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Exploring English by Means of Contrast

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Exploring English by Means of Contrast

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Contrasting English and South Slavic Languages: An Introduction

Andrej Stopar, University of Ljubljana, Slovenia
Ivo Fabijanić, University of Zadar, Croatia

The monograph *Contrasting English and South Slavic Languages* contains a collection of contrastive, cross-linguistic studies of South Slavic languages and English.

The history of contrastive approaches to linguistic studies can be traced back to the early 20th century when linguists began systematically comparing different languages. Such studies traditionally compare two or more languages and have a typological focus; they are mainly synchronic and explore both systematic differences and similarities between the languages under observation, where one language is described from the perspective of the other (König 2012).

The contrastive approach thus aims to identify the unique linguistic structures of each language and compare them to those of other languages, providing insights into the nature of language and its use. In the 1970s, contrastive analysis was expected to become both a potential source of a general theory of language and a method of characterizing individual languages (Filipović 1985, 17, quoting Ferguson 1968).

In their more applied form, contrastive studies focus on the development of language teaching methods, translation research, and second language

acquisition. The assumption is that the contrastively observed differences may also represent challenges for both language learners (Granger 2003) and translators. Lado (1957) and Fries (1952), for example, advocate for a systematic approach to the comparison of languages believing that by comparing the linguistic systems of different languages we can identify the areas of difficulty that learners of a non-native language may encounter.

The *Yugoslav Serbo-Croatian-English Contrastive Project* is an example of a typical project that adhered to the above ideas and also included some of the languages analysed in this monograph. Starting at the end of the 1960s, it aimed to describe the points of contrast between Serbo-Croatian and English by focusing "on difficulties of the Serbo-Croatian-speaking learner of English" (Filipović 1985, 10). Although the project mainly explored the differences and similarities between the two languages, the findings of the theoretical studies were to be applicable in the language learning and teaching contexts.

Despite relying on different theoretical frameworks and being based on different assumptions about the nature of language and the relationship between languages, contrastive analysis was criticized as being overly simplistic in its approach to language analysis as well as to language learning and teaching. After its peak in the 1960s and 1970s, contrastive linguistics experienced a decline due to the inability of the field to fully address the complexities of foreign language acquisition and the emergence of other approaches to linguistic analysis (König 2012).

This critique and various advances across a broad range of the sciences led to the development of new theories and approaches to linguistic analysis. A significant innovation that influenced those studies that follow the contrastive tradition was the advent of corpora, and since the 1990s we can observe a "convergence between contrastive linguistics and corpus linguistics", which shows that "corpus-based approaches are essentially comparative" (Xiao 2013, 267). This is also reflected in their applied aspects, for instance in translation (Baker 1993), pedagogy (Sinclair 2004), lexicology and lexicography (Cowie 1981).

Following other technological advances, contrastive and cross-linguistic studies have helped to shed light on the ways in which different languages interact with one another in the brain or in the mind (see, for instance, Luck and Kappenman 2011; Price 2012; Flecken, Wallbert and Dijkstra 2015). Some of the developments in linguistics have also brought about conceptual innovations – cognitive approaches, for instance, see language as reflecting cognition

(Langacker 2000; Geeraerts and Cuyckens 2007) and reject the notion of grammar as a completely autonomous formal system. Moreover, a considerable emphasis in contemporary contrastive and cross-linguistic studies has also been placed on the analysis of language that ventures beyond the sentence by exploring the intricacies of discourse and pragmatics.

The contributions included in this monograph reflect many of the above developments in linguistic research. One of the aims of the volume is to continue the long tradition of contrastive studies by addressing the relationship between English and South Slavic languages, while also considering the plethora of theories, approaches and methodologies available to linguists in the present moment. This task has been enthusiastically pursued by the twelve authors of the eight chapters in this monograph that explore English in contrast to Bosnian, Bulgarian, Croatian, North Macedonian, Serbian, and Slovene.

Alexandra Bagasheva (Sofia University "St. Kliment Ohridski", Bulgaria) has conducted a study on the word-formation of psych verbs, specifically the deverbal derivation of *Experiencer*. Her approach in the study titled "The Derivational Habitat of *Experiencer* in English and Bulgarian: An Onomasiological Perspective" is described as "contrastive cognitive-onomasiological" and based on the hypothesis that conceptual, linguistic, and metalinguistic factors condition the lack of a dedicated *Experiencer* pattern in English and Bulgarian. Bagasheva's research shows that the syntactically relevant special properties of psych verbs do not translate into derivational patterns and processes (*Theme* being the exception) and confirms that there are no dedicated affixal patterns or types for exclusively marking *Experiencer* in English or Bulgarian. While discussing the significant differences between the two languages, Bagasheva notes that *-ing* is not used to mark *Experiencer* in English, whereas a corresponding pattern in Bulgarian systematically and exclusively names *Experiencer* (and *Agent*) and is not required to derive any of the other participant roles due to context. The author suggests that the lack of prominence of *Experiencer* marking in word formation is most likely conceptual – the processes in the mind are not accessible to the observer, and thus the mental event is a construal of their own (this is in line with Croft et al. 2018). However, language specific and metalinguistic factors are at play as well: it may be impossible to theorize an abstract schema that encompasses the diversity of mental events involving *Experiencer*, perhaps even due to the lack of adequate tools for linguistic analysis.

Nermina Čordalija (University of Sarajevo, Bosnia and Herzegovina), **Roelien Bastiaanse** (University Medical Center Groningen, the Netherlands), and **Srđan Popov** (University of Groningen, the Netherlands), in their collaborative multi-authored study "What do Event-Related Potentials Reveal about Processing Grammatical Aspect in Bosnian/Croatian/Serbian? – A Comparison with English Aspect", provide a linguistic description of grammatical aspect and an empirical insight into its processing. The authors note that in Bosnian-Croatian-Serbian (BCS), grammatical aspect is intrinsic to time reference while English grammaticalizes aspect only partly, and simple forms are not marked for aspect. With BCS aspect is encoded synthetically via affixes, while English grammaticalizes aspect periphrastically. In BCS perfective and imperfective verb forms cannot be used in the same context with the same or similar meaning, and imperfective verb forms cannot be used in the real present time frame at all. English, on the other hand, shows a flexible system where different verb forms may express the same or similar aspectual semantics. To address the question of how such morphosyntactic and semantic differences between the two aspectual systems are reflected in processing, Čordalija, Bastiaanse and Popov conduct an event-related potentials (ERP) experiment with the aim of studying the electrophysiological responses to aspectual violations in BCS. The findings are in line with most previous ERP studies on grammatical aspect, suggesting that aspectual violations trigger immediate reanalysis and repair processes reflected in the P600 component. The results are also compared with those from an ERP study on English aspect violations by Flecken, Wallbert and Dijkstra (2015), which showed that violations of aspect in English did not yield a clear electrophysiological response.

Biljana Čubrović (University of Belgrade, Serbia) investigates the strategies employed by L2 learners of English with a Serbian language background in the acquisition of the pairs of English vowels whose qualitative characteristics are markedly different in English, but virtually the same in Serbian. Her study "New Vowel Category Acquisition in L2 Speakers of English: The Case of High Front and High Back Vowels" approaches this goal experimentally – Čubrović uses two groups of English speakers, one with Serbian as their L1 and the other with Mainstream American English as their L1, to compare the vowel pairs FLEECE/KIT and GOOSE/FOOT. She examines the spectral features (F1 and F2 values) in the productions of the observed vowels and checks whether the F1–F2 difference acquired by speakers of Serbian as L1 is in line with the targeted difference for English. Čubrović's reasoning for the study is contrastive in nature – she compares the two relevant vowel

systems and assumes that a vowel quantity language such as Serbian may influence the quality of vowels in the learners' production of English vowels. She finds that the group which includes advanced speakers of English with Serbian as L1 successfully formed new vowel categories for the KIT and FOOT vowels that do not overlap with the respective FLEECE and GOOSE vowels. However, the formation of new vowel categories varies – at least one L2 speaker seems to rely more on vowel duration, a likely transfer from Serbian. The analysis shows that the English GOOSE/FOOT contrast is not problematic for L1 speakers of Serbian, while the FLEECE and KIT vowels seem to be more challenging and have not yet been fully accommodated into the English vowel inventory. These findings provide new insights into the interaction of vowel quality and quantity across languages (for similar discussions, see Casillas 2015; Escudero and Boersma 2004; Roberto Gonçalves and Silveira 2014; Hirata and Tsukada 2004).

Selma Đuliman (University of Sarajevo, Bosnia and Herzegovina), in her paper "Translating Humour in *The IT Crowd:* An Analysis in Favour of Introducing Humour Studies into Translation and Interpreting Curricula", discusses some of the challenges in translating humour from the (British) *The IT Crowd* series into the Bosnian language. The goal was to emphasize the need for introducing humour studies into university curricula. Humour is observed and contrasted between English and Bosnian, and analysed within Minutella's (2014) analytical framework, involving cultural references, wordplay and language variation for humour detection, and Chiaro's (2004) approach to humour translation, which entails substitution, replacement with an idiomatic expression, or replacement with compensatory, verbally expressed humour. A selection of eight scenes from *The IT Crowd* is presented, followed by a discussion of the humour translation challenges in each scene. The transcription and translation of the scenes are provided by the author, since the series has not been translated into Bosnian, since it has not been aired by any of the country's networks. The two main issues emphasized in relation to the process of translating humour are that students of translation studies should be familiar with the basic trends in humour research in linguistic and cultural studies, and that the translation of humorous content can be highly challenging even for more experienced translators, despite the seemingly superficial and familiar plot of the audio-visual material. The results indicate that some humorous content is easy to detect in the source language, but difficult to translate, and there were also instances of translatable content resulting in the loss of humour in the target language. The author claims that humour studies enable

easier understanding and translation for students, while contrastive analysis serves as a pedagogical means of bringing humorous content in translation studies classes into focus.

Frančiška Lipovšek (University of Ljubljana, Slovenia) tackles the role of verbs and adverbs in structuring fictive motion. In her study titled "The Role of Verbs and Adverbs in Structuring Fictive Motion in English and Slovene" a motion verb in a fictive motion sentence is defined as not expressing actual motion but likely referring to some physical property of the subject entity by virtue of its meaning, while an adverb of manner utilized in a fictive motion sentence is described as not being able to express the manner of motion but necessarily referring to some correlated property of the subject entity. Taking this as a starting point, the chapter authored by Lipovšek examines the role of vertical and irregular motion verbs and manner adverbials in English and Slovene fictive motion expressions. The study is corpus-based (the studied sentences are extracted from the British Web, ukWaC, and the Slovenian Reference Corpus, Gigafida 2.0) and the results compare Slovene data with data from English, but also in relation to other languages (Matsumoto 1996; Rojo Valenzuela 2003, 2010; Tomczak and Ewert 2015). The new observations about the English-Slovene language pair are as follows: they differ in the mapping potential of verbs – Slovene verbs display less specific meanings than English ones – while the correlations between the manner-related meanings of adverbs and the properties of stationary entities are equally represented in both languages. The author notes that the identified differences are due to the lexicon (many English verbs have not distinct counterparts in Slovene) or some other differences between the two language systems, and do not depend on fictive motion.

Liljana Mitkovska (AUE-FON University, North Macedonia) and **Eleni Bužarovska** (Ss Cyril and Methodius University, North Macedonia) authored the study "Negated Biased Questions in English and Their Equivalents in Macedonian", in which they present the analysis of English biased questions with negation and their Macedonian equivalents. English negated questions have different readings depending on their discourse goals – the "outer" and "inner". The two readings are disambiguated by several Macedonian translational equivalents: negated questions with the negation particle *ne* "not", and questions introduced with the interrogative particles *neli*, and *zar/em*. *Neli*-questions assert the truth of the propositional content, while *zar*-questions challenge the truth of *p*. The authors examine the uses of negated questions in the transcript of the American soap opera *All My Children* (2001). The corpus of 300,000 words

consists of short dialogues on various subjects that concern the protagonists of the series, and the sample is compiled from all negated questions found in the text. The familiarity relations reflected in the language use come from speakers' similar social backgrounds, along with kinship and friendship ties. The bulk belong to the high negation type, while low negation questions are underrepresented (with only four examples). The original questions and their translations are stored in a database for the next step of the analysis, in which the translation variants are classified according to the applied translational strategy. The analysis confirms the initial assumption that they tend to pattern with the two readings of these questions: outer and inner negation (as in Romero and Han 2004). *Neli*-questions mainly render outer negation questions, *zar*-questions pair with inner negation questions, while *ne*-questions are rather ambiguous, and their interpretation may depend on prosodic features. The interplay of two pragmatic factors decides the choice of the translational equivalent: the context and the conversational goal of the question.

Jelena Vujić (University of Belgrade, Serbia) and **Tijana Šuković** (University of Belgrade, Serbia), in "Personal-Name Blends as Instances of Morphological Creativity in English and their Equivalents in Serbian: a Constructionist View", follow Booij's (2010) framework of Construction Morphology in analysing personal-name blends in English on a corpus compiled from popular American sitcoms, TV dramas and films, and their (possible) translational equivalents in Serbian, offering an insight into the available morphological mechanisms of creating (morpho-)semantically equivalent personal-name portmanteaus in Serbian. The aim of the contribution is to show that despite being instances of morphological creativity, English personal-name blends represent form-meaning correspondences, which proves them to be generated by constructional schemas rather than arbitrary coinages. As playful and humorous expressions that are the outputs of morphological creativity, personal-name blends are highly context-dependent and understood only by a close speech community. By applying a constructionist approach, they show that their meaning does not have to be completely unpredictable and indecipherable. Vujić and Šuković demonstrate that a specific schema and/or sub-schema can be attributed to several blend formations rather than to single instances, which indicates that they are more rule-governed than may initially appear. The findings also indicate that the outputs of blending may be regarded as extracted from schemas because of the lack of a specific model, which is in line with Tuggy's belief (2006, 102) that analogy-based and schema-based models are not "strict alternatives", because they may be "simultaneously active" since "the difference between them is one

of degree". Furthermore, they demonstrate how the identification and formulation of English blend construction schemas, which specify all the vital information regarding the prosodic, syntactic, semantic and pragmatic features of the novel formations, can be highly valuable to translators, helping them to find and create suitable equivalents in TL, and maximizing the preservation of the form-meaning-use correspondence of the original, as well as that (somewhat) modified English schemas might actively operate in Serbian speakers' mental lexicon for nonce word creation.

Dragana Vuković Vojnović's (University of Novi Sad, Serbia) contributed the chapter "Adjective + Noun Collocations in Tourism Discourse – A Contrastive Corpus-Based Study of English and Serbian", which builds on the tradition of contrastive studies like the ones by Ivir (1969) and Đorđević (1989). She has the goal of identifying recurring *adjective + noun collocations* and analysing their main morpho-syntactic, semantic, and communicative features in the context of web-based promotional tourism texts in English and Serbian. With this purpose in mind, Vuković Vojnović compiles two comparable corpora in English and Serbian from the tourism-related (British) English and Serbian websites, and extracts key *adjective + noun collocations* by means of two software tools, TermoStat Web 3.0 and AntConc. Based on their normalized frequencies per 10,000 words, the collocations are first analysed quantitatively. The qualitative analysis, on the other hand, examines the specific use of *adjective + noun collocations* in the context of tourism texts, as well as the similarities and differences of the collocations in the two languages. The results of the study indicate that *adjective + noun collocations* are more frequent in the Serbian corpus, while the English corpus contains more *noun + noun collocations*. Some Serbian collocations can be considered genuine translation equivalents, while others may be somewhat modified. For instance, the same adjective in Serbian may appear in the superlative form or have a more distinctive meaning. These findings have implications for tourism discourse studies, language typology and lexicography, as well as English for the tourism and hospitality industry. Vuković Vojnović also notes that a contrastive approach to the analysis of lexical collocations, especially in the specialized context, deepens knowledge about the morphosyntactic and lexical-semantic characteristics of the compared languages, revealing some universal features, while also identifying their similarities and differences.

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The Derivational Habitat of *Experiencer* in English and Bulgarian: An Onomasiological Perspective

Alexandra Bagasheva, Sofia University "St. Kliment Ohridski", Bulgaria

Abstract

Psych verbs' special status and their associated properties have loomed large in syntactic analyses, but remain relatively under-researched with regard to word formation. The expression of Experiencer,[1] as the inevitable participant role for such predicates, appears a central analytical and classificatory factor in syntax (e.g., subject-experiencer vs. object-experiencer verbs), whereas the *Experiencer* deverbal derivation remains under-researched. In this work the ecological niche of deverbal *Experiencer* derivation in English and Bulgarian is analyzed from a contrastive cognitive-onomasiological perspective, and the polysemy networks in which *Experiencer* derivation in the ecology of deverbal nominalizations participates are explored. A tentative hypothesis is formulated as to the plausible factors conditioning the lack of a dedicated *Experiencer* pattern in either language, which can be grouped into conceptual, linguistic and metalinguistic ones. The most fundamental factor seems to be the fact that what happens in the mind is non-accessible, and despite its cognitive primacy, it can only be modeled after more familiar types of events and interactions.

Keywords: psych verbs, *Experiencer*, derivation, onomasiology, English-Bulgarian analysis

1 Throughout the text when a semantic label is in italics it names a conceptual-onomasiological category, which is derived from an underlying conceptual schema. When a semantic label is in plain script it is used as a label for syntactically defined thematic/semantic term.

1 Introduction

According to Landau (2010) *Experiencers* are cognitively and linguistically special: "[b]eing the primary species of experiencers ourselves, it is hardly surprising that we assign a privileged status to the category of sentient entities capable of mental life" (Landau 2010, 3). Surprisingly, and to the best of my knowledge, *Experiencers* have not made it into the limelight of focused word formation research, unlike their prime appearances in studies focused on syntax-driven interfaces. Assuming that "cognitive primacy has causal effects" (Landau 2010, 3) on the grammar, the lack of dedicated *Experiencer* derivational pattern in two distantly genealogically related languages (one Slavic, the other Germanic) – both with nominative-accusative syntax with different ergative reflexes, associated with significant differences in their voice systems and verb compounding (on verb compounding in the two languages and the ergative cryptotype see Bagasheva 2012 and 2014) – and hence with distinct word formation ecology, invites at least a reflection, if not an explanation.

Psych verbs have been defined in various ways, but the common core detectable in all definitions can be pre-theoretically summarized as lexical items encoding states or events of internal, affective, desiderative or cognitive experience, through which we encode "our mental contact with the world" (Downing 2015, 171). The focus of extensive attention in relation to this group of verbs in separate languages and cross-linguistically, from diverse standpoints and within different frameworks, have been argument assignment and linking/mapping problems at the semantics-syntax interface (Croft 1986; Dowty 1988, 1991; Jackendoff 1990, 2007; Kiparsky 1987; Levin 1993; Pesetsky 1995; Van Valin 1990, 2005; Van Voorst 1992; Zaenen 1993, to name but a few). Considering the significance of the correlation between syntactic encoding and affixal functions in languages (e.g., Grimshaw 1990; Lees 1960; Härtl 2015; Levi 1978; Marchand 1969; Paducheva 1998; Ryder 1999; Selkirk 1982; Spencer 2005, 2015), the lack of specific research on the participant word formation properties of this group of verbs needs to be addressed, and serves as the motivation for the account provided here.

Affixal (systemic) polysemy[2] has been extensively studied and a cross-linguistic tendency for an *Agent/Instrument*(/*Location*) recurrent polysemy has

2 This term is used as defined by Apresjan (1974) as "regular polysemy" or recurrent patterns of radial networks of correlated possible affix readings across languages.

been repeatedly evidenced (Rainer 2011, 2014; Ryder 1999; Baeskow 2015, to name but a few). A noticeable symmetry between *Agent* and *Patient* marking in English has been discussed (Baeskow 2015), i.e., the correspondence between *-er* vs. *-ee* affixal derivation as in e.g., *dump**er*** – *dump**ee***, with occasional overlaps in marking, e.g., *-ee* in English marking agents as in *escap**ee***, *attend**ee***, etc. or the *-er* marking patients as in *bak**er***, *fry**er*** (Barker 1998; Booij and Lieber 2004; Ryder 1999, etc.).

Despite the cognitive salience of psych verbs, little research has been carried out regarding Experiencer participant nominalization and potential correspondence with Stimulus marking. Assuming that the opposition between *Experiencer* and *Theme* and *Experiencer* and *Stimulus* within the force dynamic structure of mental events (Croft et al. 2018) can be likened to the derivationally expressed *Agent* – *Patient* contrast as in English *employ**er*** vs. *employ**ee***, the objective of the research is to see how participant nominalizations from psych verbs are realized in the language pair English – Bulgarian. Admittedly, a full account should comment on the differentiation between *Experiencer* and *Affectee* and between *Stimulus*, *Theme* and *Affector* and monitor any derivational specialization in view of these semantic differentiations, but as this is an initial, exploratory research, in the remainder of the chapter these are discussed indiscriminately, with a few exceptions, in the relevant context. Affector and Affectee are defined for the special type of agentive-causative psych verbs such as *Mary **frightened** John*, which deviate from typical agentive verbs (Alexiadou 2016) but also from typical psych verbs (Liu 2016). They occupy the middle ground along the notions of affectedness and change and are associated with a special set of roles, which are defined as follows: "[d]ifferent from the non-sentient Stimulus, an Affector volitionally instigates an internal change on an Affectee in a more dynamic and eventive manner" (Liu 2016, 4).

In view of the above, the problem of the word-formation behaviour of psych verbs offers practically unlimited possibilities for analytical treatment and research. I have limited the perspective here to the following interrelated research questions:

Are any of the properties of psych verbs (conceptual and syntactic) reflected in participant nominalizations?

How is *Experiencer* referential participant deverbal nominalization in English and Bulgarian actualized, i.e., are there dedicated affixal patterns or word formation processes for the derivational encoding of *Experiencer* in the two languages?

What are the basic similarities and contrasts in "the population of the semantic niche" of *Experiencer* in the two languages; i.e., are the polysemy chains of participant nominalizations fully coincidental or how do they differ?

In order to answer these questions, the rest of this chapter is structured as follows: part two briefly presents the adopted analytical framework and its theoretical contextualization; in part three the central properties of psych verbs in the two languages are discussed; part four focuses on presenting a contrastive onomasiological account of *Experiencer* nominalization in English and Bulgarian; in part five possible reasons for the findings and some conclusions are provided.

