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CHAPTER 8

Verbs of visual perception as evidentials in research article texts in English and Croatian

Ivana Bašić

Abstract

This paper analyses the use of verbs of visual perception in research articles in English and Croatian, claiming that in academic discourse these verbs are used as *functional evidentials*. The term *evidentiality* is used in the meaning of a broad cognitive category that reflects *natural epistemology*. As natural epistemology is based on assessing evidence, we assume that the prominence of verbs of visual perception in research articles is pragmatically motivated by the wish to make the claims more reliable, reflecting the fact that the acquisition of knowledge in research begins with observing and seeing, on the basis of which we make inferences. An analysis of *evidential rhetorical strategies* is conducted on a corpus of 95 original research articles in English and 70 in Croatian in nine disciplines, and it is found that the typical syntactic frames in which verbs of visual perception are used in research article texts in both languages and all the disciplines analysed can be considered as conventionalized rhetorical devices used to ensure the acceptance of the claims made in the text.

Keywords: verbs of visual perception, evidential rhetorical strategies, research article texts

Izvlaček

V prispevku je analizirana raba glagolov vidnega zaznavanja v znanstvenih člankih v angleščini in hrvaščini; postavi se teza, da se v akademskem diskurzu ti glagoli uporabljajo v *funkciji evidencialnosti*. Izraz *evidencialnost* je uporabljen v smislu široke kognitivne kategorije, ki odraža *naravno epistemologijo*. Ker *naravna epistemologija* temelji na ocenjevanju dokazov, domnevamo, da je prominentnost glagolov vidnega zaznavanja v znanstvenem članku pragmatično motivirana z željo, da bi bile trditve bolj zanesljive, kar odraža dejstvo, da se pri raziskovanju pridobivanje znanja začne z opazovanjem in videnjem, na podlagi česar nato izpeljujemo zaključke. Analiza *evidencialnih retoričnih strategij* je narejena na korpusu 95 izvirnih znanstvenih člankov v angleščini in 70 izvirnih znanstvenih člankov v hrvaščini iz skupno devetih ved. Pokaže se, da je mogoče tipične sintaktične okvire, v katerih se glagoli vidnega zaznavanja uporabljajo v besedilih znanstvenih člankov v obeh jezikih in v vseh analiziranih vedah, smatrati za konvencionalizirana retorična sredstva, katerih uporaba naj bi zagotovila sprejemanje trditev, ki se postavijo v besedilu.

Ključne besede: glagoli vidnega zaznavanja, evidencialne retorične strategije, besedila znanstvenega članka

1 INTRODUCTION

This paper was inspired by the doctoral research I conducted in 2016–2017 (Bašić 2017), in which I examined the evidential meanings expressed by various reporting verbs used in research articles in English and Croatian. Among the reporting verbs in the studied corpus, verbs of visual perception featured prominently in both languages and all disciplines analysed. In this paper, I propose that verbs of visual perception are conventionally used as *functional evidentials* in academic discourse in English and Croatian (for more on *functional evidentials* see Ifantidou 2001, Mushin 2001, Bašić 2017). More specifically, I will show that in research articles in English and Croatian typical syntactic frames in which such verbs appear can be considered as *evidential strategies*, i.e. conventionalized rhetorical strategies used to ensure persuasion and, consequently, acceptance of the claims made in the text of the research article.

The initial assumption in this paper is that the rhetorical persuasiveness of verbs of visual perception can be traced to their implicit evidential meanings, namely the fact that the lexical meanings of such verbs imply either directly visually acquired knowledge or knowledge acquired by means of inferring on the basis of observing. As such empirical types of knowledge are conventionally perceived as persuasive, both in the “natural epistemology” reflected in the natural languages (Aikhenvald 2004; Givón 1982; Mushin 2001; Willett 1988; Woodbury 1986) and in the epistemologies of scientific disciplines, the rhetorical strategy of constructing a proposition around a verb of visual perception seems an effective choice in intending to ensure acceptance of one’s claims (Bašić 2017; Hyland 2011). What will be demonstrated in the textual analysis is how the evidential (and consequently rhetorical) potential of such verbs is realized by using various syntactic frames in a range of textual contexts. It will also be demonstrated that the evidential interpretation of utterances containing verbs of visual perception as reporting verbs will be the result of the interplay of a number of pragmatic factors that are relevant in the particular communicative situation, but (as the contrastive analysis of the English and Croatian corpora will show) the reports containing verbs of visual perception will always be used as functional evidentials whose ultimate aim is to construct rhetorical credibility and gain acceptance for the author’s claims.

