,* and *importantly* were present only in articles written by English authors, whereas *likewise* was recorded only in the first part of the corpus. The majority of the remaining adverbs from this group showed higher densities in the second part of the corpus, which again shows that English authors were more likely to use these metadiscourse resources meant to align the audience with a particular point of view. Importantly, boosters like *in fact, indeed, importantly, particularly,* and *in particular,* which are used to convey writers’ certainty, were more frequent with English authors. However, code glosses such as *namely* and *likewise* were more frequent with Serbian authors, suggesting that they showed a certain degree of awareness of the audience, although to a lesser degree compared to their English counterparts.

Additionally, the results show that, in the domain of metadiscourse, conjunctive adverbs function predominantly as transitions. A smaller group of conjunctive adverbs can be classified as frame markers, while there is also a small group of elements that typically function as boosters and code glosses. Consequently, the function of conjunctive adverbs goes beyond the initial textual plane where they are used as structural markers of cohesion and coherence, since they can also be used to stress the relationships between ideas, thereby allowing the writer to adopt an interactive position with the construed audience.

5. General Discussion

Based on the obtained results, the present section will provide answers to the main research questions.

RQ1. Are there any differences in the distribution of conjunctive adverbs in the two sections of the corpus?

Comparisons of the two sections of the corpus showed a significantly higher density of target items in the second section. This shows that English authors were more likely to employ the more *explicit* elements of metadiscourse to engage with their audience compared to Serbian authors. The most obvious explanation for this finding is the difference in language proficiency between the two groups, where Serbian authors could benefit from explicit instructions in the domain of academic writing. This conclusion also offers clear pedagogical implications of the present findings.
Between-group comparisons in relation to article structure revealed certain significant differences. Namely, a significant difference in introductions was recorded in favor of the second part of the corpus. This suggests that English authors employed more explicit metadiscourse markers in introductions, thereby demonstrating both a greater degree of engagement with the construed audience, and, arguably, greater awareness of readers’ expectations. In the section dealing with methodology, the recorded density of conjunctive adverbs was also higher in articles written by English authors. This allowed the authors not only to provide explicit guidance through the text, but also to impose a particular perspective for construal. In effect, such an approach revealed their awareness of the audience and their willingness to engage with the putative reader. The final section of articles showed similar densities of target items in both parts of the corpus.

Such findings show that English authors were consistent in their use of explicit markers of metadiscourse throughout the articles, while Serbian authors employed the greatest number of rhetorical devices in their discussions and concluding remarks. Apart from the potential influence that different levels of language proficiency may have had on the obtained results, the recorded differences could, at least to a certain extent, also be attributed to different expectations within the two subgroups of the discourse community. Namely, although both groups belong to the same discourse community of researchers within the field of Psychology, these authors still belong to two different cultures. Consequently, despite the conventions and norms adopted in their discourse community, it is to be expected that their writing will be, to a certain extent, contaminated by some more entrenched, culturally-determined patterns and expectations. This hypothesis, however, remains to be investigated elsewhere as it exceeds the scope of the present research.

One important potential caveat that deserves some attention is the fact that some of the articles written by native speakers of Serbian may have been translated into English by a professional translator. However, even if this was the case for some corpus units, we must take into consideration the fact that one of the main concerns for a translator is to preserve the flow and nature of the source text when translating it into the target language (Baker; Hlebec; Jovanović). This is even more pronounced in the case of technical translations and the rhetorical structures present in them, as either the omission or addition of such elements would compromise the meaning of the overall text (Baker).
Namely, if we were to hypothesize that the process of translation contaminates the original text to such a degree that it renders it unrecognizable from target-language-like writing, we should expect to find identical tendencies in articles written by native speakers of English and those written by native speakers of Serbian (which were possibly translated into English by a professional translator). However, the analysis presented above revealed quite the opposite – there were in fact differences between the two sections of the corpus, which also reached significance in many cases. Consequently, this shows that, even if some texts were indeed translated into English by a translator, this did not create a significant bias toward the target language (English) and the associated cultural and linguistic expectations.

RQ2. Are there any differences in the diversity of conjunctive adverbs between the two sections of the corpus?

Certain differences have also been identified regarding the diversity of target elements in the two sections of the corpus. With conjunctive adverbs, a total of 45 different items were identified, and these were grouped based on their semantic content into the following six groups used to express: (i) contrast, (ii) addition, (iii) cause-effect relationships, (iv) order of propositional content, (v) paraphrase or giving examples, and (vi) emphasis or additional information. In the majority of cases higher densities were recorded in articles written by English authors, while greater densities in the first part of the corpus were identified only for a limited number of items. Such results again support the idea that English authors were far more involved with the audience.