2 Notes on the framework and theoretical background

Within the framework adopted here, a cognitive-functional onomasiological approach to word formation, Langacker (1991) recognizes the theoretical significance of deverbal nominalizations and Heyvaert (2010) emphasizes their centrality in the symbolic inventory of the lexicogrammar. Prominent in this inventory are participant nominalizations. Since language is remarkably anthropo- and egocentric (Dirven and Verspoor 2004), it is expected that participants in psych verb frames will be noticeably significant and will likely be encoded in constructions of various degrees of complexity. The *Experiencer* nominalization ecosystems of English and Bulgarian are examined to explore this issue, but first some background on the encoding of the respective target in syntactic constructions is provided.

The analysis is based on the key tenets of the onomasiological approach to word formation (Štekauer 1998, 2001, 2005, 2015), supplemented with Lieber's (2016) onomasiology informed ecological view of English deverbal nominalizations and embedded in the larger framework of the cognitive-constructionist architecture, where language is assumed to be a dynamic system of symbolic pairings of meaning and form. Among the central tenets of the onomasiological theory is the word-formation type cluster, which is comprised of all lexemes coined for expressing a specific conceptual category, e.g., *Patient*, *Instrument*, *Location*, etc. There are eight onomasiological types, which differ in terms of the expression of the onomasiological categories of the determining constituent of the mark, the determined constituent of the mark, and the onomasiological base. Morphemes are mapped onto these constituents by the Morpheme-to-Seme Assignment Principle, which is premised on the idea that "the semantics of morphemes stored in the lexicon

is matched with the individual semantic categories of the onomasiological structure" (Körtvélyessy, Štekauer and Zimmermann 2015). Thus, the analysis of a word-formation type cluster may focus on the onomasiological types or it can explore the ecology of the morphemes (and processes) involved in the mapping of the requisite semantic constituents. The stored morphemes themselves (including what are traditionally called word formation processes, such as compounding, conversion, affixation, etc.) constitute a complex ecosystem of polyfunctionality and competition. In what follows the second option is adopted.

In keeping with Krzeszowski's recommendation for choosing a meaning component for contrastive word formation analysis,

> [s]ince formal comparisons of individual lexical items do not seem to lend themselves to any significant generalizations, contrastive studies of word formation are better off if they are based on some conceptual framework. [...] As a matter of fact, any aspect of the meaning can serve as a basis for cross-linguistic comparisons (Krzeszowski 1990, 75).

The word-formation type cluster *Experiencer*, one of the prominent participant nominalizations, is chosen as *tertium comparationis*. The terms *Agent*, *Patient*, *Instrument*, *Experiencer*, *Theme* and *Stimulus* are used here not as thematic roles but as comparative semantic categories (for a discussion of the appropriacy and nature of comparative semantic categories in word formation analysis see Bagasheva 2017), akin to the conceptual categories driving a naming process (which for analytical purposes are equated with participant labels in frame analysis as in Fillmore (2006) and FrameNet). Even though some of the terms coincide with thematic roles as defined in syntactic analysis, the terms used as grounds for comparison here are derived from "schemata, i.e., mental representations of the knowledge which human beings share about objects and events in the world" (Ortner and Ortner 2015, 910) and thus are coterminous with the conceptual types used in onomasiological word formation theory. They are labels based on conceptual schemata, not theta-roles, and are tools of formal and theoretical neutrality in relation to any syntactic account of word formation. The schema as operative in word-formation is here understood as defined by Tuggy (2005, 235):

> A schema is a pattern, a rough outline, a coarse-grained, less-fully-specified version of a concept which the elaborations render, each in a different way, in finer, more elaborate detail. All of the schema's specifications are true of its elaborations, but each elaboration of a schema specifies details which the schema does not.

Furthermore, Lehmann (2015, 701; emphasis added) recognizes "categories such as agent noun, place noun, or gender marking, [as] the oldest, most common and most widely used **semantic categories** in word-formation, providing a suitable **onomasiological basis** for cross-linguistic comparison". Such categories are defined for analytical purposes in the study of derivational categories and derivational semantics. After all, semantic labels in both syntax and derivational morphology are just "convenient mnemonics" for prominent structural configurations of conceptual structure (Jackendoff 1990, 47). The categories employed in the subsequent discussion can be presented in an alphabetical order without any claims on primacy as follows:

Agent – the performer of an action with the properties of animacy, volition, intentionality and directedness of the action or causality (which excludes *sneezer*, for example);

Experiencer – a sentient, animate being (prototypically human) capable of experiencing emotions, entertaining thoughts and beliefs, of cogitation, etc. (e.g., *admirer, dreamer, believer*, *hearer*, etc.);

Instrument – an inanimate (including material) that an agent uses to implement an event (*toaster*, *sharpener*);

Patient – a participant in a situation upon whom an action is carried out or who is the carrier of certain attribute (e.g., *dumpee*, *beatee*, *старец* (*starec*, an old man), etc.);

Stimulus[3] – the trigger in a perception or emotional reaction event (e.g., *downer*, *eyesore*);

Theme[4] – the entity (irrespective of animacy) towards which the emotions of an Experiencer are directed (e.g., *admiree*).

The last preliminary note relates to the pervasive non-compositionality of word formation products or lexical constructions, implicit in Baeskow's contention

3 The difference between *Stimulus* and *Theme* is conditioned by the inceptive as opposed to the lasting nature of the emotion, beside the specialization between triggering of an emotion and being the recipient of an emotion, e.g., *The play* (Stimulus) *impressed the viewers* vs. *John loves jazz music* (Theme).

4 *Affector* and *Affectee* (recognized by Liu (2016) as significant both for syntactic constructions and for lexicalization patterns) are not included in the list as they were defined in the previous part. The causative nature of purposeful evocation of emotional reactions collapses the agentive-causative and psych verb properties and maps over the mental event schema/frame over the dynamic (canonical) event schema.

that "word-formation involves aspects of meaning, which are neither predicted by the syntax nor reducible to dictionary entries" (Baeskow 2015, 39). On the basis of this assumption that derivational meaning is different from both lexical meaning and principles of syntactic meaning computation and against the background of extensive affixal polysemy, it is the complexity of the ecosystem of affixes and rival derivational processes within a word-formation type cluster that presents the ideal granularity level and focus in contrastive word formation research and presents a suitable *tertium comparationis*. For this reason, adopting Lieber's (2016) metaphor of the derivational ecosystem, and her understanding of morphological types as either specific affixes or particular word formation processes, e.g., conversion (Lieber 2016, 57), in what follows a discussion is presented of the ecological niche of *Experiencer* marking in the nominalization ecosystems of English and Bulgarian, tracing the polysemy chains therein. The concept of nominalization includes the derivation of nouns from all kinds of bases (adjectival, nominal, verbal, etc.). As the main focus of discussion here falls on *Experiencer* as central participant in the conceptualization of psych verbs, the analysis is restricted to referential participant deverbal nominalizations, excluding all other possible types of nominalizations, be them defined in terms of their bases or in terms of the output (i.e., event, result or state nominalizations). For the proper understanding of the specificity of *Experiencer* as a derivational semantic category, we need to review the special properties of psych verbs, since they project the frames (in the sense of Fillmore 2006) from whose schemata (Tuggy 2005) *Experiencer* is conceptually delineated and word-formationally encoded.

3 The special properties of psych verbs

In Langacker's (1999) opinion the experiencing of emotions may be included as a conceptual archetype and can be used for linking basic grammatical constructs with semantic characterization. Emotions may be viewed as 'forces' and emotion verbs may be treated as 'causal-evaluative events' (Lyons 1980; Lakoff and Kövecses 1987; Talmy 1985, 1988; Radden 1998; Kövecses 1998, 2000, among others), a view which directs lexical-semantic (conceptual) and morpho-syntactic analyses of psych verbs and their role in the architecture of language.

The basic features of the various types of psych verbs that have drawn the attention of syntacticians from various persuasions and analytical backgrounds relate to aspectual classifications (eventive vs. stative; change-of-state properties,

causative, transitivity, control, volition, etc.), correlation between semantic roles and syntactic mapping, lexical semantics and argument structure, causality, agentivity, directedness vs. inherence of the experience, correlation with voice systems, etc. This plethora is not matched within word formation research, but a few questions have been debated, e.g., the thematic hierarchy and affixal selection (Rodrigues 2021); possible correlations between the syntax (basically aspectual characteristic and argument realization rules) of psych verbs and *-able* adjectival derivation in English (Alexiadou 2018) and the polysemy of *-ment* suffixation in relation to psych verb bases (Kawaletz and Plag 2015). Whatever theoretical or analytical position is adopted, argument realization and subject or object-orientation of psych verbs, case marking of the Experiencer (here a thematic role), inchoativity/eventivity vs. stativity and causality seem to be the most controversial analytical questions in encoding participant roles of psych verbs in syntactic constructions within the constructicon (for an overview of conceptions and applications of this notion in the constructionist understanding of the architecture of language see Lyngfelt 2018 and Lyngfelt et al. 2018).

Within formal, syntactically informed treatments of word formation phenomena (e.g., Lees 1960), which are generally syntagmatically oriented and rule-based, argument restrictions on word formation, or the influence of the morpho-syntax-lexicon interface on word formation, have led to the establishment of structural rules holding in the domain, parallel to thematic role mapping in syntax. Most of these are defined as restrictions on word formation, basically compounding and nominalizations (for overviews see Baeskow 2015; Härtl 2015; Lieber 1998, 2016), but none focuses exclusively on *Experiencer* derived from psych verbs, against the discussion of other derivations form psych verbs (see Alexiadou 2018; Kawaletz and Plag 2015; Rodriguez 2021). Syntactic accounts of psych verbs have led to the establishment of implicational hierarchies of subject roles, "Stimulus prominent > Affector prominent > Experiencer prominent, if the leftmost, then all to the right" (Liu 2016, 44) and languages with preferences for one or the other of the possibilities as most frequent have been identified. Numerous other generalizations have been formulated concerning psych verbs, including the establishment of a second pair of basic semantic roles, Affector and Affectee, which emphasize volitional causation of psychological states in the affected party and degree of affectedness (e.g., Beavers 2011, 2013; Kenny 1963; Liu 2016; Tenny 1987, 1992; etc.), such as *John* (Affector) *irritated Peter* (Affectee) *with his constant nagging*. Another pattern that stands out is the *Experiencer* and *Theme* (object of the

emotion) emotion verbs of the *love*, *adore/ обичам*[5] (*običam*, love), *обожавам* (*obožavam*, *adore*) type, e.g., *John* (*Experiencer*) *loves his new car* (*Theme*), where *Theme* is an object of an emotion, which is not necessarily triggered by that object and the eventive ranking is rather low.

Psych verbs, despite the common label, constitute a heterogenous class. Beside the subdivision into the frequently recognized major classes cognition, emotion, desideration and perception (Halliday 1994; Downing 2015), numerous subclasses with distinguishable properties have been identified (Dixon 2005; Liu 2016) and distinct participant roles have been offered: e.g., *Perceiver* and *Impression*; *Cogitator* and *Thought*; *Decision-maker* and *Course*; *Experiencer* and *Stimulus* (Dixon 2005); *Cause* and *Affectee*, *Affector* and *Afectee* (Liu 2016), etc. This multiplicity arises from, on the one hand, the abundant dimensions along which the subtypes are differentiated: e.g., directedness, degree of intentionality, aspectual properties, causality, invited or uninvited emotion and various combinations of these and, on the other hand, from linguists' attempts to capture analytically the schema-based conceptual distinctions within psych verb frames, which far surpass in detail and complexity any syntactic classification of thematic/semantic roles. Depending on the degree of granularity targeted by an analyst, these can be further split or lumped together. The important point to make is that the semantic categories employed for the purposes of word formation analysis are not coterminous with the labels of theta- or semantic roles in syntax (despite the use of homonymous, formally identical labels). Although there is uniformity in the principles of meaning-form mappings within the symbolic constructicon, constructions of different degrees of complexity embody different configurations with variable patterns of parametrization (see Evans 2016 for an elaboration of the postulate of parametrization in the correspondence between the conceptual system and the symbolic inventory within cognitive linguistics) and varying extent of explication of conceptual content. This leads to the differentiation between semantic categories in word formation and thematic/semantic role labels in syntax, despite their conceptual affinities. In more complex constructions more parametric dimensions of cognition are explicitly encoded, which are measured in terms of degree of schematicity, elaboration and abstraction (for the relevant understanding of schematicity and elaboration see Heyvaert 2010 and for abstraction Booij 2010). For analytical purposes this means that basic conceptual features and dependencies within a cognitive schema that is linguistically encoded will

5 All verbs presented in isolation, including in all tables, are given in the 1st person, singular, present tense. Aspectual differences are neither marked nor taken into account.

most likely be present in all constructions mapped with the schema irrespective of their levels of elaboration, schematicity and abstruction. Such is the case with the parallel between the lexical and clausal encoding of affectedness (patienthood, for example) (see the introductory part).

The two languages under study are recognized as nominative-accusative. English is typologically recognized as a highly analytical, isolating language (Štekauer, Valera and Körtvélyessy 2012) with a flexible part of speech system (Vogel 2000), while Bulgarian is described as a fusional-inflectional language with a moderate degree of analyticity and a rigid, overtly marked part of speech system (Nicolova 2009). In terms of *Experiencer* encoding in syntactic constructions, there are a couple of differences between the two languages, despite the overall similarities, i.e., the psych verbs in both languages allow roughly the same clausal constructions. As contrasts are more informative, only the exclusive options in Bulgarian, without parallels in English are mentioned here.

The first option available only in Bulgarian is related to reflexivity: the middle construction with a Stimulus subject with a prepositionally expressed (potentially dative) Experiencer, e.g.:

(1)

Тази	*книга*	*се*	*нрави*	*на*
Tazi	kniga	se	nravi	na
This-DEM.F	book -F.SG	itself ACC.REFL	like-PST-3-SG	to

читател-и	*в*	*по-напреднала*	*възраст*.
čitatel-i	v	po-napred-nal-a	vâzrast.
reader-PL	at	more-advanced-ADJ-F-SG	age-INDF-F

This book appeals to readers of more advanced age.

English: *This book likes itself well/by many

Another construction exclusive to Bulgarian is the impersonal construction with nominal or adverbial predicatives with dative Experiencer, such as *мъчно ми е* (mâčno mi e, [sadly to me is], '*I feel sad*'), (for details see Tisheva and Djonova 2022) with possibility for doubling of the Experiencer, as illustrated below:

(2)

Нервно	му	е	(на Иван)
Nervno	mu	e	(na Ivan)
Nervous-ADV	he-DAT	is	(to Ivan)

Ivan feels nervousness.

English: *It is angrily to John with/about/at his girlfriend's jokes.

In view of the cognitive prominence of *Experiencer* and the significance of this concept for syntactic constructions it may be expected that the same will apply to deverbal nominalizations from psych verbs, although this appears not to be the case. In the next part, the lexical constructions in the word formation type cluster *Experiencer* are discussed within the broader ecosystem of deverbal nominalizations in the languages under investigation.

4 Experiencer derivational marking in English and Bulgarian

Data presented in Štekauer, Valera and Körtvélyessy (2012) indicate that the most productive word formation processes are suffixation (95% of the languages of the world) and compounding (90%) followed by reduplication (80%), prefixation (72%) and conversion (63%). Ivanová and Bednaríková (2020, 27) report that "word-formation is primarily based on affixation in Slavic languages". In keeping with such data, extensive research on the word formation systems in English and Bulgarian has revealed that from a broad ecological perspective the following differences are noticeable: in English compounding and blending are far more productive than in Bulgarian; conversion is far more profitable and active in English than in Bulgarian, the latter associated with the overall problematic nature of conversion in Slavic languages; in contrast, affixation is almost equally viable in both languages. Numerous definitions of conversion exist, more importantly, they diverge not only in terms of essence, but also in terms of language (or language group) for which they are provided. According to Bauer, Lieber and Plag (2013, 27, 545 and 562) conversion in English is a morphological word-formation process, "a change from one word class to another with no concomitant change in form", which implies that thus understood conversion will hardly operate at all in Bulgarian. In the

Slavic analytical tradition, conversion (also known as paradigmatic or affixless derivation) encompasses diverse phenomena, where formal changes are recognized (e.g., thematic markers, inflectional affixes, etc. – for a concise overview of the issues, see Ivanová and Bednaríková 2020). To avoid confusion, for the purposes of the current research conversion is assumed not to involve any formal changes, no matter which language is discussed.

Against the background of these encoding mechanisms, the ecosystems of deverbal nominalizations in the two languages have been characterized to include the following: for Bulgarian (Avramova and Baltova 2016) – action nouns, agent nouns/female agent nouns, names of persons according to a special attribute or predilection,[6] patient nouns, object and result nouns, instrument nouns, and place (location) nouns; for English (Bauer, Liber and Plag 2013), with the restriction to the categories of personal or participant nouns – "agents, patients, themes, instruments, inhabitants, locations, and gendered forms" (Bauer, Liber and Plag 2013, 216). In the Bulgarian overview article *Experiencer* is not mentioned at all, while in the English comprehensive guide to derivational morphology *Agent* and *Experiencer* are always discussed together indiscriminately (despite the lack of *Experiencer* in the list of participant nouns).

In view of this polyfunctionality or systemic polysemy of affixes, what has to be analysed is what other nominalizations are coerced for the expression of *Experiencer* or what polysemy chains *Experiencer* marking participates in. Lieber (2016, 56) claims that

> [t]here are in fact almost no cases in English where we find a one-to-one relationship between form and reading. Looked at from the point of view of interpretations, there are very few readings that are characteristically expressed by a single affix or morphological process; more often than not particular readings can be expressed by a variety of forms.

Beside this indeterminacy of morphological types (separate affixes or processes), we also need to take into account the systematicity of constructional polysemy. That is, different available readings have to be related in a way that can be systematically explained. Booij (2005, 221) utilizes the notion of domain shift to account for the *Agent* – *Instrument* polysemy, "the notion AGENT is transferred to the domain of inanimate material things that are conceived of

6 It could be argued that conceptually the *Experiencer* in *Experiencer-Theme* frames could fall somewhere along this continuum of types – e.g., *cat lover* – someone with a propensity for loving cats.

as agents that perform a particular task". He actually adopts the natural grammaticalization path established by Heine, Claudi and Hünnemeyer (1991, 48) as a cross-linguistically valid directed chain of domain shifts within constructional polysemy networks: "PERSON > OBJECT > ACTIVITY > SPACE > TIME > QUALITY". Though this principle applies unproblematically for *Agent-Instrument*, it cannot account for the *Agent-Experiencer* extension since both remain within the *Person* region.

In view of this and to broaden Lieber's ecological metaphor, the meanings of an affix are fluidly coarticulated not only by all rival affixes populating a niche, but also by the interrelated semantic niches that have emerged in particular languages for the respective affix. Acknowledging that "there is such a great degree of overlap, polysemy, and general malleability of reading in such nouns that we need to consider the ecosystem of nominalizations as a complex, interdependent whole" (Lieber 2016, 117), in what follows an attempt is offered for such an account of the *Experiencer* niche in English and Bulgarian. Whenever there "are readings for which there is no apparent predominant form" (Lieber 2016, 56), we need to look for the coerced constructions for the respective conceptual target. The problem is that a domain-shift explanation will not work in *Agent – Experiencer* polysemy as, on the one hand, both belong to the same domain, and on the other, not all *Agent* affixes can also express *Experiencer*.

Before focusing on the constructional polysemy networks of affixation in the two languages, a broader ecological view shows that among the five most frequent word formation processes neither reduplication nor prefixation are employed for coining *Experiencer* nominalizations in either English or Bulgarian. Conversion, as a word formation process with productivity comparable to that of affixation in English, does not seem to produce *Experiencers* but yields *Patients, Agents*, *Instruments* and *Stimulus* (Lieber 2016). In Bulgarian, conversion is a process of low productivity (Avramova and Baltova 2016) but, surprisingly, it yields *Experiencers* from present active participial forms of verbs (as well as *Agents*) – e.g., *страдащ* (*stradaš*, suffering), *любящ* (*lyubyaš*, loving), *интересуващ се* (*interesuvaš se*, interested), etc. The fact that the source is an inflectional form does not undermine the word formational status of such *Experiencer* nominalizations. These are impersonal verb forms formed with the suffixes *-aš*[7], *-eš* and *-yaš*. They are used to derive all types of *Experiencers*. They correspond most closely to the behaviour of the *-ing* suffix

7 Gender-specific marking in Bulgarian is disregarded here.

in English, but since it is among the most noticeable contrasts between the polysemy networks in the niches of participant derivations in English and Bulgarian it will be further discussed below. Compounding, considered one of the most productive processes in English, yields *Experiencers – cat lover*, *woman hater*, etc. In Bulgarian, compounding (recognized as a central process in the language (Avramova and Baltova 2016)) yields the same type of *Experiencer* in a similar manner to English – *котколюбец* (*kotkolyubec*, cat-lover), *женомразец* (*ženomrazec*, woman hater). In both languages, compounding resulting in *Experiencer* nominalizations is of the verbocentric, synthetic or parasynthetic type (for a more elaborate account of compound human nominalizations in the two languages and the differences between synthetic and parasynthetic verbocentric compounds see Bagasheva (2015). Leaving bracketing paradoxes aside, it can be claimed that in *Experiencer* nominalizations in the two languages compounding goes hand in hand with affixation. Notably, in Bulgarian, *Experiencer* compounds include as the right member a form that is either not a lexeme in isolation or has a different meaning, e.g., neither **любец* (*lyubec*, lover), nor **мразец* (*mrazec*, *hater*) are attested lexemes in Bulgarian, i.e., parasynthesis is the norm in *Experiencer* compound nominalizations. In both languages *Experiencers* associated with (volitional) emotional states directed towards a *Theme* are encoded by compounding, where the first constituent is the *Theme* and the second the deverbal *Experiencer*. In Bulgarian the most frequent affix in Experiencer compounds is *-ец* (*-ec*), followed by *-тел* (*-tel*), while in English the most productive one is *-er*. A summary of the utilization of different word formation processes employed in the two languages for populating the word-formation type cluster (with no reference to the separate onomasiological types identified by Štekauer 1998, 2001, 2005) is presented in Table 1.

Table 1. Word-formation Type Cluster Experiencer by process type.

	English	Bulgarian
Suffixation	√	√
Compounding	√	√
Reduplication		
Prefixation		
Conversion		√

As suffixation is a comparably productive process in both languages, greater attention is devoted to separate suffixal patterns in the remainder of this part.