The paper begins with defining the concepts necessary for setting up the research problem and explaining the methodology used in the analysis, namely the concepts of *evidentiality* and *epistemological stance* and their relevance for an effective analysis of academic discourse, followed by the concept of *knowledge construction* in academic discourse, as well as the concept of *reporting perspectives* in the research article genre. What comes next is information about the textual corpus

of research articles analysed, the research hypothesis and the explanation of the methodology used in the analysis. This is followed by the textual analysis of the examples from the corpus and a discussion of the findings. Finally, conclusions and potential avenues for future research are offered.

2 ACADEMIC PERSUASION, EVIDENTIALITY AND KNOWLEDGE CONSTRUCTION

Research findings and results, i.e. the information that researchers and scholars gather by means of using scientific research methods, are communicated via a specific type of discourse, the academic discourse, wherein the genre of the research article (RA), a peer-reviewed text published in a journal, is one of the typical ways in which researchers communicate within their discipline. The RA is an example of horizontal academic communication (Swales 2004), as the text is primarily intended to be read by peers, i.e. fellow researchers. In communicating their findings, researchers and scholars put forward their claims, knowing that these will be tested by their peers and ultimately disputed or accepted. Therefore, it is reasonable to claim that the underlying pragmatic function of the RA genre is to ensure acceptance for one's claims, which is achieved by making these claims persuasive and by making the presented information reliable (Bašić 2017; Hyland 2011; Swales 2004).

2.1 Evidentiality – the linguistic coding of epistemology¹

The fundamental concept underlying the setup of the research problem and the methodology for the textual analysis in this paper is the concept of *evidentiality*. In the analysis, I build on the definitions of authors who consider evidentiality to be a conceptual (cognitive) category which reflects *natural epistemology*, i.e. ways of conceptualizing, categorizing and assessing knowledge in natural languages (Chafe 1986; Givón 1982; Ifantidou 2001; Mushin 2001; Žic Fuchs 1988). Regardless of their differences in the definitions of evidentiality, researchers generally agree that all natural languages have the possibility to mark how we know what we know (what the source of the presented information is) and, additionally, how we assess that knowledge (Aikhenvald 2018; Aikhenvald and Dixon 2003; Chafe and Nichols 1986). In some languages the marking of the source of information is grammaticalized, i.e. there are morphological devices (usually verbal endings)

¹ *Evidentiality: The Linguistic Coding of Epistemology* (1986) is the title of the seminal volume edited by Wallace Chafe and Johanna Nichols, containing a collection of articles on the linguistic phenomenon of evidentiality (see the list of references).

that systematically code how information was acquired, in a similar way that tense is coded in the morphology of the verb in English and Croatian. One of the most widely quoted examples of grammatically coded evidentiality is Willett's (1988) example from the South American language Tuyuca, in which a sentence ending in five different evidential morphemes means respectively that the speaker personally witnessed (either saw or heard) the situation described, that they inferred what had happened on the basis of some concrete clue or evidence, that they heard from somebody else what had happened or that they assumed what had happened on the basis of general knowledge and reasoning.² In languages such as English and Croatian, however, evidential information (primarily referring to directly or indirectly acquired knowledge) is not morphologically coded, but there are identifiable lexical and syntactic structures that express "evidential-like meanings" or have "evidential meaning extensions", which are pragmatically inferred.³ Aikhenvald (2004) refers to such ways of expressing evidential meanings as *evidential strategies*.