RQ3. How did the identified conjunctive adverbs behave in qualitative terms?

The recorded target items predominantly performed the function of interactive resources; more precisely, they functioned as transitions, frame markers, and code glosses. Only a small number of items acted as an interactional resource – boosters.

Namely, conjunctive adverbs played a very salient role in metadiscourse strategies in both sections of the corpus. As they are used exclusively to connect independent clauses in order to stress the semantic relations that hold between them, these elements were obviously the most favorable choice for authors to communicate their
rhetorical goals. In effect, based on the results, conjunctive adverbs can be understood as prototypical markers of metadiscourse, as they surpass the purely textual function and afford a significant degree of interaction between authors and their audience.

6. Conclusions and Suggestions for Future Research

Based on the obtained data it can be concluded that English authors were more likely to use metadiscourse markers than Serbian authors, and, furthermore, they were also more consistent in doing so throughout their articles. As discussed above, these differences can be attributed both to different levels of language proficiency, and to different cultural backgrounds.

The obtained results can also be related to some of the findings from previous research introduced earlier. Namely, the present study supports one of the findings presented in Blagojević (2009), where adverbs and adverbial phrases were identified as an important group of attitude markers that have an interactive function. Similarly to Blagojević (2012b), our analysis also revealed higher frequencies of target items in the English section of the corpus; additionally, there is also an overlap in types of targets, where functions performed by logical connectors, announcements, and reworders would roughly correspond to some of the main functions that we have identified in the case of conjunctive adverbs. Moreover, the results from the present study are also aligned with Blagojević (2015) who reported a higher frequency of discourse markers in articles written by English authors compared to Serbian authors.

Since the frequency of occurrence of metadiscourse resources can be understood as a correlate of the degree of writers’ awareness of, and willingness to, engage with the audience, our results also support the main conclusions outlined in Sudimac and Novaković (2017), where the authors identified a higher degree of writer responsibility in articles written by teachers of English compared to teachers of Serbian. In the case of the conjunctive adverb in fact, Đurić (2015) was able to identify its function in the facilitation of processing efforts with the addressees, which correlates with our general conclusion pertaining to the interactive nature of conjunctive adverbs identified in our corpus. Among other elements, Dimković-Telebaković (2015) discussed the functions of stance adverbs nevertheless, moreover, and however, and also reached similar conclusions to ours in terms of their role in strengthening assumptions and introducing contrast. Finally, Tepačević (2015) identified adverbs and adjectives as
some of the most common elements in conveying agreement and achieving persuasive effects, i.e. aligning the reader with a desired viewpoint. In effect, it can be concluded that the results obtained in the present study correlate to a great degree with the results from previous research.

Bearing in mind that metadiscourse is closely linked to rhetoric, evaluation, and persuasion, apart from corpus research future work should also include interdisciplinary investigations that would test experimentally readers’ perception of texts in terms of cohesion, coherence, persuasiveness, and similar variables. Such course of research could include introspective questionnaires, where participants would be exposed to experimental stimuli in the form of paragraphs constructed to reflect the tendency of analyzed corpora, and those intentionally manipulated in order to violate the structure identified in the corpora. Comparison of participants’ evaluations of such materials should shed more light on the real effect that specific linguistic resources that have been outlined in literature actually have on readers in real time. Moreover, combining experimental methods with discourse studies would yield more comprehensive results and increase not only the convergent validity of findings, but also the explanatory potential of the overall theoretical framework.

Finally, results of the present study are restricted by some obvious limitations that need to be addressed in future work. Firstly, the size of the corpus poses as an obvious confounding variable; therefore, enlarging the present corpus would yield more comprehensive results. Additionally, the size of the corpus also brings into question the ecological validity of the study; however, bearing in mind that the corpus included actual, representative instances of language use, we feel that the criterion of ecological validity has been met. Secondly, bearing in mind that the corpus is specific to the field of Psychology, it does not offer space for any serious extrapolations of conclusions across disciplines. And thirdly, to obtain more comprehensive results, the present study could benefit from a complete overview of both interactive and interactional resources from Hyland’s (2005) model. Consequently, a revised bottom-up approach that would license the identification of all metadiscourse markers would offer more accurate results and contribute to the convergent validity of the present findings.
References:


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Ključne reči: metadiskurs, akademski diskurs, WordSmith, tekstualni konektori.