Table 2 below presents the suffixation part of the habitat of *Experiencer* in English and Bulgarian, with the English data taken from Bauer, Lieber and Plag (2013) and Lieber (2016) and the Bulgarian data harvested from the Bulgarian Reverse Dictionary, Bulgarian Derivational Dictionary, Dictionary of New Words in Bulgarian and a series of relevant scholarly books and articles (referenced below under Data Sources). Table 3 presents the suffixal ecosystems of referential participant nominalizations in the two languages and establishes the polysemy networks in which suffixal *Experiencer* nominalization participates. The suffixes for all deverbal participant nominalizations are presented, where unlike in the English source *Agent* and *Experiencer* are presented separately. *Stimulus* is used as a blanket term encompassing *Theme*, *Affector* and *Stimulus* proper, because *Stimulus* is the most prototypical nominalization and, consequently, apart from the tendency for specialization of (para)synthetic compounding for *Experiencer-Theme* conjoining in a single lexeme (see *woman hater* and *женомразец* (*ženomrazec*, woman hater) above), there are no other discernible specializations (with the exception of *-ач* (*-ač*) suffixation in Bulgarian, commented on below).

Table 2.[8] Word-formation Type Cluster *Experiencer* by suffixal patterns.

	Experiencer
English	*-ant (-ent)*; *-ee, -er, -ist*
Bulgarian	*-ač (-jač); -ec; -lyo; -or; -tel; -yor*

8 Table 2 is actually derived from Table 3 after the exclusion of claimed but not attested affixes for *Experiencer* derivations.

Table 3. Referential participant deverbal nominalizations by suffixal patterns.

	Agent[9]	**Instrument**	**Patient**	**Experiencer**	**Stimulus**
English	*-ant (-ent)*; *-ation*; *-ee*; *-eer; -er*; *-ing; -ist; -meister; -or; -ster*	*-ance*; *-ant*; *-ation*; *-er*; *-ing*; *-ment; -or*	Animate *-ee*; *-er*; Inanimate *-age*; *-al*; *-ance*; *- ation*; *-ee*; *-er*; *-ery; -ing*; *-ity*; *-ment*; *-ure*	*-ant (-ent)*; *-ation*; *-ee*; *-eer; -er*; *-ing; -ist; -meister; -or; -ster*	*-ant (-ent)*; *-er*; *-ist; -ment; -or;*
Bulgarian[10]	*-ar* (*-jar*); *-ač*; *(-jač)*; *-ant/ ent*; *-ator/ itor*; *-ec*; *-(n)ik*; *-or*; *-tel; -yor*	*-ar (-jar)*; *-ač (-jač)*; *-olo/-ilo/-(i) lka*; *-ec*; *-(n) ik*; *-or*; *-tel; -yor*	*-ar (-jar); -ač;(-jač); -ie; -nie; -ivo; -ec; -(n)ik; -or; -tel*	*-ač (-jač); -ec; -lo; -lyo; -or; -tel; -yor*	*-ač (-jač); -ec; -lo; -tel; -yor*

As can be gleaned from Tables 2 and 3, *Experiencer* is not "an unexploited semantic niche" (Lieber 2016, 57) and a number of suffixes populate it. The nature of this semantic niche and its population is, however, never discussed in its own right in the word formation literature. It is always indiscriminately included in the company of *Agent*, *Instrument* and *Stimulus*. The lack of semantically and word-formationally annotated comparable corpora for the two languages makes it impossible to provide quantitative analysis of the frequency of the separate affixes, or to stipulate on the language-internal onomasiological competition between them (which explains their alphabetical

9 The suffixes are arranged alphabetically without any claim for productivity or frequency rating. The English ones, with the exception of *Stimulus*, have been taken from Bauer, Lieber and Plag (2013) and Lieber (2016) with their participant encoding potential preserved as in the original. The analysis reveals that the *Experiencer* ones are not as numerous as this indiscriminate lumping together of Agent and Experiencer in the sources suggest. The Bulgarian ones have been self-compiled on the basis of extensive research.

10 There are affixes to specifically mark Experiencer in the feminine gender in Bulgarian such as *-a*, *-la* and *-k*a, but delving into the peculiarities of gender-distinct affixation is beyond the scope of the current chapter.

ordering in Table 2 and in Table 3). The qualitative discussion offered here focuses on contrasting the polysemy chains of the affixes used for *Experiencer* encoding in the two languages. To substantiate the data in Table 2 a procedure of manually screening the reverse dictionaries of the two languages (English – 2002, Bulgarian – 2011) was accomplished.

As naturally follows from the embodied cognition thesis (see Gibbs 2005 for a discussion of embodiment in cognitive science) in cognitive linguistics, physical events serve as the basis for conceptualizing mental events. Parallels between the conceptualization of physical events and mental events are expected, as well as commonalities in their construal in constructions of different complexity, which suggests that any noted differences will be highly informative. Before focusing on a discussion of the most productive separate affixal patterns, an overview of the polysemy networks of participant deverbal nominalizations in the two languages is presented.

In both English and Bulgarian the word formation cluster types of *Agent*, *Patient* and *Experiencer* are more densely populated by potential realizations than the ones of *Instrument* and *Stimulus*. In both languages there is at least one uninterrupted polysemy chain encompassing all five types (examples follow the ordering of types as in Table 3): e.g., English – *-er*: *baker*, *stapler*, *beater*, *dreamer*, *downer*, Bulgarian – *-ец* (*-ec)*: *крадец* (*kradec*, thief), *четец* (*četec*, reader), *ленивец* (*lenivec*, lazybones), *страдалец* (*stradalec*, sufferer), *живец* (*živec*, stimulator). In other affixal patterns there are conspicuous gaps: while in Bulgarian *Patient* is conspicuously missing with regard to *-tel* suffixation: *писател* (*pisatel*, writer), *излъчвател* (*izlâčvatel*, emitter), *мечтател* (*mečtatel*, dreamer), *дразнител* (*draznitel*, irritator), in the English *-ist* suffixation *Patient*, *Instrument* and *Stimulus* are missing: *pianist*, *agonist*. The reasons for such polysemy constellations are too numerous and complex, and require dedicated research beyond the scope of the current review. In short, there are notable parallels and fewer contrasts between the two languages. The contrasts concern the polysemy of separate suffixal patterns, but do not indicate any more fundamental contrasts that might correlate with the more conspicuous contrasts in the syntactic constructions employed for encoding Experiencer (see part 3 above).

Worthy of comment is the contrast between the two languages in seamlessly employing the inflection-derivation gradient. In both languages an inflectional form via conversion can yield both *Agents* and *Experiencers* – the *-ing* form in English and the active present participle form in *-ащ* (*-aš*),

-ещ (*-eš*) and *-ящ* (*-yaš*) in Bulgarian. The conversion or meaning extension process from the participle in Bulgarian results in adjectives and participant nouns exclusively, while *-ing* in English can produce action noun, event, agent, result, patient, an adjectival reading, an adverb reading, and so on. Probably due to its extensive polysemy chain (far beyond participant nominalizations) and also because it is the most inflectional of all the affixes used for participant nominalizations, it does not yield *Experiencer*. Even though the participles in the two languages may be assumed to be functional equivalents in terms of agentive and adjectival meanings, the similarities stop here. Corresponding to the other readings of *-ing*, in Bulgarian the following dedicated affixes are used: *-(а)не* (*-(a)ne*) – action noun, e.g., *писане* (*pisane*, writing), учене (*učene*, learning/studying); *-ащ* (*-aš*), *-ещ* (*-eš*) and *-ящ* (*-yaš*) – the adjectival reading, e.g., *разбиращ* (*razbiraš*, understanding), *обичащ* (*običaš*, loving), *мечтаещ* (*mečtaeš*, dreaming), *любящ* (*lyubyaš*, loving); *-айки* (*-ayki*), *-ейки* (*-eyki*) – the adverbial reading, e.g., *пеейки* (peeyki, singing), *смеейки се* (*smeeyki se*, laughing); *-ба* (*-ba*), *-еж* (*-ež*), *-ние* (*-(n)ie*), *-иво* (*-ivo*), *-ка* (*-ka*), *-ница* (*-nica*) – result, e.g., *резба* (*rezba*, carving), *строеж* (*stroež*, building), *послание* (*poslanie*, message), *плетиво* (*pletivo*, knitting), *отливка* (*otlivka*, casting), *драскаица* (*draskanica*, scribbling). This plethora of specialized deverbal suffixes accounts for the lack of extensive polysemy between participant encoding means and other nominalizations in Bulgarian. Thus, it seems that *Experiencer* is contrastively marked within the ecology of deverbal nominalizations in both languages: the most polysemous of all nominalizing affixes *-ing* in English does not yield *Experiencer* nominalizations, while one of the least productive processes in Bulgarian (conversion from an inflectional source) produces only *Agents* and *Experiencers* within referential participant deverbal nominalizations. More generally, in English participant nominalizations are part of synonymous chains with other deverbal nominalizations, while in Bulgarian no such overextension in deverbal nominalizations from psych verbs is detectable (where participant nominalization is a subset of deverbal nominalizations including other readings such as action, state, and result).

The polysemy networks indicate that there is a systematic polysemy between *Agent* and *Experiencer* in both languages, which cannot be explained via Booij's (2005) domain extension principle of accounting for affixal polyfunctionality (see above), although the remaining extensions of affixal functions can (across the whole spectrum of deverbal nominalizations). The explanation is more comprehensive, fundamental and conceptually primitive

– mental events are modeled conceptually and linguistically after physical events in a seamless unity grounded in the embodied nature of human cognition and its linguistic encoding. This parallel runs at all levels of patterning of meaning and form in language and is far more fundamental than the metonymic domain extensions.

At the level of lexical constructions, a consistent (although not absolute, e.g., *attendee* (*Agent*) vs. *scratcher* (*Patient*)) tendency for correspondences has been established in the differential and corresponding affixal encoding of *Agent* and *Patient* in physical events – in English *-er* (*writer*) vs. *-ee* (*amputee*), but not in Bulgarian – *съветник* (*sâvetnik*, adviser) vs. *наемник* (*naemnik*, hireling). The removal of animacy from agentivity (the former preserved in *Experiencer* in mental events) and a reversal of the directionality of causality / triggering of an event between *Agent – Patient* in physical events, where the *Agent* is cause/trigger and the *Patient* is the affected entity within the conceptual frame, and *Stimulus – Experiencer* in mental events, where the *Stimulus* is the cause/trigger and the *Experiencer* the affected entity in the frame, may explain why there is no such correlation in lexical encoding of mental events.

It transpires that *-ee* in English is involved in the derivation of psych verb nominalizations, used for the encoding of *Experiencer*, e.g., *amusee, Affectee*, e.g., *offendee,* and *Themes* in emotion *Experiencer-Theme* configurations, e.g., *hatee*, where the conceptual dimensions of causativity and affectedness are to a large extent preserved. This fact is indicative of the dependence of the conceptualization (and theorizing) of *Experiencer* on the idea of agentivity and the dependence of lexical encoding of mental events on established patterns for physical events. In the same vein of reasoning, Baeskow (2015, 251) provides a generalized derivational schema for *-er* derivations of low agentivity, or to be more specific, mental event participants, such as *believer*, noting that they "entail 'introspective sentience'" for their external argument:

[<E<x^{ext}>>, -dynamic]] [<R>, [+common, +concrete, +animate, +human]

→ PROTO-AGENT <introspective sentience, independent existence>

(type *lover*, *thinker*, *believer*)

In short, *-er* is systematically used for encoding both *Experiencer* and *Stimulus/Affector* in English. For example, Bauer, Lieber and Plag (2013, 218) specifically list *Experiencer* nouns but under the heading of *-er* attaching to "verbs

taking sentential complements: *[…], hoper, […], realizer, reckoner, resolver, […] theorizer, thinker, reasoner, wonderer*", i.e., Experiencers in cognitive events, where the agentivity-based semantic dimension of "introspective sentience" is inherently present.

Interestingly a special group of *Stimulus* nouns is identifiable in English, in which compounding and affixation join forces again: "*bringer-downer, cheer-er-upper, exciter upper, pepper upper, perker-upper, picker-upper, thinker-upper*" (Bauer, Lieber and Plag 2013, 218). These derivations display an inherent polysemy chain extending from *Agent* and *Affector* to *Stimulus*, operative also from simple bases, e.g., *howler*, *puzzler*, *pleaser*, but does not involve *Experiencer* nominalizations. In Bulgarian this polysemy chain is operative exclusively in suffixation, but does not involve compounding.

Even though in discussing affixes in English Bauer, Lieber and Plag (2013) lump together *Agent*, *Experiencer* and *Instrument*, the productivity of the suffixes *-ant (-ent)*; *-ation*; *-eer; -meister;* and *-ster* as Experiencer affixes seems to be approaching zero, if we are to judge by their measurement of productivity (novel formations in corpora, not attested in OED). None of the examples they provide for these affixes names *Experiencer*. Kawaletz and Plag (2015, 298) establish that "*-ment* almost exclusively attaches to verbs from two clearly defined sub-classes of PSYCH VERBS, i.e., AMUSE VERBS and MARVEL VERBS" (emphasis in the original). The authors further discover that this affix can (via metonymic transpositions or domain extensions) encode *Event*, *State* and *Stimulus*, but never *Experiencer*. The Bulgarian affixes corresponding most closely to *-ment* are *-не* (*-ne*), which names *Action* and *Event* and *-ние* (*-nie*), which encodes *Event*, *State* and *Result*, but neither can encode *Stimulus* or *Experiencer*, e.g., *тресене* (*tresene*, shaking), *назначение* (*naznačenie*, appointment), *лечение* (*lečenie*, treatment).

Among the Bulgarian set of affixes the ones used most frequently to produce *Experiencer* are *-тел* (*-tel*) and *-ец* (*-ec*), *e.g., мечтател* (*mečtatel*, dreamer), *страдалец* (*stradalec*, sufferer), *обожател* (*obožatel*, adorer), etc.). The affix *-tel* can be used for all subtypes of *Experiencer* and is also systematically used to produce *Affector* and *Stimulus* (just as the case with the English *-er,* e.g., *дразнител* (*draznitel*, teaser), *подбудител* (*podbuditel*, instigator, trigger), etc.), but there is no clear process or pattern for nominalizing *Affectee* or *Theme* from a verbal base apart from conversion from a passive past participial form of the verb (e.g., (*обичан* (*običan*, loved), *мразен* (*mrazen*, hated), *разочарован* (*razočarovan*, disappointed), etc., just as in English *loving* vs.

loved). *-Ач* (*-ač*) seems to be specialized for perceptual *Experiencer* and that for cognitive events – e.g., *подслушвач* (*podslušvač*, '*eavesdropper*'), *познавач* (*poznavač*, *connoisseur*) – although *-tel* is also used as frequently for such derivations. The specialization status is rendered by the fact that *-ač* is not used to produce other types of *Experiencers*.

The overview analysis of the extensive polysemy chains in the ecosystem of deverbal nominalizations in English leads Lieber (2016, 8) to the conclusion that "nominalizations do not have fixed meanings, but that they can take on a variety of readings by virtue of their sparse lexical semantics and the filling in of their representations in contexts". Even though this may be true of the ecosystem of English nominalizations, this level of malleability is not characteristic of the ecosystem of nominalizations in Bulgarian. The extensive polysemy chains in English include across-the-board deverbal nominalizations, including event, result, location, etc. readings alongside participant readings. In Bulgarian there is a clear line between participant deverbal nominalizations and other deverbal nominalizations. Systemic polysemy is detectable only within the niche of participant deverbal nominalizations. Whether we are talking about polysemy – in the sense that "the semantic relationship between two patterns is still perceived synchronically" and perceived "as a relationship of motivation" (Rainer 2014, 349) – or of absolute indeterminacy, does not preclude the fact that this property obtains within a narrower semantic niche (participant encoding) in Bulgarian and seems to be an across-the-board feature of the ecosystem of nominalizations in English (with the exception of a few less productive but specialized suffixes such as *-eer*, *-meister*, which seem not to be very active).

5 Concluding remarks on the (conceptual) ecology of Experiencer marking

The exploratory, qualitative review of the onomasiology of *Experiencer* in English and Bulgarian presented above revealed no unique morphological type for *Experiencer* deverbal derivations. Rather this participant nominalization shares almost all of its encodings with *Agent* and less frequently with *Instrument* and *Stimulus*. This seems a discrepancy in the face of the pronounced anthropocentricity of language (Dirven and Verspoor 2004) and the special conceptual status assigned to Experiencers by Landau (2010), but is a natural consequence of the embodied nature of human cognition and the

cognition-language interface, further supported by the human tendency to approach the conceptualizing of unfamiliar domains via modeling them after more easily accessible, tangible and familiar domains, which underlies conceptual metaphor theory (Lakoff and Johnson 1980).

The analysis of the data in both languages suggests that the syntactically relevant special properties of psych verbs do not translate into derivational patterns and processes, with the notable exception of *Theme* being preferably marked with *-ee* as opposed to Stimulus with a marked preference for *-er* encoding, e.g., *hatee*, *adoree* vs. *bringer-upper*, *downer*, etc. There does not seem to be any higher generalization or abstractive schema that could capture special psych verb properties (which admittedly have been formulated within syntax-informed research contexts) and patterns of *Experiencer* derivations simultaneously (despite the admirable attempt for an overarching, whole-system generalized account of nominalizations of Heyvaert (2010)).

Experiencer seems not to be a derivationally individuated category in either English or Bulgarian. There are no dedicated affixal patterns or types for exclusively marking *Experiencer*. In both languages there is full constructional polysemy of *Agent* and *Experiencer* and the constructional polysemy frequently extends over to *Patient*, *Instrument* and *Stimulus*, with a tendency for a reduction in the number of available patterns for *Instrument* and *Stimulus*. Despite the natural metonymy-based polysemy between *Agent* and *Instrument*, there seem to be in both languages exclusive patterns differentiating between *Instrument* on the one hand and *Experiencer* and *Stimulus* on the other, and an overlap between *Instrument* and *Stimulus* marking to the exclusion of *Experiencer*.

Beside the high degree of similarity between the niches of participant nominalizations in the two languages, a few notable contrasts can be noted. Among the significant differences the following should be mentioned: *-ing* is not used for marking *Experiencer* in English, while one of the patterns corresponding to this polysemous element, the noun converted from the present active participle in Bulgarian, systematically and exclusively names *Experiencer* (and *Agent*) and is not contextually coerced to derive any of the other participant roles. "The population of the semantic niche" (Lieber 2016) of *Experiencer* in the two languages displays different networks of intra-niche relations. In English the participant semantic niche extends over to other types of nominalizations as well (event, result, action, quality (i.e., adjectival reading), manner (adverbial reading (e.g., *-ing*), in Bulgarian

participant nominalizations are more sharply delineated from other niches in the ecosystem of nominalizations with a plethora of specialized deverbal suffixes. This coheres with the different types of part of speech system that the two languages are characterized with and the more strongly expressed fusional-inflectional character of Bulgarian.

The reasons for the lack of prominence of *Experiencer* marking in word formation may be of a conceptual nature (i.e., due to the cognition-language interface); language specific (niche structuring of the word formation ecosystem and its place within the ecology of the respective language) or metalinguistic (i.e., associated with the science of language – the lack of adequate tools of analysis, level of delicacy of analysis or diversity in terminology, etc.). Peirce's epiphany that "indeterminacy belongs only to ideas; the existent is determinate in every respect; and this is just what the law of causation consists in" (Peirce, CP 8.330) still rings true.

Probably the most conspicuous and plausible conceptually grounded reason is the fact that "what is happening in the mind is not outwardly apparent to the observer. Hence, the actual mental event – state or process, for example – is a construal by the observer who produces" (Croft et al. 2018, 8) a linguistic expression for describing the mental event. Closely related with this argument is the recognition of the lack of "physical transmission of force between the external situation and the person's mental state. Hence there is no force dynamic relation between participants" (Croft et al. 2018, 8). Ensuing from this is the metalinguistic preoccupation with physical event studies (Croft 2012; Goldberg 1995; Levin and Rappaport Hovav 1995, 2005; Talmy 1976, 1988, etc.), associated with Langacker's (2004) canonical event model, which can be captured by the billiard-ball model or the series of action chain abstractions, which are associated with the archetype roles of *Agent* and *Patient* and the restricted attention paid to (some types of) mental events (Croft et al. 2018).

The most substantial reason stemming from the language-cognition-metalinguistic interface is the impossibility for theorists to devise an abstract schema that can coherently encompass the diversity of mental events which we humans conceptualize as involving an *Experiencer*. The attempts of scholars to design an analytical model have led to the specialized descriptive schema for capturing the nuances of mental event conceptualizations as reflected in language, presented in Table 4 and taken from Croft et al. (2018, 13). In this the scholars offer a minimal model of mental force dynamics.

Table 4. A specialized descriptive schema for capturing the nuances of mental event conceptualizations as reflected in language (see Croft et al. 2018, 13).

Label	**Definition**
Attend	*Experiencer directs attention to Stimulus: dynamic, volitional, no change to Stimulus.*
Affect	*Stimulus causes change of mental state of Experiencer: dynamic, causative. Used also to describe a Beneficiary/Maleficiary subevent in other types of events.*
Experience	*A perceptual, cognitive or emotional relation holds between Experiencer and Stimulus: stative (or inceptive), Experiencer is grammatical subject.*
Experience*	*A perceptual, cognitive or emotional relation holds between Experiencer and Stimulus: stative (or inceptive), Stimulus is grammatical subject.*
Judge	*Experiencer discerns or confers a perceptual, conceptual or evaluative status on an entity or a relation between entities: dynamic, volitional, no change to Stimulus.*
Intend	*Agent intends to act on another participant in some way but action on the participant is not realized: no change (yet) to participant. Used also to describe a Purpose subevent in other types of events.*
Engage	*A relation between an argument denoting a participant and another argument denoting the event/subevent that the participant is involved with. The participant is a core participant in the event.*
Refrain	*A relation between an argument denoting a participant and another argument denoting an event/subevent that the participant ends up not being involved with. The participant is a core participant in the event.*

The impossibility of abstracting a high-level generalizing schema that encompasses the totality of nuanced mental events is associated with the multiple possible constructional configurations, which capture the most central types of relations enumerated in the table above. This detailed representation of cross-linguistically applicable differentiation with validity for syntactic configurations seems of no immediate significance for the word formation encoding of participants in mental events. After the Relational Hypothesis, which holds that "[a]ll rules/schemas can be used relationally, while only a subset of them can be used generatively as well", "the grammar is grounded in the relations among lexical items", and "generativity is the add-on, albeit a very important one" (Jackendoff and Audring 2020, 4). In other words, the relational networks among word formation schemas, i.e., the constructional polysemy networks, encode the essential conceptual distinctions, which may

be abstracted and be used in a more generatively operational manner in constructions of higher constituent complexity.

Another closely related reason from the cognition-language-study of language interface is the recognition of prelinguistic abstract conceptual, universal categories of *Agent* and *Patient*. Rissman and Majid (2019) claim that there is a panhuman cognitive bias for distinguishing *Agents* and *Patients* as abstract prelinguistic conceptual categories and a conspicuous tendency to markedly discriminate between them linguistically (and behaviourally), with a lack of evidence for such a clear tendency for other participant roles (in conceptual schemata). Against Booij's (2005) view of domain extensions within the polysemy chains of an affixal secondary schema accommodating various constructions, it is safe to hypothesize that such extensions within a single event type (e.g., physical event – Langacker's canonical event) are based on the cognitive mechanism of metonymy, the *Agent-Patient-Instrument* polysemy chain for example, where metonymy is understood as "a contiguity-based figure/ground effect between elements of a conceptual frame or between the frame as a whole and one of its elements (or vice versa)" (Koch 1999, 154). The same type of polysemy holds within the chain of mental events between *Experiencer* and *Stimulus*, for example. The *Agent-Experiencer* extension, however, results from the conceptual blending (Fauconnier and Turner 2022) in the overall cross-domain mapping between the canonical event model and the mental event model, in which the newly emergent structures have blended features, without directly inheriting properties from either input.

This coheres with Croft's (1993) claim that psych verbs do not fit with transitivity (and vary substantially in terms of causality and volition), from which we can conclude that despite almost identical lexical encoding of *Experiencer* and *Agent* some mismatches occur. The lack of specific lexicalization of *Experiencer* runs parallel to its co-lexicalization with *Agent*, *Stimulus*, *Affector*, *Affectee*, and *Theme*. Such patterns are assumed to indicate semantic affinity between the co-lexicalized concepts and suggest a degree of conceptual conflation of frequently co-lexicalized roles (Rissman and Majid 2019, 1852). The nature of the semantic affinities of *Experiencer* with the other referential deverbal nominalizations is a tempting avenue for further research.

Although the current review is far from a full account of the ecosystems of participant nominalizations in English and Bulgarian, it is a first step in this direction from a contrastive perspective and the backbone for future research.

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What Do Event-Related Potentials Reveal about Processing Grammatical Aspect in Bosnian/Croatian/Serbian? – A Comparison with English Aspect

Nermina Čordalija, University of Sarajevo, Bosnia and Herzegovina

Roelien Bastiaanse, University Medical Center Groningen, The Netherlands

Srđan Popov, University of Groningen, The Netherlands

Abstract

Grammatical aspect expresses information about the temporal contours of an event. Such essentially semantic information is encoded via aspectual affixes in Bosnian/Croatian/Serbian (BCS) and periphrastically in English. As a South Slavic language, BCS grammaticalizes the binary opposition between imperfective and perfective aspect, while English distinguishes between the progressive and the perfect. Generally, grammatical aspect is obligatorily expressed on the verb in BCS but not in English. In an event-related potentials (ERP) experiment, we study the electrophysiological responses to aspectual violations in BCS. The robust P600 suggests that aspectual violations in BCS trigger repair processes as the parser detects the aspectually incongruous form and repairs it so that it can fit a wider sentential context. We then compare our ERP study on BCS aspect violations with an ERP study on English aspect violations by Flecken, Wallbert and Dijkstra (2015), and discuss the cross-linguistic differences between two inherently different grammatical aspect systems, BCS and English.

Keywords: aspect, event-related potentials, P600, English-Bosnian/Croatian/Serbian analysis

1 Introduction

Tense and aspect express the time frame of an event (Smith 1991; 1997; 2013; Bastiaanse 2013). Tense locates the event in time by relating the event time to the speech time (Comrie 1976; 1985). Grammatical aspect expresses the speaker's perspective of the internal temporal constituency of the event (Comrie 1976; 1985). Slavic aspectual oppositions 'imperfective' and 'perfective' are typically treated as prototypical exemplars of aspectual oppositions (Binnick 1991). The choice of perfective aspect for a particular utterance gives a holistic view of the event without recognizing different stages that make up the event, whereas the choice of imperfective aspect provides an internal view of the event, making semantically visible the stages of the event (Comrie 1976; Gasparov 1990; Smith 1991; 1997; 2013; Filip 1999; Madden and Zwaan 2003).

1.1 Aspect in Bosnian/Croatian/Serbian

Novak-Milić and Čilaš-Mikulić (2013) define BCS aspect as a lexical-grammatical category that differentiates between the imperfective and perfective. Very few aspectually ambiguous exceptions aside, in BCS the imperfective and perfective aspects are always expressed on the verb, which entails that each verb is either imperfective or perfective (Riđanović 1976; 2012; Stevanović 1989; Jahić, Halilović and Palić 2000; Klajn 2001; Silić and Pranjković 2007; Čirgić, Pranjković and Silić 2010; Novak-Milić and Čilaš-Mikulić 2013). Since finite verbs as well as the non-finite forms are generally marked for aspect, aspect in BCS, hence Slavic, is intrinsic to time reference (De Swart 2012; Riđanović 2012).

1.1.1 Formal realization

In standard BCS textbooks (as well as traditional Slavic aspectology in general) it is postulated that imperfective and perfective forms are morphologically related because aspectual meanings are conveyed by aspectual affixes (Stevanović 1989; Jahić, Halilović and Palić 2000; Klajn 2001; Silić and Pranjković 2007; Čirgić, Pranjković and Silić 2010). Jahić, Halilović and Palić (2000) describe two opposite processes in BCS: perfectivization – the derivation of perfective verbs from the imperfective ones as in (1), and imperfectivization – the derivation of imperfective verbs from the perfective ones as in (2).

(1)

šaptati$_{\text{IPFV}}$ – *šapnuti*$_{\text{PFV}}$: 'to be whispering' – 'to have whispered'

(2)

zaraziti$_{\text{PFV}}$ – *zaražavati*$_{\text{IPFV}}$: 'to have infected' – 'to be infecting'

Traditional BCS and Slavic linguistics also assumes that a minority of verbs are inherently perfective (e.g., Novak-Milić and Čilaš-Mikulić 2013), while most verbs are inherently imperfective, deriving the perfective form by prefixation, as can be seen in (3) (Riđanović 1976; 2012). A verb can also be perfectivized by changing the suffix in the imperfective stem, as in (4) (Silić and Pranjković 2007; Čirgić, Pranjković and Silić 2010).

(3)

pisati$_{\text{IPFV}}$ – ***na****pisati*$_{\text{PFV}}$: 'to be writing' – 'to have written'

(4)

*bac****a****ti*$_{IPFV}$ – *bac****i****ti*$_{PFV}$: 'to be throwing' – 'to have thrown'

Klajn (2001) and Riđanović (2012) point out that it is not uncommon that aspectual affixes (prefixes in particular) introduce a new meaning component to the semantics of the verb, as in (5).

(5)

ići$_{\text{IPFV}}$ (*to go*) – *otići*$_{\text{PFV}}$ ('to go way')
doći$_{\text{PFV}}$ ('to come')
ući$_{\text{PFV}}$ ('to enter')
izaći$_{\text{PFV}}$ ('to leave')
preći$_{\text{PFV}}$ ('to cross')

Perfectivizing prefixes such as the ones in (5) are typically referred to as 'lexical prefixes' (Ramchand 2004; Gehrke 2007; Altshuler 2014 among many others), as they modify the lexical meaning of the verb: the derived perfective verbs in (5) do not have the same semantics as the root imperfective form. In such examples, aspectual morphology derives verbs with semantics different from the unprefixed imperfective verb form. This implies that some aspectual affixes resemble a derivational morphology that derives new lexemes rather than different word forms of the same lexeme (Bybee 1985).

This is precisely the most curious feature of BCS, and Slavic aspectual systems more generally – their morphology. Such a lexical nature of some of its morphology has inspired linguists to describe the nature of Slavic aspect as lexical-grammatical (e.g., Novak-Milić and Čilaš-Mikulić 2013). Nevertheless, BCS and Slavic aspect is a grammatical category because it does not relate to the inherent features of the verb (as lexical aspect) but rather expresses a speaker's viewpoint and it is grammaticalized. Slavic aspectology, however, shows a lack of agreement when it comes to the exact grammaticalization means. The traditional literature that treats aspectual partners as pairs of the same lexeme (the views outlined above) predicts that grammaticalization unfolds via affixes. That aspectual partners are forms of one lexeme is also supported by some psycholinguistic evidence (e.g., Anstatt and Clasmeier 2012).

However, it was shown in (5) that some affixes not only alter the semantics of the verb but consequently affect its argument structure (*ići*$_{\text{IPFV}}$ ['to go' – intransitive] – *preći*$_{\text{PFV}}$ ['to cross' – transitive]; Stevanović 1989). For this reason, some studies on aspect assume that grammaticalization is achieved via affixes but that not all affixes morphologically express grammatical aspect and that some actually mark lexical aspect (Gehrke 2004; 2007; Ramchand 2004; Slabakova 2005; Sussex and Cubberley 2006).

Some also claim that affixes do not mark grammatical aspect, but that the stems of what are traditionally considered aspectual partners (e.g., *lomi-* and *slomi-* 'to break', see 8 above) are stored in the lexicon (e.g., Willim 2006; Filip 2003; 2017; Klimek-Jankowska et al. 2018). Another instance of disagreement arises here: some studies assume that stems are already specified for aspect in the lexicon (e.g., Klimek-Jankowska et al. 2018), while others that stems are aspectless in the lexicon and that the aspect feature is acquired in the course of derivation (Tatevosov 2011).

Our goal is not to defend the basis of the above-presented theoretical approaches, as our experimental study does not probe into aspectual morphology and derivation *per se*. However, we aim to very briefly touch upon the complexity of the Slavic aspect analysis before focusing on the assumption relevant for the current work, one that is actually common to all the divergent views above, that Slavic and BCS grammaticalizes aspect.

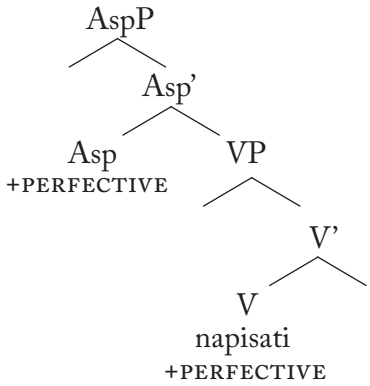
More precisely, for our study that only contains perfectivizing affixes and not lexical affixes that introduce new semantics to the verb, we assume that verbs originate in the lexicon as imperfective or perfective and that aspectual morphology supplies the aspectual value. Moreover, following the theoretical

accounts of time reference proposed by Mezhevich (2008; for Russian) and the feature-checking mechanism as described by Pesetsky and Torrego (2004), we assume that in BCS the functional category for grammatical aspect (Aspect Phrase) is projected. We also postulate that aspect is grammaticalized via affixes. At some point in the derivation, affixes have to be associated with the functional head *Aspect*, where the semantic (formally dubbed as 'interpretable') feature [±perfective] needs to be checked. According to Pesetsky and Torrego, feature-checking means that the functional head *Aspect* carries the initially unvalued feature [±perfective] that is valued (i.e., checked) as, say, perfective only when the lexical item such as *napisati*$_{\text{PERF}}$ ('to have written') carrying the perfectivizing prefix enters the derivation of the sentence. For BCS, this means the following.

First, the verb enters the derivation with a valued aspect feature. The concrete value of the aspect feature depends on the morphological form of the verb. For example, the verb *napisati* ('to write') is perfective due to its perfectivizing prefix *na-*. Then, in BCS, the functional category for grammatical aspect (Aspect Phrase) is projected. The functional head *Aspect* contains the yet unvalued feature [±perfective]. The feature gets valued by agreement with the [±perfective] feature of the verb. In the case of *napisati* ('to write'), the feature [±perfective] of the functional head *Aspect* gets valued as [+perfective] via agreement with the verb that carries the [+perfective] feature as illustrated in (6). Therefore, it is verb morphology that determines the aspect feature.

(6)

Derivation of Aspect Phrase



However, there are constraints in the context when the aspect feature is marked [+ perfective] that are important for experimental studies. Therefore, another relevant phenomenon concerning BCS aspect is its syntactic distribution.

1.1.2 Function

According to Riđanović (1976; 2012), there are three broad aspectual meanings in BCS: punctual (action took place at some point in time), durative (action ongoing), iterative (action repetitive). Perfective aspect expresses what Riđanović calls the punctual meaning as in (7), while imperfective aspect conveys the durative as in (8) and iterative meanings as in (9). All standard textbooks in all variants of BCS rely on these common descriptions (Jahić, Halilović and Palić 2000; Klajn 2001; Silić and Pranjković 2007; Čirgić, Pranjković and Silić 2010).

(7)

Učenici	su	napisali	esej.
Students	AUX	$\text{wrote}_{\text{PFV}}$	essay

'Students wrote an essay.'

(8)

Učenici	sada	pišu	esej.
Students	now	$\text{write}_{\text{IPFV}}$	essay

'Students are now writing an essay.'

(9)

Učenici	često	pišu	eseje.
Students	often	$\text{write}_{\text{IPFV}}$	essays

'Students often write essays.'

However, perfective verb forms cannot be used to express the present unfolding at the time of speech as (10) and (11) show (Riđanović 1976; 2012, Klajn 2001; Novak-Milić and Čilaš-Mikulić 2013).

(10)

*Sada napišem	esej.	
Now write$_{1SG.PRS.PFV}$	essay	

'I write an essay now.'

(11)

*Učiteljice trenutno	upišu	ocjene	u	dnevnik.
Teachers currently	write$_{PRS.PFV}$	grades	in	gradebook

'Teachers currently write grades in the gradebook.'

It is aspectual violations that arise when the perfective verb form is used in the real present contexts as in (10) and (11) that we investigate in our ERP study. We assume that in sentences such as (10) and (11), the temporal frame of the sentence is determined by the semantics of the adverbial *trenutno* ('currently') and *sada* ('now') and set as the real present. Upon encountering the perfective verb *upišu*$_{PFV}$ ('to have written') or *napišem*$_{PFV}$ ('to have written'), the perfective meaning of completion expressed by the verb violates the real present temporal frame. Essentially, this is a semantic violation because the verb *upišu*$_{PFV}$ ('to have written') and the verb *napišem*$_{PFV}$ ('to have written') are morphosyntactically well-formed (the forms are a legal combination of a prefix and a stem). What is in conflict here is the semantics of the temporal lexical adverb and the perfective verb. The question we ask in the ERP study is whether this violation is perceived by native speakers as a semantic violation or a morphosyntactic one despite its semantic origin.

To provide a contrastive analysis of our ERP findings and the first ERP study on this type of aspectual violations, the work of Flecken, Wallbert and Dijkstra (2015) on aspectual violations in English, a theoretical description of English aspect and its comparison to BCS aspect are all discussed below.

1.2 Grammatical aspect systems: English versus BCS aspect

English and BCS aspect differ structurally and functionally. The aspectual systems of these two languages show different aspectual realizations. The descriptive grammars in English specify aspectual distinctions between the progressive and the perfect (Comrie 1976; Greenbaum and Quirk 1990; Jacobs 1995; Biber et al. 1999; Greenbaum and Nelson 2009; Hasselgård, Lysvåg

and Johansson 2011). The status of English perfect aspect has been a matter of debate. While some authors treat it as aspectual distinction that expresses anteriority (e.g., Filip 2011), others consider the perfect a compound tense (e.g., Reichenbach 1947; Verkuyl 1999; Huddleston and Pullum 2002; Leech 2004). Bhatt and Pancheva (2005) suggest that the perfect should not be treated as a type of grammatical aspect because it can combine with another aspectual distinction, the progressive.

Unlike the BCS aspectual system that uses complex aspectual morphology (prefixes and suffixes) on the verb, the English progressive aspect (as well as perfect aspect, if considered an aspectual distinction) is expressed periphrastically in an auxiliary + participle construction (Quirk et al. 1985; Jacobs 1995; Aarts 2001; Greenbaum and Nelson 2009; Filip 2011; Hasselgård, Lysvåg and Johansson 2011) as (12–13) show, and where tense is marked on the operator as either past or present.

(12)

John was smiling. (Progressive)

(13)

Ben has fallen asleep. (Perfect)

Another characteristic of the English aspectual system is that simple forms that are not marked for aspect can also express aspect in combination with arguments and adjuncts (*He wrote a letter* – perfective*; It rained all day* – imperfective). With the exception of a few verbs that are aspectually ambiguous this is not possible in BCS, as BCS verbs are generally marked for aspect (Jahić, Halilović and Palić 2000; Klajn 2001; Čirgić, Pranjković and Silić 2010; Riđanović 2012) and do not depend on arguments and adjuncts for aspectual interpretation. Therefore, in terms of aspect realization, English expresses aspect periphrastically in combination with inflection and does not grammaticalize the perfective. BCS expresses aspect synthetically by aspectual morphology. Moreover, BCS grammaticalizes both imperfective and perfective aspect.

In addition to different formal realizations of aspect, the relationship between the aspectual form and its aspectual meaning is not identical in both languages. Portner (1998) adopts an 'event semantics' approach to the progressive and describes it in terms of the properties of particular events. He thus posits that progressive verbs express that a certain state continues and non-progressive ones that a certain event culminates. Ter Meulen (1985), Link (1987) and

Krifka (1992) base their analyses on the idea that the progressive describes a segment of the event. Similarly, Vlach (1981) and Lascarides (1991) argue that the progressive entails a process that is ongoing at the time expressed by tense information.

Therefore, the English progressive aspect corresponds to the BCS imperfective aspect for the most part. However, the BCS imperfective aspect shows a wider range of meanings, including the general-factual meaning (a past completed event presented in the imperfective to state the existence of the event) that English progressive aspect cannot convey. In (14), the imperfective aspect presents a complete and bounded situation in the past and not an internal interval or an unbounded situation that is a typical imperfective interpretation. Gasparov (1990) argues that such general-factual uses of the imperfective imply an existential interpretation (that a certain event occurred). However, the English progressive equivalent of the sentence below *Have you been reading* War and Peace*?* cannot have a perfective interpretation.

(14)

Jesi	li	ikad	čitao	Rat	i	mir?
$AUX_{2SG.PRS}$	PRT	ever	$read_{PTCP.IPFV}$	War	and	Peace?

'Have you ever read *War and Peace*?'

Therefore, the English progressive and the BCS imperfective should not be treated as identical aspectual distinctions, but rather the progressive is a type of the imperfective, whereas the imperfective can express meanings other than the progressive meaning.

The habitual meaning conveyed by the imperfective in BCS is generally expressed by simple forms in English. If the progressive (roughly speaking, the English equivalent of the BCS imperfective) is used in the habitual context, a very specific interpretation is achieved – disapproval and irritation with someone's habit, as in (15) (Alexander 1988).

(15)

She writes letters every day vs. She is writing letters every day.

English does not possess a grammaticalized perfective aspect but perfective meanings can be expressed by the perfect aspect, as in (13) above or by formally aspectless simple forms as in (16).

(16)

The boy walked to the store.

Quirk et al. (1985) and Aarts (2001) refer to the English perfect aspect as 'perfective'. Nevertheless, perfect aspect can also express a type of imperfective meaning – an interval that started in the past and spills into the present (*John has been sick*, Filip 2011).

In sum, the English progressive and the BCS imperfective are not identical aspectual oppositions. In English, the perfective meaning is expressed by simple forms that are not formally marked for aspect or by perfect forms that can also express imperfective meaning. The BCS perfective has a specific meaning, while the imperfective is underspecified as it can express more than one meaning. In English, it is the opposite. The progressive is specific, while non-progressive forms show a wider range of meanings. Therefore, English shows more flexibility and more options for an overlap – one aspectual meaning expressed by two different forms. In contrast, BCS aspect has a straightforward distribution with hardly any options for an overlap – the general-factual imperfective aside, imperfective and perfective verbs forms cannot be used in the same context with one and the same meaning. This is one of the unique features of the so-called Slavic-style/type aspect (Dahl 1985; Bybee and Dahl 1989). How different aspectual systems are processed has been investigated by using event-related potentials (ERPs).

1.3 Event-related potentials

Unlike behavioural data that can reveal quantitative differences between conditions, ERP data can reveal the nature of the processes underlying certain processing difficulties (Kaan 2007). The most well-studied ERP components related to word and sentence processing are the N400, the (early) Left Anterior Negativity (E)LAN and the P600.

The N400 effect is a negative deflection typically found 300-500 ms with a centro-parietal maximum and widely reported (but not exclusively) after the onset of a semantically/pragmatically incongruent item (*He spread the warm bread with socks*) (Kutas and Hillyard 1980). The N400 then reflects the inability to integrate lexical and semantic information (Tanner, Grey and Van Hell 2017).

Morpho-syntactic category and phrase structure violations typically elicit an early left anterior negativity (ELAN) with the latency of 100-200 ms after the onset of the critical stimulus (Kutas, Van Petten and Kluender 2005; Kaan 2007). The LAN, which peaks 300-500ms after the onset of the critical stimulus, is typically associated with morpho-syntactic and word form violations (Neville et al. 1991).

Another component often reported in morphosyntactic studies is the P600. This is a positive deflection that peaks 500-900 ms after the onset of the critical stimulus and with a posterior scalp distribution. There have been considerable debates on the nature of cognitive processes that underlie the P600. Some studies found the P600 for (morpho-)syntactically anomalous words (e.g., Friederici, Hahne and Mecklinger 1996) so that the P600 was initially believed to reflect syntactic integration difficulties (Osterhout and Nicol 1999; Kaan et al. 2000; Allen, Badecker and Osterhout 2003 among many others). However, the P600 was also found for non-syntactic violations, such as semantic violations, animacy violations or thematic role violations (e.g., Chow and Phillips 2013). Later accounts thus do not interpret the P600 as an index of syntactic processing alone.

More generally, Hagoort (2003) argues that the P600 reflects the time that is needed to unify all the relevant information that pertains to the interpretation of the sentence and select the appropriate analysis for the sentence. Van Herten, Chwilla and Kolk (2006) suggest that the P600 is indicative of general error monitoring processes that are triggered upon encountering syntax-semantics discrepancies. Similarly, Kolk and Chwilla (2007) argue that the P600 reflects engagement of the conflict-monitoring mechanisms. Friederici (2002) argues that the P600 reflects thematic integration and revision and repair processes. Bornkessel-Schlesewsky and Schlesewsky (2008) also assume the failure to correctly map thematic roles is reflected in the P600. Brouwer, Fitz and Hoeks (2012) argue that the P600 is evoked by continuous efforts to integrate semantic information following anomalous input. Tanner, Grey and Van Hell (2017) explain that all these later accounts of the P600 regard it as an index of late-stage processing where all information (syntactic, semantic, thematic, etc.) is integrated and that they postulate that the P600 is triggered when mismatching representations are attempted to be reconciled and integrated which sets in motion reanalysis processes. Previous studies on aspect have shown that aspectual violations elicit the P600 component, albeit not consistently.

1.4 Previous studies on aspect processing

The neuro- and psycholinguistic nature of aspect (violation) processing is rather understudied. However, two types of studies exist: those that investigate local aspectual violations (Zhang and Zhang 2008; Hao, Xun and Lu 2021) and others that investigate the mismatch between aspectual meaning of the verb and a wider sentential context (Bott and Gattnar 2015; Flecken, Wallbert and Dijkstra 2015; Zeller and Clasmeier 2020).

Zhang and Zhang (2008) present a study on the electrophysiological correlates of aspectual violations in Chinese caused by the co-occurrence of progressive and perfective markers on the verb. Their results show a 200–400 ms negativity with a posterior and left central distribution followed by a P600 in the 450–800 ms time window. Zhang and Zhang (2008) argue that the P600 effect reflected syntactic repair and resolution of conflict at the encounter of aspectual violations. They also explain that the negativity effect could not be interpreted as a left anterior negativity (LAN), which is usually associated with the detection of a morphosyntactic violation (Friederici 2002), due to a different distribution.

Hao, Xun and Lu (2021) performed another ERP study on aspectual violations in Chinese. In this work, aspectual violations were caused by the incongruity between the lexical aspect of the verb (achievement verbs that are +punctual -durative) and the grammatical aspect encoded by the progressive marker *zhe*. Aspectual violations elicited a negativity in the 300-500 ms time-window that had a centro-right distribution that the authors refer to as the N400-like component, which is usually related to semantic and lexical processing (Kutas and Federmeier 2011). That effect was followed by the P600 component as well as a late anterior negativity on the word immediately adjacent to the aspectual marker. Hao, Xun and Lu (2021) suggest that the mismatch between lexical aspect of the verb and grammatical aspect expressed by aspectual markers involved both semantic and syntactic processing, as reflected in the N400-like and the P600 components. The authors interpreted the late anterior negativity on the post-critical word as a secondary repair process that followed the repair process on the critical word indicated by the P600.

Only a few studies have investigated the morpho-semantic violations which arise due to mismatch between grammatical aspect and some other element in the sentence, such as the adverbial phrase. In an eye-tracking study, Bott and Gattnar (2015) show that the mismatch between the durative meaning of

the adverbial phrase and the perfective interpretation of the verb in Russian was processed directly at the violation, as Russian grammaticalizes aspect. In German, however, violations were detected only after the verb had acquired all its arguments. Bott and Gattnar (2015) argue that in German the detection of violations depends on the whole verb-argument structure, since German does not morphologically express aspect.

Zeller and Clasmeier (2020) investigated aspectual violations in Russian, another Slavic language that has the same perfective/imperfective opposition as BCS. They created violations by establishing habitual temporal context via topicalized temporal lexical adverbs or adverbial phrases and using the infelicitous perfective verb forms. The results show a robust P600 for aspectual violations in the late P600 window (800–1000 ms). The authors argue that the P600 should be interpreted as an index of the processing difficulty that arose in sentences with aspectual violations when the parser attempted to integrate the aspectual information on the verb in the sentence context.

Flecken, Wallbert and Dijkstra (2015) used an ERP experiment to study English aspect violations that arose due to a mismatch of aspectual information on the verb phrase with the previous temporal context (**Every day, Sophie is swimming in the pool*; **Right now, Sophie swims in the pool*). In their experiment the participants read questions that set up the progressive (*What is Sophie doing now in the pool?*) or habitual context (*What does Sophie do in the pool every Monday?*). After an introduction such as *Right now Sophie*, Flecken, Wallbert and Dijkstra measured ERPs time-locked to the verb phrase in the following four conditions: 1) *is swimming* (control, aspect match); 2) *swims* (violation, aspect mismatch); 3) *are swimming* (morphosyntactic violation); and 4) *is cooking in a pool* (semantically inappropriate verb form).

Semantic violations elicited a clear N400 effect, while violations of morphosyntax triggered a P600 modulation, as expected. Aspectual violations, however, showed a short early negativity (250-350 ms) which was not followed by either an N400 or P600. Flecken, Wallbert and Dijkstra (2015) explain that the early negativity they found did not resemble the LAN due to its more central distribution on the scalp, and argue that the absence of the P600 for aspectual violations suggests that aspectually incongruous sentences in English do not trigger reintegration and reanalysis, or additional processing costs. A follow-up offline grammaticality judgment task also showed the relative acceptance of aspectually incongruous forms in English. More precisely,

sentences with aspect mismatch were judged as more ungrammatical compared control sentences that were aspectually congruous. However, they were judged as more grammatical than sentences with morphosyntactic violations. Flecken, Wallbert and Dijkstra (2015) thus concluded that aspect mismatch sentences were not judged as highly ungrammatical in the grammaticality judgment task.

Čordalija (2021) performed a cross-modal lexical priming study that did not involve a violation paradigm but that tracked (re-)activation patterns of the subject in sentences with imperfective and perfective unergative and unaccusative verbs in BCS to investigate the interplay between unaccusativity and verbal aspect. The findings show that the subject of perfective unaccusative verbs was (re-)activated post-verbally, at the gap position, while this was not the case for unergative verbs and imperfective unaccusative verbs. This suggests an inextricable link between the perfective aspect and unaccusativity in BCS. The following sections describe how aspect was investigated in the present study.

1.5 Present study

We performed an ERP experiment to investigate the electrophysiological responses to aspectual violations in BCS. The following research question guided this research: Is the violation of grammatical aspect processed in the same way in BCS and English? And if not, what is the difference in processing as shown by ERPs?

In the experiment, aspectual violations were created by introducing the perfective verb form in a real present temporal frame. The critical word was the perfective verb that occurred in a context that requires an imperfective form. The semantics of temporal lexical adverbs sets the time frame of the sentence as the real present unfolding at the moment of speaking. This time frame is violated by the semantics of the perfective verb form indicating completion, which is a semantic paradox given the time frame of the sentence. Therefore, the semantics of the perfective verb form is incongruous with the time frame of the overall sentence and hence the possibility of the N400. Nonetheless, the semantics of the perfective verb form is encoded grammatically in BCS. Despite its semantic basis, since BCS aspect is coded grammatically, following Popov et al. (2020) we expect the P600 that will reflect structural repair processes at the feature level.

2 Method

2.1 Participants

We tested 17 participants (mean age 26.8; 9 females). All participants were L1 speakers of the BCS language, with representatives of all three variants: Bosnian, Croatian, and Serbian. One participant was excluded from the analysis due to strong artefacts in the EEG signal. Participants were right-handed, had normal or corrected-to-normal vision and hearing with no history of previous language or reading disorders or neurological injury. In the consent form the participants were informed of the duration of the experiment and procedure. They were told that they could stop and withdraw from the experiment at any time. Participants received 15 euros for participation in the experiment. The study was approved by the Research Ethics Committee (CETO) at the University of Groningen.

2.2 Materials and design

The ERP experiment comprised 40 grammatical and 40 ungrammatical sentences in the violation paradigm. We used 20 BCS verbs: 15 transitive and five intransitive verbs. Out of those 20 verbs, 13 verbs derived the perfective form by prefixation, two verbs required suffixation to derive the perfective aspectual partner and five verbs were unprefixed perfectives.[1]

Each verb was used to create two different sentences. All the sentences occurred in the grammatical condition (40 sentences) and the ungrammatical condition (40 sentences) in the violation paradigm, and thus served as their own control in case of variations caused by different perfectivization means and transitive/intransitive differences.

1 In our ERP study, we investigated whether native speakers process aspectual violations as semantic or morpho-syntactic violations. Aspectual affixes were not investigated *per se*. Hence, the different means of perfectivization in the stimuli and a few unprefixed (inherently) perfective verbs. Following Mezhevich (2008), we assume that aspectual morphology conveys aspectual meanings. In the case of unprefixed perfective verbs, we assume that just as with any prefixed perfective, they also enter the derivation of the sentence with a [+perfective] feature. Whether that feature is conveyed by a null morpheme or unprefixed perfectives are stored in the lexicon as inherently perfective is beyond the scope of this paper. This study focused only on those verbs where the perfective and the imperfective variants differ in the aspectual value and where the perfectivizing prefix does not introduce additional semantics. Perfective verbs with lexical affixes are outside the scope of this study and a topic for future research.

(17)

Asistenti	*trenutno/često	pročitaju	članak o	umjetnoj inteligenciji.
Assistants	currently/often	read$_{PRS.PFV}$	article about	artificial intelligence

'Assistants *now/often read an article about artificial intelligence.'

As (17) shows, the experimental sentences had the following structure: occupation nouns in plural in the subject position + the temporal lexical adverb/adverbial phrase (*now* and *at the moment* in the ungrammatical condition and *often* and *always* in the grammatical condition) + the perfective verb form + the direct object + either a postmodifier of the direct object or an adverbial phrase both consisting of three to five words. Since the regions of interest comprised the verb position and the immediately adjacent position, the subsequent positions in the sentence were not totally identical and contained the above-mentioned variations in structure. We used *now* and *at the moment* in the ungrammatical condition and *often* and *always* in the grammatical condition to prevent participants from developing expectations with regard to temporal expressions and verbs form following them.

Sentences with intransitive verbs had the same structure as transitive sentences except for the object. For these items, we added sentence-final adverbial phrases, hence all sentences had approximately the same length. Sentences were distributed across two presentation lists using a Latin square design so that each list comprised 20 grammatical and 20 ungrammatical sentences.

The ERP experiment had two types of control sentences. The first type were sentences with and without time reference violations (60 sentences) from Tokmačić and Popov (2019). In the grammatical control sentences, the past time reference of the perfect periphrastic verb form was congruent with the temporal lexical adverb. In the ungrammatical control sentences, the perfect periphrastic form expressing past time reference violated the future time frame of the sentence that was set by a topicalized temporal lexical adverb. All verbs occurred in the imperfective aspect, as the imperfective is considered to be the unmarked form and can occur in all three time frames.

(18)

*Sutra/Jučer	je	pedagog	pozivao	roditelje	na razgovor.
Tomorrow/Yesterday	AUX$_{PRS}$	counsellor	invite$_{PTCP.IPFV}$	parents	on talk

'*Tomorrow/Yesterday the counsellor was inviting parents to a meeting.'

Control sentences had a structure as illustrated in (18): the topicalized temporal lexical adverb (*yesterday* and *the day before yesterday* in the grammatical condition; *tomorrow* and *the day after tomorrow* in the ungrammatical condition) + the present tense auxiliary that is part of the perfect periphrastic verb form + the subject realized as a singular occupation noun + the non-finite verb (the second element of the perfect periphrastic verb form) + the object + adverbial phrase. *Yesterday* and *the day before yesterday* were used in the grammatical condition, *tomorrow* and *the day after tomorrow* in the ungrammatical condition to prevent participants from developing expectations with regards to temporal expressions and verbs forms following them.

We also added the second type of control sentences (20 items) that contained only grammatical sentences with the temporal lexical adverb *currently* or the adverbial phrase *at the moment* and the imperfective verb form. We included control sentences with imperfective verb forms after temporal expressions *currently* and *at the moment* to prevent participants from developing expectations that such temporal expressions are always followed by infelicitous perfective verb forms as is the case in experimental sentences. The 12 imperfective verbs that occurred in the control sentences in our study were not imperfective counterparts of the verbs used in the experimental sentences, but were different lexical items. However, the sentence structure was similar, as (19) shows.

(19)

Cvjećari	trenutno	sade	novo cvijeće u kraljevskoj	bašti.
Florists	currently	$\text{plant}_{\text{PRS.IPFV}}$	new flowers in royal	garden

'The florists are currently planting new flowers in the royal garden.'

After the experimental and control sentences were created, they were distributed to 39 native speakers of BCS (mean age 19.8 years, with five males and 34 females) in a verification task. The participants were students at the English and psychology departments at the University of Sarajevo. They were instructed to judge the sentences as acceptable or unacceptable. All the sentences in the experiment were correctly deemed as grammatical or ungrammatical by 80%–100% of native speakers. Eighty filler sentences were added to each presentation list, yielding 120 sentences per list. The experiment started with six practice sentences.

The ERP experiment was performed at the University of Groningen, and due to the different language backgrounds of BCS speakers the stimuli were

adapted to different variants of BCS, although these adaptations never related to the verb (form). All the variants are mutually intelligible, but to avoid any potential confounds, and in addition to a few minor lexical differences between the Bosnian, Croatian and Serbian varieties, the sentences that included the modern replacement of the old Slavonic vowel *jat* were accordingly adapted for the three variants.

2.3 Procedure

The sentences were presented via the software E-prime 2.0. Participants were seated in front of a computer screen and instructed to read the sentences that were shown in a word-by-word presentation in the centre of the screen. The words were presented in white letters against a black background. Each stimulus was preceded by a 500 ms fixation cross and followed by a 300 ms blank screen. Words were presented for 300 ms. Each sentence was followed by a grammaticality question and the participants were instructed to attend to the sentences carefully and answer the question by pressing a button. The experiment consisted of four blocks and each block lasted between five to seven minutes. The total time for the experiment was approximately one hour and 30 minutes.

2.4 EEG recordings and data processing

The continuous electroencephalogram was recorded from 32 scalp electrodes (mounted on an elastic cap, WaveGuard original) using the eego software (ANT-neuro B.V., Enschede, Netherlands). An additional EOG electrode was placed above the left eyebrow to record eye movements. Electrode impedances were always kept below 10 kΩ. Data were acquired at a 500 Hz sampling rate with the common average reference. The offline processing was done in Brain Vision Analyzer 2.1 (Brain Products, GmbH, Munich, Germany). Offline filtering was performed using a band-pass filter (0.1–30 Hz), followed by automatic eye blink correction. The data were segmented into epochs starting 200 ms before the onset of the critical word (the target verb) and lasting until 1000 ms post-word onset. The artefact rejection (+/–100 μV threshold) was performed only on a section of each epoch (-200–1000 ms) that was included in the statistical analysis. The data were corrected relative to the 200 ms pre-stimulus baseline and were averaged per subject and per condition. All participants, except the one who was excluded, were above the threshold of 60% of averaged trials in all conditions.

2.5 Data analysis

For EEG analysis, averaged values (in μV) were extracted per participant, per condition, and per region of interest. The scalp electrodes were divided into nine regions of interest: left anterior (LA; F7, F3, FC5), midline anterior (MA; Fz, FC1, FC2), right anterior (RA; F4, F8, FC6), left central (LC; C3, CP5), midline central (MC; Cz, CP1, CPz, CP2), right central (RC; C4, CP6), left posterior (LP; P7, P3, O1), midline posterior (MP; Pz, POz), and right posterior (RP; P4, P8, O2). Mean amplitudes were analysed in three time windows (400–600 ms, 600–800 ms and 800–1000 ms).

For the statistical analysis, repeated measures ANOVAs were used with the following within subject factors: grammaticality (two levels: grammatical and ungrammatical), hemisphere (two levels: left and right hemisphere), and anteriority (three levels: anterior, central, and posterior). The significance level was set to $p < .05$. For each time window, two global repeated measures ANOVAs were performed, first for the lateral regions (all factors included), and then for the midline regions (factor hemisphere excluded). Follow-up tests were applied to those interactions that turned out at least marginally significant ($p<.1$) and that contained the factor *grammaticality*. The Geisser and Greenhouse (1959) correction was applied in cases when the assumption of sphericity was violated.

3 Results

3.1 Behavioural data

The accuracy analysis of grammaticality judgments for the experimental sentences in the ERP experiment showed that grammatical sentences were judged correctly in 88% of trials (range: 50–100%; SD: 14.9), while ungrammatical sentences were judged correctly in 93% of trials (range: 65–100%; SD: 9.1).

3.2 ERP data

In the first time window **(400–600 ms)**, the lateral analysis showed a significant interaction between grammaticality and anteriority ($F(1, 15) = 8.51$, $p = .011$, $\eta^2 = .362$), which did not yield any significance in the follow-up analysis (all ps > .1). Similarly, a significant interaction between grammaticality and anteriority in the midline also failed to provide any significant results in the follow-up tests (all ps > .1).

The factor *grammaticality* was marginally significant in the following time window (**600–800 ms**) in the lateral analysis ($F(1, 15) = 3.57$, $p = .078$, $\eta^2 = .19$), while it reached significance in the midline ($F(1, 15) = 8.52$, $p = .011$, $\eta^2 = .36$). In both instances, ungrammatical sentences elicited a more positive response than grammatical sentences.

In the last time window **(800-1000 ms)**, the factor *grammaticality* was marginally significant on its own ($F(15) = 4.33$, $p = .055$, $\eta^2 = 22$), as well as in an interaction with the factor *anteriority* ($F(2, 30) = 3.67$, $p = .061$, $\eta^2 = .2$). Post-hoc analysis showed that ungrammatical sentences were more positive than grammatical sentences in the central ($t(15) = -2.79$, $p = .014$) and posterior regions ($t(15) = -2.75$, $p = .015$), while the effect was absent in the anterior regions ($p > .1$). Finally, there was a main effect of grammaticality in the midline ($F(1, 15) = 7.36$, $p = .016$, $\eta^2 = 0.33$), with ungrammatical sentences eliciting a more positive waveform than grammatical sentences. The scalp topography for the relevant time windows is shown in Figure 1. ERP waveforms time-locked to the onset of the critical word across nine regions of interest are shown in Figure 2.

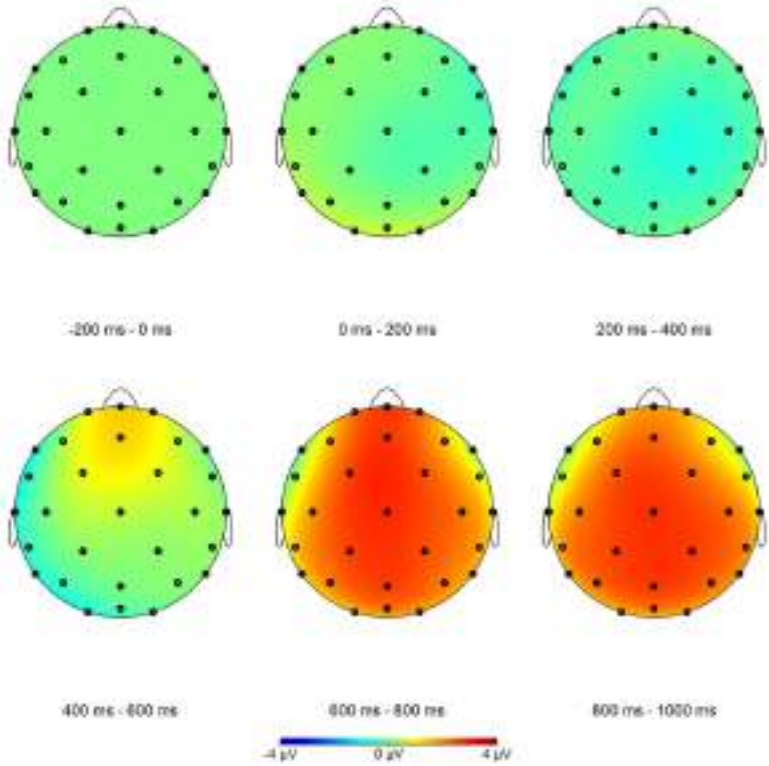


Figure 1. Topographic maps show a difference between grammatical and ungrammatical sentence processing with the effects observed in the 600-800 and 800-1000 ms time windows.

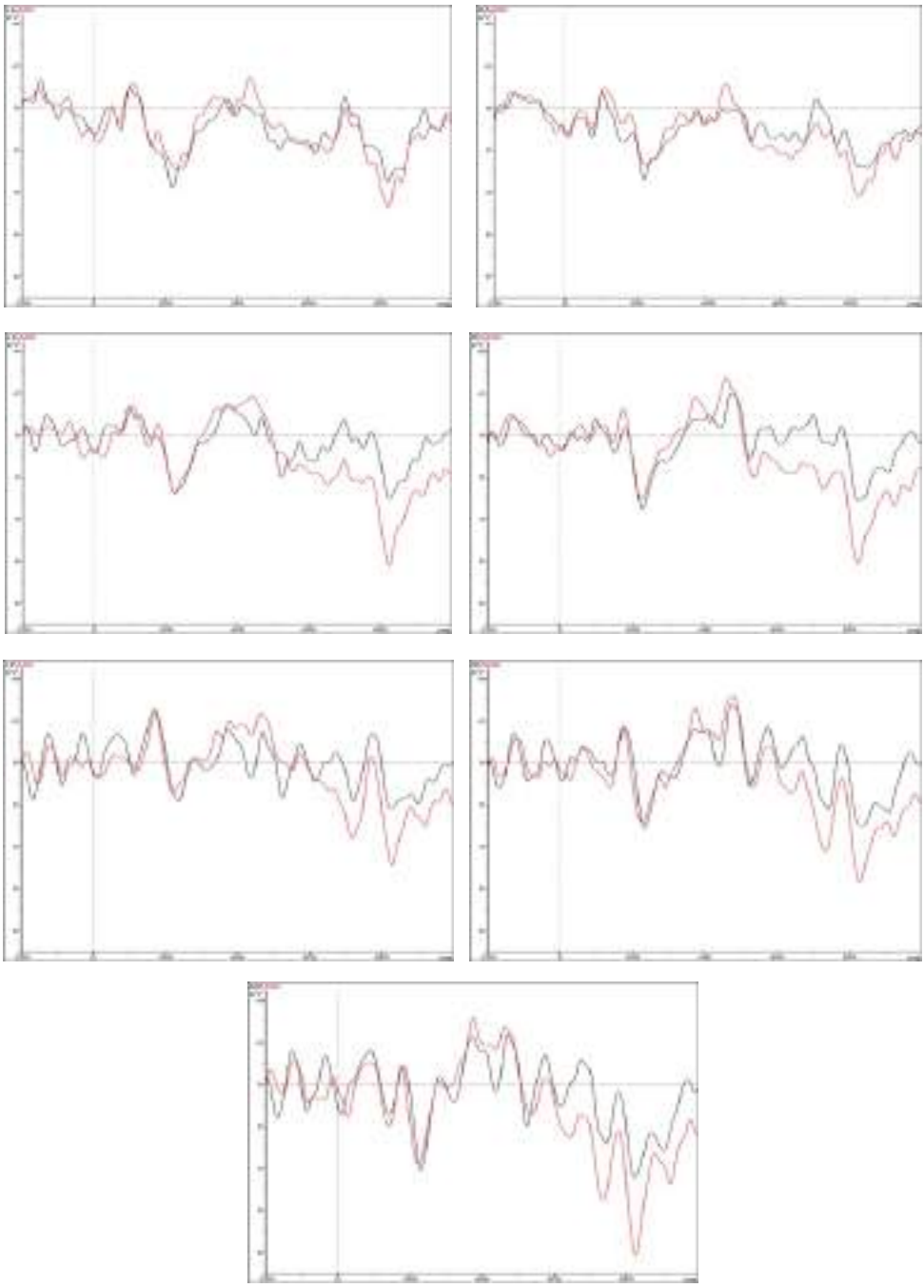


Figure 2. Grand average ERPs from the onset of the verb across nine ROIs: black lines represent grammatical sentences and red lines represent ungrammatical sentences.

4 Discussion

4.1 Processing grammatical aspect in BCS

The ERP experiment investigated violations of the present time frame of the sentence by a perfective verb form in BCS. The research question addressed the processing of aspectual violations in BCS and how it compares to English. We first discuss the results obtained for the BCS aspectual violations, and then compare aspect processing in BCS and English to answer our research question.

In the ERP experiment, aspectual violations in BCS resulted in a positivity in central and posterior regions that was absent in anterior regions. The posterior P600 is typically seen as reflecting structural and syntactic repair (Friederici 2002). Therefore, this P600 may reflect the reanalysis and repair processes that are triggered by the inability of the parser to integrate the incongruous aspectual form into the temporal frame of the sentence. Hagoort and Brown (2000) argue for two subcomponents of the P600: an early subcomponent with anterior and posterior distributions and a late one with only a posterior distribution. The early subcomponent is evoked by the inability to integrate the information in the preceding context and the late one is attributed to reanalysis and repair processes. To a certain degree, the effect of aspectual violations in our study supports this classification, as the P600 effect in the 800–1000 ms time window had central and posterior distributions but not anterior. Hence, the P600 effect in the 600–800 ms is understood as reflecting the difficulty in integrating the incongruous aspectual form in the context, while the late P600 might reflect a reanalysis and repair process.

To be more precise, we assume that in the sentences used in our study the temporal lexical adverb sets the time frame. When the parser encounters the verb form with a [+perfective] feature that is not congruous with such temporal frame, this triggers the structural repair at the level of the aspect feature and reanalysis processes. Consequently, a P600 and not an N400 is evoked by aspectual violations despite the fact that sentences with aspectual violations are essentially semantic violations: the perfective meaning of completion violates the wider sentence context which expresses the real present unfolding at the moment of speech. However, aspectual meanings are conveyed by grammaticalized aspectual affixes in BCS. As such, aspectual violations set in motion structural repair and reanalysis processes.

Even though there is an important methodological difference between our study and two studies that focused on Mandarin Chinese, our results are in line with the findings of Zhang and Zhang (2008) and Hao, Xun and Lu (2021), which found the P600 for aspectual violations. BCS aspect violations, however, did not result in the N400-like component as in Hao, Xun and Lu (2021). Hao, Xun and Lu suggest that in sentences with aspectual violations the punctual lexical aspect of the verb creates expectations for non-progressive morphology. When the progressive marker occurs, this causes a semantic mismatch that is reflected in the N400-like component. However, Hao, Xun and Lu (2021) claim that the mismatch between the lexical aspect of the verb and aspectual morphology eventually leads to a syntactic repair (the P600), as aspect markers are involved in syntax. In our study, however, despite their semantic basis and the expectation of the non-perfective morphology due to the semantics of the topicalized temporal expression, aspectual violations did not lead to the N400 (like) component, but to the immediate repair and reanalysis at the aspect feature as reflected in the P600. However, our study did not involve a local mismatch of aspects on the verb, as the lexical and grammatical aspects expressed by the verb were congruous in this work. The ERP effects that we found for the disagreement between aspectual features of the verb phrase and the wider sentence context are in line with another study that investigated the same type of non-local violations involving the category of aspect.

More precisely, our results and the findings of Zeller and Clasmeier (2020) are complementary, as both studies had a similar methodological design and Russian is another Slavic language with the same aspectual oppositions and a very similar aspectual system to BCS. Zeller and Clasmeier (2020) investigated violations of habitual temporal context by a perfective verb form in Russian and reported a P600 in the 800–1000 ms time window for aspectual violations. Our ERP results, however, differ significantly from those presented by Flecken, Wallbert and Dijkstra (2015) – the first ERP study that investigated the incongruity between aspectual feature on the verb and time frame of the sentence in English.

4.2 A comparison with English

In Flecken, Wallbert and Dijkstra (2015), aspectual violations (**Every day, Sophie is swimming in the pool*; **Right now, Sophie swims in the pool*) elicited a short early negativity (250–350 ms) which was not followed by either an

N400 or a P600. The authors argue that the negativity modulation that they observed arose because the progressive (*is swimming*) and the aspectually unmarked simple form (s*wims*) differ lexically, the former involving a periphrastic construction starting with the auxiliary 'be'. Hence the early negativity may reflect the violation of the expectation of the auxiliary 'be' in the verb phrase. We did not expect or find the early negativity that Flecken, Wallbert and Dijkstra (2015) reported because aspect in English and BCS have different aspectual systems. BCS imperfective and perfective aspect is conveyed by aspectual morphology and not periphrastically. Moreover, in our study, unlike in Flecken, Wallbert and Dijkstra (2015), the verb form was kept constant in grammatical and ungrammatical sentences.

We found a P600 for aspectual violations in BCS, while Flecken, Wallbert and Dijkstra (2015) did not for those in English. The answer to our research question is thus that grammatical aspect is not processed in the same way in BCS and English, as reflected in the different ERP components that aspect mismatch elicited: P600 in BCS and a short early negativity (250–350 ms) in English.

We argue that the reason for this difference in processing of aspect is a striking difference between the English and BCS aspectual systems. In BCS, aspectual meanings are straightforwardly encoded by either the imperfective or perfective verb form, and there is no overlap in aspect distribution and certainly not in the real present time frame. Consequently, in our ERP experiment the perfective meaning of BCS verbs could not be forced into an interpretation that would be compatible with the time frame of the sentence which yielded an immediate effect – a P600. In English, however, one aspectual meaning can be conveyed by different forms (perfective meaning can be conveyed by present perfect and simple past), and one form can convey different aspectual meanings (present perfect can express imperfective and perfective meanings), which means that there is much more room for an overlap between the forms and the aspectual meanings they convey. The parser might not have detected aspectual violations in Flecken, Wallbert and Dijkstra' sentences because the forms that were used to create violations can have secondary aspectual meanings that are compatible with the time frame of the sentence. More precisely, even though this use is restricted, the progressive aspect can be used in habitual contexts in English (e.g., *She is always losing her keys*) and conversely, simple forms can be used in progressive contexts (e.g., *And now we whisk the egg whites with a fork*).

5 Conclusion

This study provided a linguistic description of grammatical aspect and an empirical insight into its processing. More precisely, we studied the aspectual system of BCS in an ERP experiment and compared the processing of BCS and English aspectual systems. We noted that in BCS grammatical aspect is intrinsic to time reference, while English grammaticalizes aspect only partly and simple forms are not marked for this. BCS aspect is encoded synthetically via affixes, while English grammaticalizes aspect periphrastically. Most importantly, we elaborated the claim that the distribution of aspectual oppositions in BCS is straightforward – perfective and imperfective verb forms cannot be used in the same context with the same or similar meaning. Moreover, imperfective verb forms cannot be used in the real present time frame at all. English, on the other hand, shows a flexible system where different verb forms may express the same or similar aspectual semantics. For example, while the progressive form primarily expresses a durative meaning, it can also express habitual semantics that are normally expressed by aspectually unmarked forms.

To address the question of how such morphosyntactic and semantic differences between these two aspectual systems are reflected in processing, we conducted an ERP study on BCS aspect and compared our findings to those of Flecken, Wallbert and Dijkstra (2015), who explored electrophysiological responses to violations of English aspect. Our results are in line with most previous ERP studies on grammatical aspect – aspectual violations trigger immediate reanalysis and repair processes reflected in the P600 component. Interestingly, violations of aspect in English did not yield a clear electrophysiological response in Flecken, Wallbert and Dijkstra (2015).

We speculated that such strikingly different electrophysiological responses to aspectual violations in BCS and English might be indicative of two profoundly different aspectual systems. In BCS, the parser instantly detected violations of grammatical aspect because the distribution of aspectual oppositions is clear – perfective verbs cannot be used in imperfective contexts such as the real present time frame. In the English aspectual system, where the progressive aspectual opposition and non-aspectually marked forms may be used in the same or similar contexts, violations did not yield a clear ERP effect. We suggested that, rather than processing violations of English aspect instantly upon encountering them, the parser may have forced the interpretation of the contextually incongruous verb form into a less frequent but plausible secondary interpretation that is compatible with the time frame of the sentence.

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New Vowel Category Acquisition in L2 Speakers of English: The Case of High Front and High Back Vowels

Biljana Čubrović, University of Belgrade, Serbia

Abstract

This article aims to look into the strategies that L2 learners of English with a Serbian language background develop in the acquisition of those pairs of English vowels whose qualitative characteristics are markedly different in English, but essentially the same in Serbian. The production experiment focusses on two groups of English speakers, L1 and L2, with the aim of comparing the English high front FLEECE/KIT vowel pair and high back GOOSE/FOOT vowel pair. We analyse the vowel production of five L2 speakers of English whose L1 is Serbian, and five L1 speakers of Mainstream American English. The investigation is centred around the extent to which the F1–F2 difference typical of English vowels is acquired by proficient L2 speakers. The results of the acoustic analysis show that the qualitative difference is acquired in the L2 speaker group between FLEECE/KIT and GOOSE/FOOT vowels, but also that L2 speakers rely on different strategies in the formation of new vowel categories.

Keywords: L2 vowel acquisition, high front vowels, high back vowels, English-Serbian analysis

1 Introduction

The vowel inventory of English is famously complex in both Mainstream American English (MAE) and Southern British Standard (SBS) pronunciation models. The vowel inventory of MAE is known to be less numerous, but its enormous dialectal diversity complicates this matter somewhat. Due to the increasing exposure of Serbian L1 speakers to MAE rather than SBS in recent decades, this paper is based on the assumption that Serbian EFL learners' vowels of English are comparable to those of MAE.

Most phonetic research carried out in the context of Serbian speakers of English used SBS as a desirable target for their EFL learners (Paunović 2002; Marković 2007; Dančetović 2017; Bjelaković 2018). More recently Bjekić (2022) tackled the issue of L2 vowel quality acquisition of Serbian EFL learners using the MAE vowel inventory as a target, which is a novel approach.

The English vowels whose quality proves difficult to acquire from the standpoint of Serbian EFL speakers are the vowels of FLEECE and KIT, as well as those of GOOSE and FOOT, among others. This paper examines the spectral features (F1–F2) of the four English vowels in order to find out whether the new phonological categories have been formed in English as L2 in a group of proficient EFL speakers of English whose L1 is Serbian.

2 Theoretical background

The relationship between vowel quality and vowel quantity in the languages of the world is an intricate one, and L2 learners face obstacles throughout the vowel learning process. Even in the case of quantity languages like Serbian, phonetic matters are not simple. Serbian vowel pairs like /e, e:/ and /o, o:/ clearly manifest a heavy influence of quantity on vowel quality. Other vowel pairs do not. Another question that is raised is the matter of which acoustic cue is stronger, primary and more influential: quality or quantity, and whether this is in any way predictable in any given language.

Serbian is traditionally described as a language that has five vowel pairs distinguished by phonological length. This would essentially mean that the two high front vowels of *pîta* (Eng. *(he) asks*) and *pìta* (Eng. *a pie*) have virtually the same spectral features, where the former is long and the latter vowel is short. The same applies to the two high back vowels, e.g. *rûka* (Eng. *an arm*) and *rùta* (Eng. *route*), where the difference once again is explained as a quantitative one,

without differences in the vowel quality. Lehiste (1970, 31) and Lehiste and Ivić (1986) claim that /i/ and /u/ do not show a marked influence of quantity on vowel quality and that the short and long categories of these vowels are distinguished by duration alone. The Serbian short /i/ and short /u/ vowels are not centralized and lowered in the vowel space in relation to their long counterparts. On the other hand, the qualitative difference between the vowels of *beat* and *bit*, or *food* and *foot*, in English is significant, alongside the quantity distinction. EFL learners of various language backgrounds find the English vowel contrasts challenging to acquire because, unlike their L1, English combines spectral cues with duration to form a single vowel category. Different mechanisms and strategies may be used in the process of vowel category acquisition in English depending on several factors, such as the linguistic experience of speakers whose vowel properties are studied, as well as their L1 background.

Spanish learners of English are similarly presented with difficulty when acquiring the vowel contrasts not found in Spanish as their L1. Casillas (2015) studied the production of the FLEECE/KIT pair in early and late learner groups and found that the vowel contrast was fully acquired in the group of early English language learners. The finding for late learners suggests that the contrast was not produced categorically, and that duration is a more salient acoustic cue than the F1–F2 spectral properties. Escudero and Boersma (2004, 580) found that "beginners seem to have trouble with the length distinction, whereas more experienced learners have developed a lexical length contrast". This implies that duration may be regarded as the primary acoustic cue that L2 learners resort to initially, and that the spectral features are acquired at a later stage.

Brazilian Portuguese learners are reported to struggle with the acquisition of the vowel quality of English high front vowels, as evidenced by Roberto Gonçalves and Silveira (2014). These vowels remain a challenge even for more proficient EFL learners who mostly rely on the quantity difference which is used categorically in Brazilian Portuguese.

Japanese and English differ markedly in the use of quality and quantity in producing L1 vowel distinctions (Hirata and Tsukada 2004). Oh et al. (2011) confirm that Japanese learners of English predominantly struggle with the lax vowel group of American English.

3 Methodology

3.1 Participants

Ten speakers took part in the experimental vowel study. The recordings were made in a sound-attenuated booth at the Cornell University Phonetics Lab and at the Belgrade Phonetics Lab using Praat on a Sony VAIO laptop computer. The experimental procedure is replicated from Čubrović (2016), this time with the aim of investigating and comparing L1 and L2 high front and high back vowels.

Five male speakers of MAE were recorded in part 1 of the experiment. Before the recordings were made, participants were asked to fill in a short questionnaire, which included questions related to personal data (age, place of birth, current and previous places of residence, and languages spoken at home). These speakers are marked as E1–E5 and their important data is shown in the table below.

Table 1. Basic information on the L1 MAE speakers.

Speaker	**Age**	**Place of birth**	**Language(s) spoken at home**
E1	19	New York City, NY	English
E2	20	Cortland, NY	English (some Dutch and Frisian)
E3	20	Haverhill, MA	English
E4	21	Columbia, MD	English
E5	21	Manhasset, NY	English

As can be concluded from Table 1, all experimental subjects are predominantly monolingual speakers born and raised in the American Northeast, with the exception of E2, who has one parent who is also a speaker of Dutch/Frisian. All speakers mostly use English in their everyday communication. All participants were also learners of foreign languages, and had exposure to these in a formal, classroom context. At the time of the recording, all speakers lived in Ithaca, NY.

The second group of speakers, who are native speakers of Serbian and proficient speakers of English, took part in the same experiment. This sample was deemed a representative sample of L2 MAE speakers.

Table 2. Basic information on L2 MAE speakers.

Speaker	Age	Place of birth	Language(s) spoken at home
S1	22	Belgrade, Serbia	Serbian
S2	21	Belgrade, Serbia	Serbian
S3	22	Belgrade, Serbia	Serbian
S4	21	Belgrade, Serbia	Serbian
S5	21	Belgrade, Serbia	Serbian

The group of L2 MAE is monolithic in the sense that they all reported they spoke MAE, but had not lived or spent any time in the areas where MAE has an L1 status. All five participants were also English majors at a public university in central Serbia. Their self-reported level of English was C1 at the time of the recordings. The experimenter verified that the L2 group was leaning towards MAE.

3.2 Materials and recording procedures

The acoustic experiment investigated the spectral features (F1 and F2) of four monophthongs of MAE in the following monosyllables: *beat*, *bit*, *boot*, and *put*. In addition to the four words listed above, included in the recordings were also the following tokens: *bet*, *bat*, *but*, *bought*, *pot*, *boat* and *bait*. These played the role of distractors. All eleven monosyllables share a characteristic CVC structure, with an initial labial consonant (voiced or voiceless) and a final coronal consonant /t/ so as to eliminate any potential effects of different places or manners of articulation. Hillenbrand at al. (2001) studied the effects of consonantal environment in English and observed highly significant effects of the phonetic environment, which has been avoided in the current vowel study by maintaining the same place of articulation of the final consonant. The initial consonant is not expected to exert any influence on the vowel quality.

The selected word forms were imbedded in the carrier sentence "Say _____ again". The utterances were recorded three times, in random order. The total number of utterances amounts to 330 (10 speakers x 3 repetitions x 11 word forms), 165 for L1 MAE group and 165 for L2 MAE group. As this paper focusses on the vowels in *beat*, *bit*, *boot*, and *put* , the total number of tokens analysed for the purposes of further analysis was 30 per vowel.

Participants were presented with the utterances on the computer screen, one at a time, and the pace of recordings remained stable. Once one carrier sentence was pronounced, the experimenter would change the slide that displayed the next token. Before the recordings were made, the participants were given instructions about the experimental procedures and provided time to familiarize themselves with the recording materials. After the short preparation stage, participants were asked to read the sentences as naturally as possible. The experimenter's task was to follow the recording level throughout the recording session so as to avoid any undesirable weak or overloaded acoustic signals that would impede acoustic analysis.

The MAE vowel inventory consists of eleven different segments, /i ɪ e ɛ æ ʌ u ʊ o ɔ ɑ/ (Yavaş 2011, 77–78), as in the following words *beat*, *bit*, *bait*, *bet*, *bat*, *but*, *boot*, *put*, *boat*, *bought*, and *pot*, respectively. The vowels of *bait* and *boat* may be diphthongized, even though they essentially belong to the category of monophthongs. The vowel inventory of MAE typically contains three diphthongs, as in *bite*, *bout* and *void* (Yavaş 2011, 78). Table 3 lists all the tokens recorded, but the ones marked bold were subjected to further acoustic and statistical analysis.

The full list of the words recorded is given in Table 3.

Table 3. English word list.

Word form	**MAE target vowel**	**Consonantal context**
beat	/i/	Labial_Coronal
bit	/ɪ/	Labial_Coronal
bait	/e/	Labial_Coronal
bet	/ɛ/	Labial_Coronal
bat	/æ/	Labial_Coronal
but	/ʌ/	Labial_Coronal
boot	/u/	Labial_Coronal
put	/ʊ/	Labial_Coronal
boat	/o/	Labial_Coronal
bought	/ɔ/	Labial_Coronal
pot	/ɑ/	Labial_Coronal

4 Analysis and discussion

The recordings were digitized at 22,000 Hz and labelled manually in Praat (Boersma and Weenink 2013). The spectral properties of vowels were extracted with the help of a Praat script (DiCanio 2013). Those formant measurements that deviated from the expected values underwent manual checking, and were corrected where generated erroneously. The number of mistracked formants was negligible.

F1–F2 graphs were formed so as to examine the vowel space characteristic of L1 MAE vowels in relation to those of L2 MAE. The first formant (F1) is inversely related to the vowel height, whereas the second formant (F2) relates to the degree of backness, e.g. the fronter the vowel, the higher its F2. As part of the F1–F2 graphs that follow, F1 is plotted on the vertical axis and F2 on the horizontal one, so these resemble the vowel diagrams that are traditionally used in articulatory phonetics. Each point in the F1–F2 diagram represents one repetition of one word token. Formant values were not normalized due to the fact that all speakers are male.

We first plotted F1 and F2 measurements for the L1 group (with one standard deviation) to show how short and long vowels spread in the vowel space, and to examine the vowel area for each of the four vowels studied. The graphs were made using NORM (Thomas and Kendall 2007). The acoustic data in Figure 1 shows that L1 speakers employ a specific area in the vowel space for each of the four vowels, and that there are no overlaps between the comparable pairs, i.e. *beat* vs. *bit* or *boot* vs. *put*.

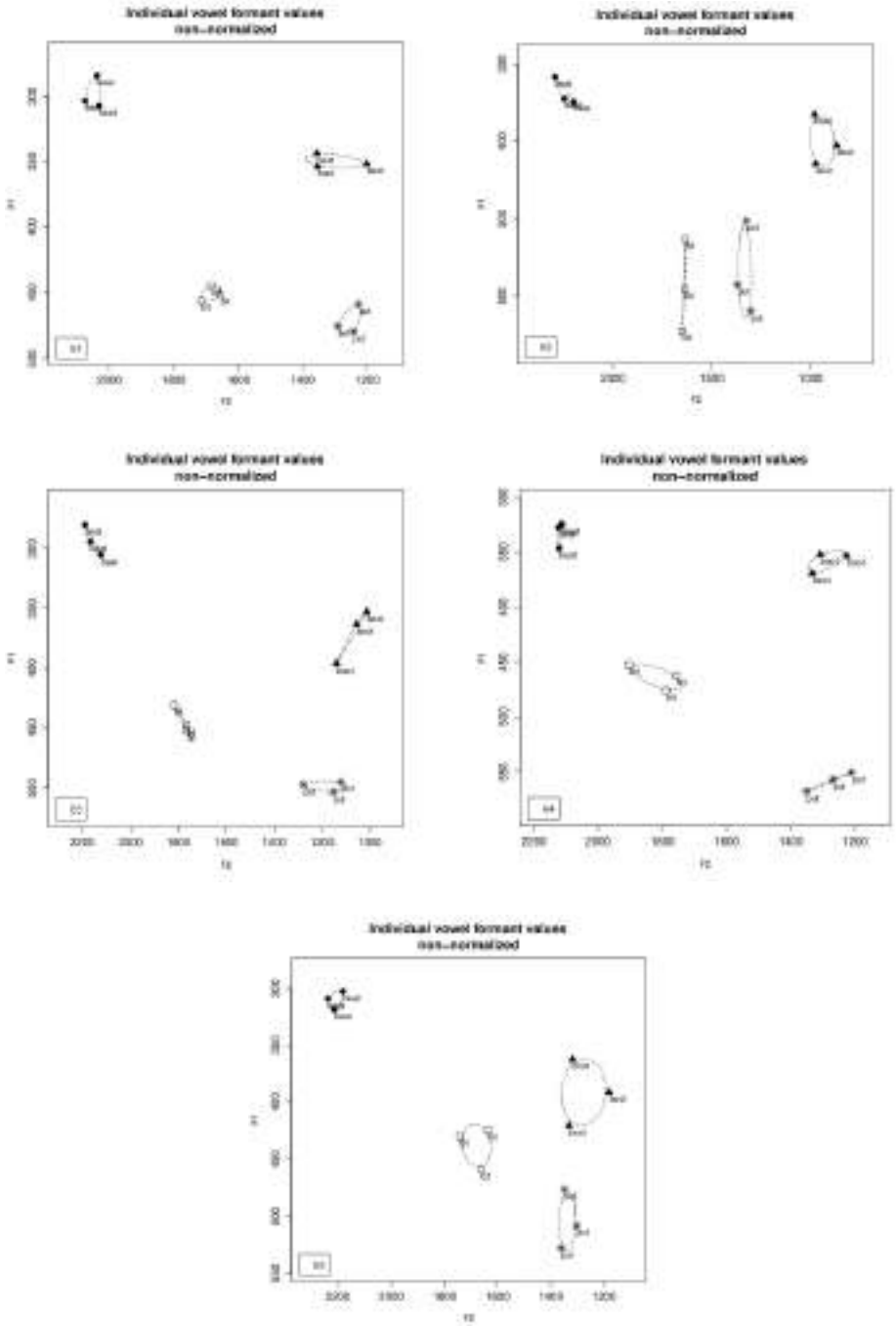

Figure 1. L1 high front and high back vowels for individual speakers (E1–E5).

Even though the four vowels are clearly separated in the vowel space for all five L1 speakers, some individual differences are observed. We will now look at the vowel space as used by all five individual speakers, E1–E5, and comment on any variations or similarities. The vowel of FLEECE is the most stable of all four and shows similarities with regard to frontness expressed by F2, which ranges from 2,112–2,294 Hz in speakers E1, E2, E3 and E4. The second formant of E1 speaker's FLEECE vowel is only slightly lower (F2 range is 2,038–2,075 Hz), which makes the vowel more peripheral and fronter. The F1 measurements for all five speakers are compact, ranging from 279–346 Hz.

The KIT vowel acoustic realizations seem similar in speakers E1, E3, E4 and E5 with regard to comparable F1 values (ranging from 424–476 Hz). Speaker E2 centralizes the KIT vowel more, which is marked by higher F1 values (526–644 Hz). The F2 range of KIT vowel is dispersed along the scale marking the degree of frontness (1,636–1,904 Hz). Speakers E3 and E4 have somewhat higher F2 values reducing the phonetic distance between FLEECE and KIT vowels.

The GOOSE vowel shows markedly more variation along the F2 scale, whereas measurement stability dominates in the F1 range (351–429 Hz). This implies that speakers' high back vowel varies on the degree of backness axis (F2 868–1,354 Hz). Speaker E2 produces the GOOSE vowel highest, followed by speaker E3, and at the other end of the backness scale speakers E4 and E5 shift their GOOSE vowel tokens to the central area of the vowel space.

The FOOT vowel is realized differently in the L1 speaker group. Speaker E2 pronounces it as a lower vowel and centralizes is more than the other speakers, thus bringing it closer to the KIT vowel in the front vowel area. The other four speakers have a tendency to use a similar range of F2 for KIT vowels, which to a certain extent overlaps with the F2 of GOOSE vowel. This finding results in the conclusion that for four out of five speakers in the L1 group the height of the tongue is a distinctive factor in the GOOSE/FOOT opposition.

Next we look at the four vowels as produced by five L2 speakers of English, marked S1–S5. Figure 2 shows that all five speakers have formed separate categories for the English vowels of FLEECE vs. KIT and GOOSE vs. FOOT, but also used different strategies in the new vowel category formation.

Speaker S1 has formed four different phonetic categories, but the distance in the vowel space between the long and short vowels is minimal. This speaker relies more heavily on vowel duration in distinguishing the English vowel pairs FLEECE/KIT and GOOSE/FOOT. This strategy may be attributed to the

transfer from Serbian as L1. The remaining four L2 speakers have formed separate categories for the four vowels in spite of the fact that Serbian, their mother tongue, does not recognize these.

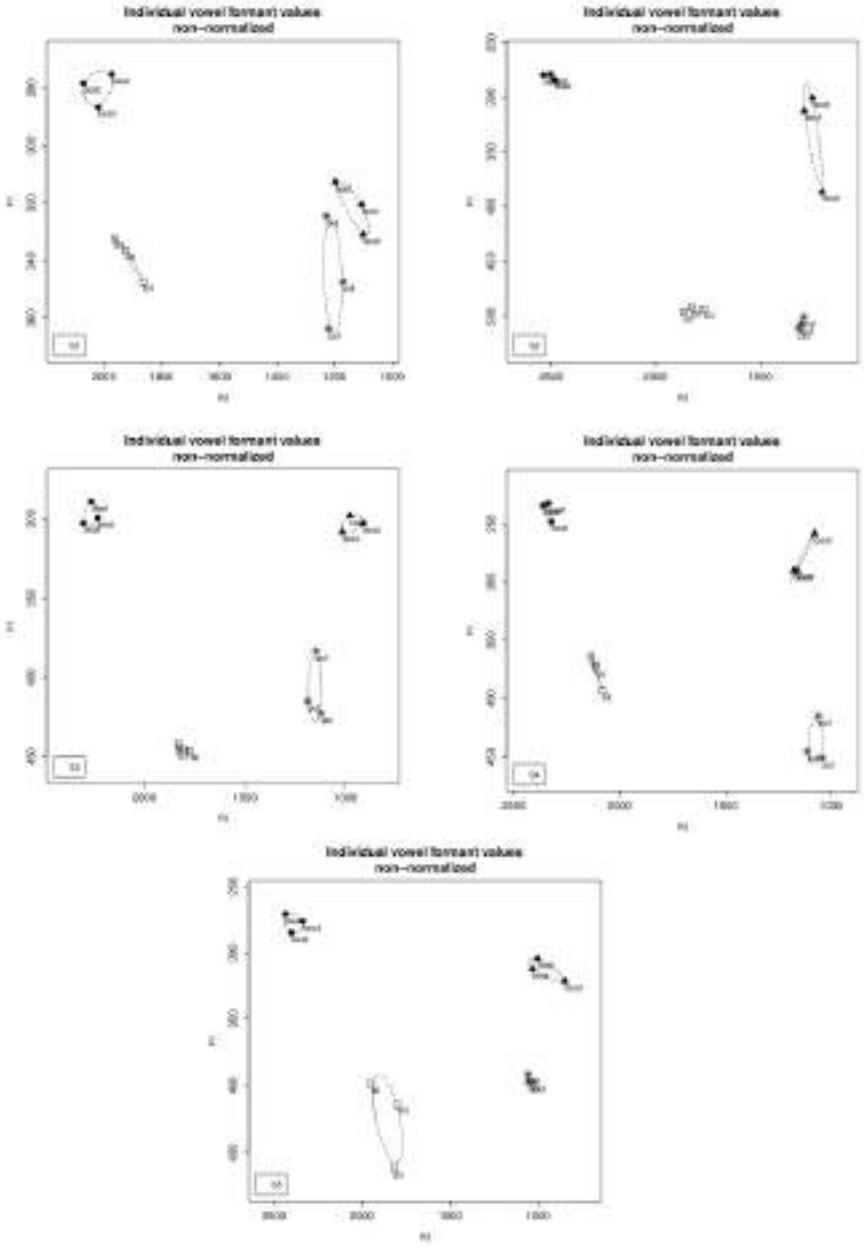

Figure 2. L2 MAE vowels.

It is commonplace to say that distinctions between short and long pairs of English high front and high back vowels are hard to acquire even for advanced EFL learners. These speakers typically find the quality of short vowels /ɪ ʊ/ especially burdensome. However, Figure 2 shows that the two high front vowels are well separated in the vowel space for the L2 speaker group.

For purposes of further discussion about any deviations from the L1 vowels, Figure 3 displays the L1 and L2 high front vowels. F1 values of the vowels of *beat* and *bit* for the L2 speaker group have somewhat higher values, which implies that the vowel itself is fronter and more peripheral in the vowel space in the speech of Serbian speakers of English. A high degree of dispersion on the F2 plane is observed in the L2 productions of the vowel of *bit* (from 1,767 Hz to 2,135 Hz). Speakers S2 and S3 have fully acquired the L1 vowel quality, which is clearly shown in Figure 2 above. All other L2 speakers produce a qualitative difference between the high front vowels, but their *bit* vowel is less centralized compared to the L1 vowel quality. Speaker E2 who belongs to the L1 group has distinctly higher values of F1 which may be accounted for by vowel lenition, as shown in Figure 1.

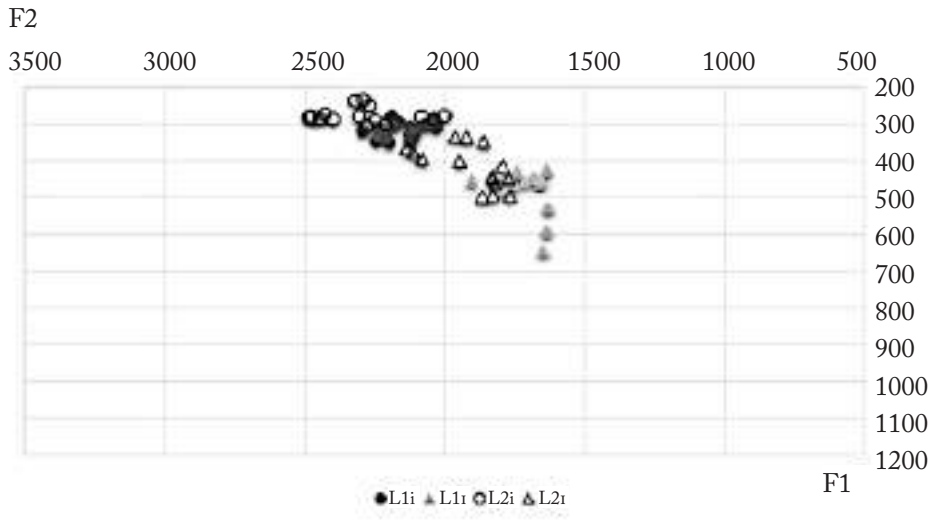

Figure 3. High front vowels in MAE L1 and L2.

The next pair of vowels to analyse are those of *boot* and *put*. Their spectral measurements are plotted in Figure 4. The L2 vowel of *boot* is characterized by somewhat lower F1 values, which points to an L2 vowel that is a higher vowel than its L1 counterpart. Some L2 tokens of the vowel in *put* evidently manifest overlapping with the L1 *boot* vowel, whereas only one L2 speaker acquired the vowel quality of the L1 *put* vowel (speaker S1). Figure 4 shows a certain degree of variability in both speaker groups. In conclusion, the L2 group has also formed a new vowel category for the FOOT vowel.

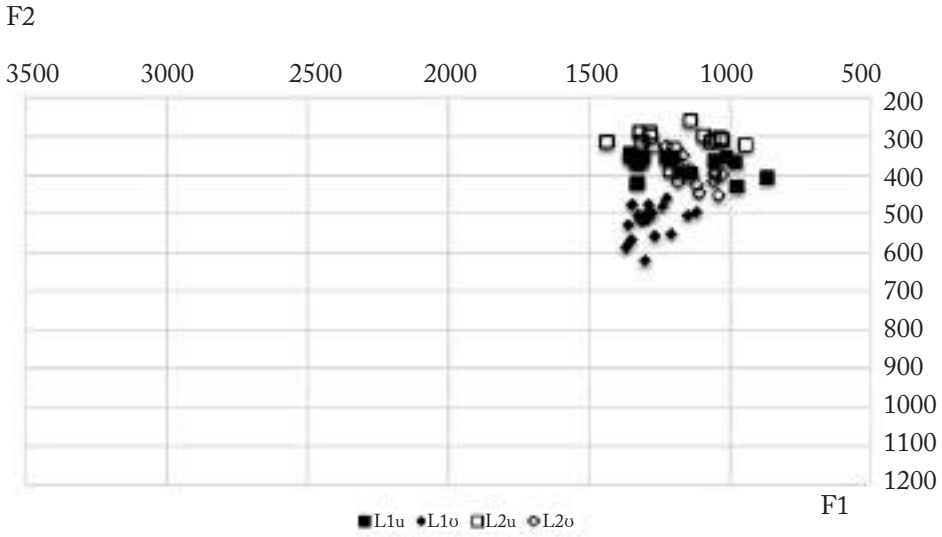

Figure 4. High back vowels in MAE L1 and L2.

4.1 Statistical analysis and discussion

In order to establish any differences in the vowel quality between the L1 and L2 speaker groups, a mixed-effects statistical model was run on the experimental data. The analysis was performed in R statistical software (2013) with the lme4 package (Bates et al. 2015). A separate model was run for each formant (F1 and F2) for each of the four monophthongs of English, with *Speaker Group* (L1 and L2) as a fixed effect and *Speaker* as a random effect.

The model returned statistically significant differences of speaker group on F1 for /i/ and on F2 for /i ɪ/. For the purposes of this paper, a p-value less than 0.05 (typically ≤ 0.05) in at least one of the formants (F1 or F2) was considered statistically significant. The summary of statistical findings is provided below in Table 4.

Table 4. Results of the mixed-effects model between L1 and L2 groups for F1 and F2.

Vowel	Pr(>|t|) F1	Pr(>|t|) F2
i	**0.00827 ****	**0.00707 ****
ɪ	0.0534	**0.0181 ***
u	0.126	0.104
ʊ	0.631	0.176

Significant codes: '**' 0.01 '*' 0.05

According to the results of the statistical analysis, the following vowels in the two groups of speakers do not show statistically significant differences: the vowels of *boot* and *put*. These vowel qualities may be rendered as fully acquired MAE vowels by the L2 group. The findings of this vowel study are strikingly different from a similar but more comprehensive study (Čubrović 2016) where the L2 speaker group consisting of long-term bilingual speakers of MAE who reside in the US only acquired the vowel of *but* of the nine monophthongs studied, but not one of the four vowels that are the focus of the present study. Bearing the two speaker groups in mind, the L2 group taken as a sample in the current paper is formed by undergraduate students majoring in English language, literature and culture. Bjekić and Čubrović (2021, 76) studied the MAE monopthtongs in a comparable experimental study with less advanced EFL speakers from another city in central Serbia, and found that "there is a significant difference in F1 and F2 between native and nonnative speakers for all English vowels except /i/". To sum up, trained language students performed better compared to the diaspora group or the less proficient EFL student group.

Figure 5 displays the F1 values with one standard deviation.[1] It can be seen from the standard deviation values in the graph that both L1 and L2 groups manifest a certain degree of variability.

1 The means of F1 and F2, and SD are provided in the Appendix.

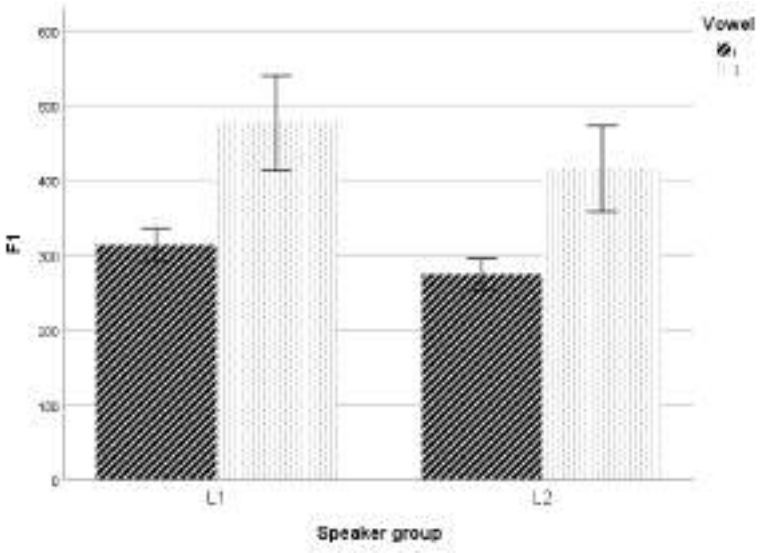

Figure 5. F1 in two speaker groups.

Figure 6 shows the values of F2 in the two groups of speakers, L1 and L2. More variability in F2 is evident in the L2 group as compared to the L1 group. This result may be attributed to high vowel variability and varying degrees of lenition in the GOOSE/FOOT vowels.

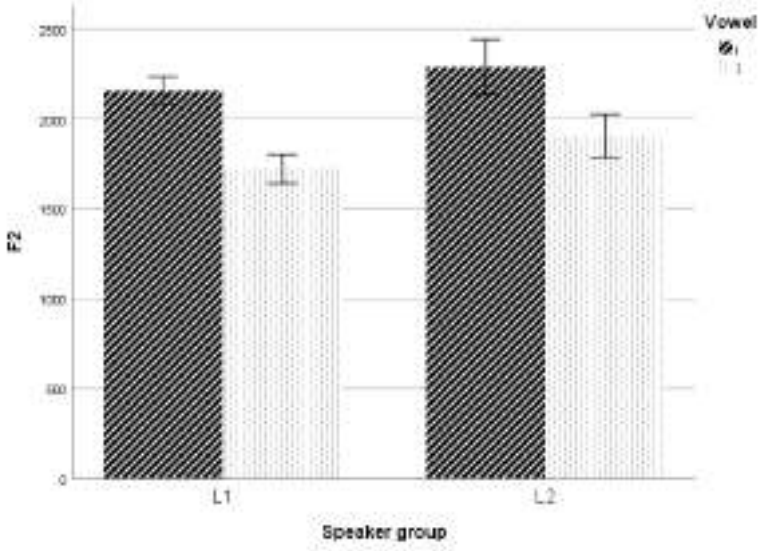

Figure 6. F2 in two speaker groups.

5 Conclusion

The two experiments in the present study add to the extensive body of acoustic research of L1 and L2 American English vowels, especially in the area of the production of high front and high back vowels. The results show a marked vowel variability in L1 American English vowels. The L2 speaker group, which included advanced speakers of English with Serbian as L1, has successfully formed new vowel categories for the KIT and FOOT vowels that do not overlap with the FLEECE and GOOSE vowels. However, the strategies used in the formation of new vowel categories vary in the L2 group, with at least one L2 speaker who seems to rely more heavily on vowel duration, a phonetic habit that has been transferred from Serbian as L1. The spectral analysis shows that the L2 group produced the GOOSE/FOOT contrast in a native-like fashion, i.e. that their productions did not differ from the L1 group with regard to F1 or F2 for each of the two vowels. The FLEECE and KIT vowels in the L1 and L2 groups still have some way to go before they are fully accommodated into the English vowel inventory.

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Appendix

Descriptive statistics with number of tokens for each word form, mean values of F1 and F2, and standard deviations

F1

Descriptive Statistics				
Segment	**Speaker group**	**N**	**Mean**	**Std. Deviation**
i	L1 MAE	15	314.33	21.30
	L2 MAE	15	274.74	20.88
ɪ	L1 MAE	15	476.67	62.92
	L2 MAE	15	415.78	57.52
u	L1 MAE	15	374.02	27.41
	L2 MAE	15	309.98	27.17
ʊ	L1 MAE	15	520.38	46.31
	L2 MAE	15	418.21	56.66

F2

Descriptive Statistics				
Segment	**Speaker group**	**N**	**Mean**	**Std. Deviation**
i	L1 MAE	15	2,157.36	76.27
	L2 MAE	15	2,286.01	152.56
ɪ	L1 MAE	15	1,720.73	79.87
	L2 MAE	15	1,902.04	122.48
u	L1 MAE	15	1,176.28	162.25
	L2 MAE	15	1,089.28	126.45
ʊ	L1 MAE	15	1,276.95	75.03
	L2 MAE	15	1,155.51	99.77

Translating Humour in *The IT Crowd*: An Analysis in Favour of Introducing Humour Studies into Translation and Interpreting Curricula

Selma Đuliman, University of Sarajevo, Bosnia and Herzegovina

Abstract

The paper discusses some of the challenges in translating humour from the British TV series *The IT Crowd* into the Bosnian language. The examples include transcription, translation, as well as analysis. Drawing from the experience of working with translation studies students, the goal is to emphasize the need for introducing humour studies into university curricula. Humour is observed in contrast between English and Bosnian, and analysed within Minutella's (2014) analytical framework involving cultural references, wordplay and language variation for humour detection, and Chiaro's (2004) approach to humour translation which entails substitution, replacement with an idiomatic expression, or replacement with a compensatory verbally expressed humour. The results indicate that some humorous content is easy to detect in the source language, but difficult to translate, and there were also instances of translatable content resulting in the loss of humour in the target language. Humour studies would enable easier understanding and translation for students, while contrastive analysis can serve as the pedagogical means of drawing focus to humorous content in translation studies classes.

Keywords: humour, translation studies, *The IT Crowd*, humour theories, English-Bosnian analysis

1 Introduction

The aim of this paper is to discuss some of the challenges in translating humour from the British TV series *The IT Crowd* into the Bosnian language. Translation of humour has been a challenge for many translators and interpreters, but, in this instance, humour translation is observed from the point of view of an instructor at the translation and interpreting programme (Faculty of Philosophy, University of Sarajevo).

Students who are to become future translators are faced with the challenge of translating humour as part of their Style and Translation course. Humorous content in the source text should be translated so that it is preserved in the target language. The challenge for students is that while they understand the humorous content in English, they are surprised to learn how difficult it is to adequately translate it into the target language.

In practice, translation studies and contrastive analysis, although related, have few methodological encounters (Czulo and Hansen-Schirra 2017, 1). Mona Baker (1993), for example, finds the connection in corpus-based methodology. Translation studies and contrastive analysis also meet within Jacek Fisiak's (1981, 2) observation about the pedagogical potential of contrastive studies: "Drawing on the findings of theoretical contrastive studies they provide a framework for the comparison of languages, selecting whatever information is necessary for a specific purpose, e.g. teaching, bilingual analysis, translation."

This framework is exceptionally important for translation studies classes since the translation process involves not only solving certain linguistic structures and comparing them in the target language, as the focus is on a text in its entirety, i.e., its pragmatic, contextual and semantic features. Hence, for a translation studies' instructor, focusing on specific aspects of a text in class is a necessity.

Humour is a phenomenon overwhelmingly present globally and cross-culturally, and so translators (frequently, also, interpreters) are faced with the challenges of translating it.

That is why humour should be studied as part of translation training programmes at universities, together with the introduction of subjects that treat humour in linguistic and cultural research.

2 Literature overview

Humour in linguistics has been studied for decades, yet we observe a constant struggle with defining the phenomenon. In fact, Attardo (1994, 13) states that "it is impossible to define 'a priori' the category of humor", restoring to a possible view by Catherine Kerbrat-Orecchioni (1981; quoted in Attardo 1994, 13) that a text is humorous if its perlocutionary effect is laughter.

Of a number of linguistic theories that appear in humour studies, such as superiority theory and relief/release theory, this paper will consider cases when humour appears as a result of incongruity. In linguistics, this notion concerns an incongruous relationship of linguistic categories that cause confusion among the recipients of humour. Victor Raskin was the first to approach incongruity from a linguistic perspective.

In his seminal work, *Semantic Mechanisms of Humor* (1985), Raskin observes incongruity in verbal humour through opposition of semantic scripts, and offers different categories of script opposition (1985, 113–27), with the following key definition of the conditions that render a text humorous:

> A text can be characterized as a single-joke-carrying-text if both of the [following] conditions are satisfied: i) The text is compatible, fully or in part, with two different scripts[;] ii) The two scripts with which some text is compatible […] are said to overlap fully or in part on this text. (Raskin 1985, 99)

Hence typical opposition, according to Raskin, is culturally dependent and finite, and includes examples such as actual vs. non-actual, normal vs. abnormal, possible vs. impossible, good vs. bad, life vs. death, obscene vs. non-obscene, etc. (1985, 113–14).

Later, Raskin and Attardo developed the General Theory of Verbal Humour (GTVH), containing six knowledge resources (KRs), one of which is Raskin's script opposition. Attardo devotes much of his attention to this theory in his book *Linguistic Theories of Humor* (1994). The topic of the current paper does not leave much space to deliberate on the entirety of GTVH, but one segment in particular is important for the analysis: the notion of verbal humour. All segments of the analysis concern verbally expressed humour, not humour stemming from facial expressions, cartoons, etc., and its translation.

It is important to introduce another scholar who wrote about humour, but in the framework of translation studies, namely, Delia Chiaro.

In her text "Translation and Humour, Humour and Translation", included in the book *Translation, Humour and Literature* (2010) that she edited, Chiaro emphasizes that translating verbally expressed humour "opens up a gigantic can of worms" (2010, 6). She addresses the common ways in which translators handle VEH, mentioning strategies that include leaving VEH unchanged, replacing the source language VEH with a target language VEH, and, lastly, ignoring VEH altogether (2010, 11–12).

Very close to such categorization is Chiaro's (2004, 200) methodological approach to the translation of verbally expressed humour: (1) substitution in the target language; (2) replacement with an idiomatic expression in the target language; (3) replacement with an example of compensatory VEH in the target language.

In her book *The Language of Jokes in the Digital Age*, Chiaro (2018, 48) emphasizes that

> subtitles for downloads and streaming are often provided by fansubbers, armies of young unprofessional translators whose mission is to translate new products as soon as possible into as many languages as possible for fans around the world. Thus, fast and cost-effective subtitling has rapidly become the most common form of screen translation especially amongst young (mostly highly) educated people who have proficient English language skills.

This important and very accurate remark may serve as encouragement for translation instructors and translation students alike never to give up on having high criteria and striving to achieve the best translation possible, in any register, including humor.

In this paper, we adopt the position that "humor may well remain within the eyes, ears and mood of the beholder" (Chiaro and Piferi 2010, 300). However, the position of the translator in that respect is to make an attempt at producing a humorous text as a result of either translation or subbing, but without being able to influence the outside reality, i.e., whether or not the audience will find a particular sequence humorous. It is important to emphasize here that the success of humour translation "is very much dependent on the translator's sense of humor; that is the translator's recognition of a comic instance" (Vandaele 2002, 150).

Clearly, what is being translated is the text from transcribed dialogues, which is why the selected corpus is marked as *verbally expressed humour* (VEH) (Chiaro 2005). In line with the notion of VEH, Vincenza Minutella, in her paper on the translation of humour in *Shrek* (2014, 67–89), offers the following classification: (1) humour based on cultural references and allusions; (2) humour based on wordplay; (3) humour generated by language variation.

The first category, *cultural references*, consists of "words that refer to concepts or objects specific to the Source Culture and that may be unknown in the Target Culture" (Minutella 2014, 69). These carry allusions, implicatures and connotations that concern different notions (people, objects, places, etc.).

The second category, *wordplay*, concerns puns in their most basic sense. Of course, many scholars have defined/written about puns (Koestler 1964; Attardo 1994; Ritchie 2004; Martin 2007; etc.), but perhaps the most useful for our purposes is Delabastita's explanation of what a pun *does*: "The pun contrasts linguistic structures with different meanings on the basis of their formal similarity" (1996, 128). The category thus concerns synonymy, polysemy, homonymy, etc. Some scholars differentiate between the terms *pun* and *wordplay*, but the position assumed for the purposes of this paper is that the category is interchangeable, since a stricter taxonymy could be applied for a thorough linguistic analysis of humour, not the translation process/results.

The third category entails the notion of *language variation*. The *Oxford Dictionary of English Grammar* (Chalker and Weiner 1994, 1179) provides the following definition (provided here is an excerpt that is relevant for this section):

> The terms variety and VARIATION are particularly used in the analysis of different kinds of English. Thus, we can talk of regional and social varieties (or variation); varieties according to the FIELD OF DISCOURSE; varieties consistent with spoken or written mediums; and 'stylistic' varieties, due to different degrees of formality, the attitude of the speaker, and so on.

In the case of humour, this category can also contain stereotypes, *in-jokes*, etc. These three categories may overlap.

3 Study

3.1 Context: Teaching humour in the translation studies programme

Humour has not been taught extensively as part of the courses offered by the English Department at the University of Sarajevo.[1] However, since the establishment of the translation programme in the second study cycle in 2005, it

1 The programme is available in Bosnian/Croatian/Serbian at https://ff.unsa.ba/index.php/bs/2014-12-13-22-32-48, but the overview of literature will provide the reader with sufficient insight into the main themes treated within individual courses.

had become clear that the subject of humour needed to be addressed. In that respect, we have created a *niche* within the Semantics and Pragmatics course where humour in general is introduced: its definition, major humour theories (with special emphasis on incongruity theories), understanding humour as a global (cross-cultural) and local (culture-specific) phenomenon. Although the subject matter introduced in these instances is very demanding, the time for discussion in class is fairly limited for this topic – at most four contact hours during the entire semester. The course is taught in the second semester at the postgraduate level.

The fourth semester includes another subject – Style and Translation – and humour is introduced here as a translation practice. By that point, students have become acquainted with various translation strategies, elements of audio-visual translation,[2] and so on. Furthermore, by that time they will have been exposed to a plethora of registers in translation, from legal to literary, medical to political, etc. Students engage in translating humour using audio-visual material, as well as jokes and humour in literary texts.

Although translating jokes (especially those that are culture-specific) presents a particular semantic challenge, given the opposition of semantic scripts (Raskin 2011), in this class the focus was on the translation of humour found in the audio-visual material of British TV series, such as: *Blackadder*, *Only Fools and Horses*, *Black Books*, *The IT Crowd*, and *Little Britain*.

A humour translation exercise is introduced by providing the students with selected material – transcribed sections of the scenes for translation. As part of the pre-assignment exercise, students are required to familiarize themselves with the TV series (characters and plot), although experience has shown that the majority of students are already familiar with *The IT Crowd*. They also need to revisit the main theories of humour presented in the Semantics and Pragmatics class.

At the very beginning of the exercise students are reminded that the translation of the provided material is intended for subtitling/subbing.

2 Humour can also be taught within the audio-visual translation class, which is an aspect analysed in this paper. However, since humour does not only appear in audio-visual materials, but also in many other forms of text, cartoons, etc., the need for a separate course is evident.

3.2 The corpus

As already mentioned, the corpus will consist of selected sequences from *The IT Crowd* TV series. This series is a challenge for translators because of the seemingly familiar situations and prejudices expressed against an entire profession (the "nerdiness" of software engineers), as well as against corporations, women, and certain races, along with comments about life and habits, and so on. Moreover, the language of *The IT Crowd* contains many more layers than first meets the eye. The series is packed with instances of absurdist humour, witticisms, running jokes, physical humour, dark humour and the like.

The British TV series that aired from 2006 to 2013 focuses on three members of the IT Department at Reynholm Industries: Jen (the head of IT who does not know the first thing about IT), Roy (an Irish IT expert) and Moss (a highly intelligent software engineer critically lacking in social skills). Many other characters appear in the TV series, most notably Douglas Reynholm (the son of the company's founder, Denholm Reynholm, who inherits his father's fortune and position following his suicide), and Richmond Avenal (a goth IT associate, who lives in the server room).[3]

3.3 Methodology

In this paper, a selection of eight scenes from *The IT Crowd* TV series will be presented, followed by a discussion of the challenges to the translation of humour in each scene. The transcription and translation of the scenes are provided by the author, since the TV series has not been translated in Bosnia and Herzegovina, nor been aired by any of the country's broadcasters. Still, experience has shown that students are mostly familiar with the show.

As stated in section 2, the analysis will concern verbally expressed humour, and thus other forms of humorous expression, gestures, motions, and so on will not be considered.

The analysis will entail categories introduced by Minutella (2014), encompassing: (1) cultural references and allusions, (2) wordplay and (3) language variation. These categories have been presented in the Literature Overview section and concern the detection and categorization of a humorous incident. Further in the analysis, Chiaro's framework regarding translation options will

3 More information on the TV series and characters is available at: https://www.imdb.com/title/tt0487831/ and https://www.channel4.com/programmes/the-it-crowd

be applied: (1) substitution in the TL; (2) replacement with an idiomatic expression in the TL; and (3) replacement with an example of compensatory VEH in the target language.

The scenes presented in this paper do not follow the chronological order they appear in the series, but in accordance with the difficulty they posed for the students in class, and may also pose for translation professionals in the Bosnian language. Next to the episode title, the season and the episode number will be cited (e.g. S2 E1).

Although the issue will not be addressed in this paper, it is worth mentioning that the very title of the TV series and the names of the episodes that are presented at the very beginning of the scenes selected for the analysis are another exceptional challenge for translators.

4 Analysis and discussion

(1) Moss and the German (S2 E3)

Moss: I may have misheard you there. Did you just say that you were going to eat me?
Moss: Možda Vas nisam dobro čuo. Da li ste upravo rekli da me namjeravate pojesti?

Johann: Yes.
Johann: Da.

Moss: Right, you did say that. Yeah, no, I'm here for the cookery.
Moss: Da, zaista ste to rekli. Pa, ja sam ovdje zbog kursa kuhanja.

Johann: No, no, no, this is the cookery.
Johann: Ne, ne, ne, ovo je kuhanje.

Moss: Look, I've got your advert here. I printed it out. „I want to cook with you."
Moss: Ali, vidite, imam Vaš oglas. Isprintao sam ga: "Želim da kuham s vama".

Johann: Ah, no, no. My English is not so good.
Johann: A, ne, ne. Moj engleski nije baš najbolji.

Moss: Um... Oh, right! You want to cook with me, using me, you mean.
Moss: Hmm… Aaaa, da! Želite da kuhate sa mnom, tako što ćete mene iskoristiti, to ste mislili.

Johann: Ah, yes! Yes! You see? Yes, yes.
Johann: Da! Vidite? Da, da!

Moss: I see where the confusion was. I thought this was a cookery course.
Moss: Vidim gdje je došlo do zabune. Mislio sam da je ovo kurs kuhanja.

This exchange takes place between Moss and Johann, a German cannibal who obviously has an issue with prepositions in the English language. The German equivalent of the sentence *I want to cook with you* is *Ich möchte mit dir kochen*, while the equivalent of *I want to cook you* is *Ich möchte dich kochen*. Hence, the (mis)use of the preposition gives rise to incongruity, which is resolved the moment Moss realizes what went wrong. Clearly, the English sentence in the advert was a literal translation from the German language, leading Moss to believe that Johann was a cooking instructor.

The translation into Bosnian is not problematic, since there is a clear correspondence between the two sentences: in the Bosnian language as well, the preposition *s* means company, companionship (Halilović, Palić, and Šehović 2010, 1164). Thus, we may say that this section of the exchange belongs to the framework of *language variation*, since we are dealing with a German who uses English as a foreign language.

Still, the mistake he makes is not part of a stereotype one may have about Germans, but certainly there is a sense of humour that arises from the fact that Johann is simply not a native speaker of English. The same sense is presented in the translation, which offers additional humorous value because the Bosnian language has maintained the formal *you*-form for second person singular. The reason why the honorific form increases the humorous value in the translation is because in the conversation the collocutors are highly observant of politeness (Brown and Levinson 1987), as well as of turn-taking (Sacks,

Schegloff, and Jefferson 1974), but they are discussing cannibalism so as to clarify a misunderstanding, and in fact one of the collocutors is not going to be a participant in a cooking class, but rather an ingredient. This absurdity is present in both languages, but it is stylistically amplified in the translation.

Another example of cultural (mis)understanding can be seen in the scene where Denholm Reynholm welcomes a delegation of Japanese businesspeople:

(2) Calamity Jen (S1 E2)

Denholm (holding a katana): It is a magnificent symbol of our new merger. I am sorry that my gift...a huge pair of Doc' Martens, is an extremely thick and heavy sort. It's so paltry in comparison. Please rest assured that my cultural advisor will be fired as soon as this meeting is over.
Denholm: Ovo je prekrasan simbol našeg udruživanja. Žao mi je što je moj poklon… Veliki par martinki, tako bijedan u usporedbi. Uvjeravam Vas da će moj savjetnik za kulturu biti otpušten odmah nakon ovog sastanka.

Yamamoto (wearing Doc' Martens, joyfully stomps, speaks in Japanese, translated into English by his interpreter): These are very heavy shoes. He feels like... Godzilla!
Yamamoto (preko prevodioca): Ovo su baš velike cipele. *Osjeća se kao… Godzilla!*

Denholm: Does he? Godzilla! Go on! Stamp your feet! Clap him man! Good! Oh yeah! The Jap loves it! Go on! Break something! Put your weight into it!
Denholm: A je li? Pa samo nastavi! Skoči svom snagom! Plješći mu! O, da! Godzilla! Japancu se sviđa! Ma slomi nešto! Svom težinom!

Jen: You f..... idiot!! You stupid old f... You f…. J…. and your big m.... shoes! Oh you're not! You're nothing! But I f... ....
Jen: J…. idiote!! To glupi stari pr… Ti j…. Jap… i tvoje velike j….. cipele! E, nećeš! Ti si ništa! Ali sam j……..

(Japanese interpreter translates, the delegation leaves, angry)
(Japanski prevodilac prevodi, Japanci odlaze, uzrujani)

Jen: I am... so... sorry, Denholm.
Jen: Tako mi je žao, Denholme.

Denholm: That was quite a tarring, Jen.
Douglas: Ovo je baš bilo loše, Jen.

Although the differences between the Japanese and the Anglophone/Slavic culture are familiar to the majority of ordinary people these days, it is necessary to again reflect upon Japanese etiquette, including business etiquette and the related hierarchy, in which both hosts and guests have certain rules of behaviour to follow, in addition to the very high importance placed on gifts (Trevor 2001).

In this particular example, humour arises because of the sharp contrast between the Japanese business delegation and the English hosts. Denholm is aware of the importance of hierarchy and is trying to address the situation caused by an inappropriate gift, in which simple footwear is semantically opposed to the Japanese katana, a sword that stands as a cultural symbol.

The second point of humorous contrast occurs when the leading Japanese businessman stomps with all his weight on Jen's feet. In pain, she reacts by swearing.

In that sense, the translation process is not as challenging, since the Bosnian audience is by and large aware of the fine differences between the cultures, as well as the notion of highly developed Japanese etiquette. Moreover, Doc Martens shoes have been present and very popular in Bosnia for generations. To that end, the term commonly used in the Bosnian language is *martinke*, which is present in the translation, making this is an example of a substitution in the target language.

However, the section where Jen is swearing is challenging, to a certain extent, for the translator. The reason for this is because the swearing is "concealed" by interpunction in the source text, while the scene in the audio-visual presentation shows Jen screaming at the shocked Japanese in anguish, swearing, but most of the words are concealed by a beep. Although it is clear that swearing is in progress, which may lead some translators to leave the beginnings of the swear words as provided in the source text, the preferred option in this case was adjustment in the target language. It is, in a way, a *path generator* (Wang

et al. 2020), a semantic process where the text recipient will use the schemata in their own language to recreate the concealed content. The reason for such a solution is that the source text conceals some implicatures that should also be present in the translation. That primarily concerns the section where she says *You f…. J…. and your big m…. shoes/ Ti j…. Jap… i tvoje velike j….. cipele!* The implicature which may be read here is that Jen is aware of the Japanese man's strengths (economic, cultural, etc.) and that, in a moment of despair, she is uttering something very racist. That makes the situation even more difficult, but this is also humorous content, as transferred in the Bosnian language, especially if the entire swearing section is translated. That translation result would fall within the category of replacement with an idiomatic expression in the target language, since the swear words in Bosnian and English do have a similar, but not substitutive correspondence. On a final note here, it is worth mentioning that Reynholm himself, thrilled to see Mr. Yamamoto's satisfaction with the gift, utters *The Jap loves it!* This stands in opposition to the formal title of Yamamoto-san, but the Bosnian translation does not contain an expression that could be considered an equivalent to the English *Jap*.

Although not as important for the humorous content, it is interesting that the noun Denholm uses, *tarring*, does not have an adequate equivalent in the Bosnian language, since the intended meaning is that of damaging someone's reputation. Stylistically, word-to-word correspondence was not achieved and here we can say that replacement with another expression occurred.

The following is an example of humour mainly generated by *language variation* in the source text, as well as in translation:

(3) Are We Not Men? (S3 E2)

Moss: Awright, ‚arry? See that ludicrous display last night?
Moss: Š'ima, Eri? Jes' vidio onaj kretenski nastup sinoć?

Harry: What was Wenger thinking, sending Walcott on that early?
Harry: Š'a je Wenger mislio kad je uveo Walcotta onako rano?

Moss: Fing about Arsenal is, they always try an‘ walk it in.
Moss: Caka s Arsenalom je što uvijek pokušavaju da ušetaju s loptom u gol.

Harry: True. See you later, Moss.
Harry: Vala baš. Vidimo se, Moss.

Moss: Mind ,ow you go.
Moss: Čuvaj se, jarane.

The main reason this scene is considered humorous in both English and Bosnian is the shift in Moss's speech. Moss, a geeky, highly intelligent character is known to *The IT Crowd*'s audience as someone who is not able to function well in everyday social interactions, especially when it comes to football. His normal manner of expression is marked by an IT-related register and his own daily routine, where his interactions are limited to very few people. In that sense, chatting about football while using a Cockney accent is what stands in opposition to the audience's expectations regarding this character. Not only do we notice a change in language variation, but he also uses expressions that are part of the football register.

To an extent, one could consider that Moss shifts to what is known as *mockney* speech, where the speakers of standard English, frequently middle and upper-middle class, adopt Cockney pronunciation but not its other grammatical forms (Rogaliński 2011).

The translation process is interesting because it is possible to achieve a language variation equivalent in the Bosnian language. The preferred option in this case is a non-standard form of the Sarajevo speech, the argot highly present in everyday communication, frequently among educated people who consciously change their register (Halilović, Tanović, and Šehović 2009).[4] The typical examples found in this translation are *š'ima, kretenski nastup, caka, čuvaj se*, and especially the expression *jarane*, a noun meaning a good friend. In that sense, these expressions can be considered to reflect a full correspondence in the translation.

Moreover, the name *Harry* is rendered as *Eri* in this translation, notwithstanding the fact that the name can also be pronounced in full in the Bosnian language, since pronunciation sequences in the Sarajevo argot are frequently

4 I find it highly important to mention here the work by academician Senahid Halilović, professors Ilijas Tanović and Amela Šehović entitled *Govor grada Sarajeva i razgovorni bosanski jezik* [Speech of the City of Sarajevo and the Spoken Bosnian Language].

characterized by elision (Halilović, Tanović, and Šehović 2009, 115). Generally speaking, the entire section represents replacement by an argot of the target language.

The phrase *to walk in* in football register is somewhat challenging to translate. The meaning is achieved by the extended expression *da ušetaju s loptom u go*, but it is clear that this translation contains additional information, since the Bosnian language does not have a phrase denoting this specific situation. An inadequate use of the instrumental case in Bosnian *s loptom* should also be emphasized, since it would literally mean that the ball was a conscious object, walking together with the players. That, to an extent, also contributes to the intensity of Moss's use of argot.

Whereas the previous three examples did carry certain challenges in the translation process, examples (4) and (5) are semantically marked to an extent that it is almost impossible to find an adequate correspondence:

(4) The Speech (S3 E4)

Douglas: Oh, poppet... to think when we met, you were so worried that you came from Iran.
Douglas: Lutkice moja… Kad se samo sjetim kad smo se upoznali koliko si bila zabrinuta što si mješanac.

April: ...what?
April: Šta?

Douglas: When we met, as if I'd be worried about something like that! I don't care where you're from; Iran, France, doesn't bother me. I'm very modern.
Douglas: Kad smo se upoznali, kao da bi me bilo briga za takvo što! Baš me briga ko si; crnac, bjelac, nije mi bitno. Vrlo sam moderan.

April: I'm not from Iran!
April: Nisam mješanac!

Douglas: Well, you said something along those lines.
Douglas: Pa, rekla si nešto u tom smislu.

April: No, not Iran, a man! I said I used to be a man!
April: Ne, ne mješanac! Rekla sam da sam nekad bila muškarac!

Douglas: You used to be a man...?
Douglas: Bila si muškarac?

April: Yes!
April: Da!

Douglas (holds her tightly): Oh, God!
Douglas (čvrsto je zagrli): O, Bože!

In the episode, Douglas expresses joy over having met April, a woman he grows to truly love. The audience knows that Douglas's character and intellectual abilities are subpar in many respects. In this example, humour arises because he failed to properly hear (and, maybe even comprehend) that April told him she used to be a man. This is thus an example of homonymy, where the similar sounding words *Iran* and *man* give rise to incongruity that is resolved when April (again) clarifies what she had said.

The translation into Bosnian uses replacement by the compensatory VEH. Since Bosnian is a gender-sensitive language, finding suitable replacements in countries/cities/villages that would (a) sound similar to the noun *muškarac* (man) and that would (b) resist the feminine declension proved highly demanding. That is why the choice was complete substitution, aiming for racial characteristics, which adds to the humorous content in translation because the expressions used are considered derogatory, especially *mješanac*, which means a person of mixed race. In that sense, in the Bosnian language, humorous content arises from the opposition of Douglas's "modernity" and ability to accept being in a relationship with a person of mixed race, but not with a woman who used to be a man, just as the case in English is that he is able to accept the possibility of being with someone from Iran, but not with a woman who used to be a man. The translation procedure entails the second of the three categories, *word play*, and the pair in opposition *mješanac/muškarac* can be considered homophonic.

A similar situation is seen in example (6), where again the second category, *wordplay*, appears as the source of humorous content.