The types of knowledge that particular cultures (and languages) conventionally recognize and mark may vary, but existing scholarship on this phenomenon has it that the fundamental division is between directly and indirectly acquired knowledge (Aikhenvald 2004; Aikhenvald 2018; Aikhenvald and Dixon 2003; De Haan 2005; Givón 1982; Ifantidou 2001; Palmer 2001; Willett 1988; Woodbury 1986; Žic Fuchs 1988). Regardless of specific cultural differences, there seems to be a criterion common to all languages and cultures when it comes to establishing the hierarchy of the types of knowledge in terms of its reliability. According to Givón (1982), human categorization of knowledge (natural epistemology) is based on assessing evidence, whereby directly visually acquired knowledge is conventionally considered the most reliable type of knowledge and, as such, not challenged (Aikhenvald 2004; Bašić 2017; Hardman 1986; Schlichter 1986; Weber 1986; Wierzbicka 1994; Willett 1988). This is not surprising if we take into account that the acquisition of knowledge begins with our senses (for more on the notion of *embodied cognition*, one of the tenets of contemporary cognitive science, see Varela et al. (1991, 2016).⁴ In the case of visually acquired knowledge, the process begins with seeing and observing, on the basis of which we make inferences. As this process is universal to human beings, it is reflected

2 Aikhenvald (2004, 2018) strongly advocates the use of the term *evidentiality* only for the grammatical category marking the source of information and insists that the reliability of knowledge (the "evidence") is not directly coded in the evidential marker, but always pragmatically inferred.

3 Among the first to explicitly identify evidentiality in English were Anderson (1986) and Chafe (1986), contributors to the Chafe and Nichols (1986) volume on evidentiality, while among very few authors who write about expressing evidential meanings in Croatian I point to the work of Žic Fuchs (1988), Čulić-Viskora (2008) and Gnjatović and Matasović (2010).

4 "By using the term *embodied* we mean to highlight two points: first that cognition depends upon the kinds of experience that come from having a body with various sensorimotor capacities, and second, that these individual sensorimotor capacities are themselves embedded in a more encompassing biological, psychological and cultural context." (Varela et al. 1991, 172–3)

in many languages in linguistic realizations of the primary conceptual metaphor KNOWING IS SEEING.⁵ Both in traditional oral cultures and communities and in sophisticated modern research communities, the highest degree of reliability is conventionally attributed to knowledge acquired directly, through the empirical process of observing and inferring on the basis of what you see.⁶ It may therefore be safely assumed that the prominence of the verbs of visual perception among the reporting verbs used in research article texts is pragmatically motivated by the wish to make the stated claims more reliable (Bašić 2017). In other words, language enables us to construe utterances in a way that we believe will be the most communicatively effective in a certain situation, so the linguistic behaviour of the authors of RA texts can be observed as a reflection of their disciplinary epistemologies, which at the same time points to how the authors want the reader to interpret the stated information (Bašić 2017; Hyland 2011). In this respect a very applicable framework for analysing the complex process of rhetorically constructing credibility in one's discourse can be found in Mushin's (2001) concept of *epistemological stance*. The concept unites the phenomena of *linguistic subjectivity*, *epistemic modality* and *evidentiality*. Namely, in Mushin's view (which relies on the theoretical framework of cognitive linguistics, primarily on the notions of *subjectivity* and *subjectification* as understood by Traugott (1989), Langacker (1990) and Sweetser (1990)), the linguistic framing of a situation reflects a *conceptualizer's subjective construal* of a situation, i.e. the conceptualizer's perspective concerning the knowledge of information they express in an utterance, and the ensuing evidential interpretations are the result of pragmatic inference based on the pragmatic context of the particular utterance. Conceptualizers can, for instance, present their knowledge as personal experience, an inference, a report, or a fact. In the case of research article texts this means that the authors, relying on their knowledge of the disciplinary conventions and epistemologies, can rhetorically construe utterances in ways that they believe to be the most communicatively effective.

2.2 Knowledge construction by means of academic discourse

Hyland (2011, 193) perceives academic writing as a dynamic process of *knowledge construction* in a particular discipline and a particular community, in which the disciplinary community decides what is to be accepted as verified disciplinary

5 The notion of conceptual metaphor as a fundamental mechanism of constructing meaning and organizing knowledge by cognitively (and linguistically) relating two different conceptual domains was introduced by Lakoff and Johnson (1980). The most fundamental and universal metaphors, relating to common aspects of human experience (such as KNOWING IS SEEING) are referred to as primary metaphors (Grady 1997, 296).

6 In Givón's (1982) view, natural epistemology is the equivalent of the empirical process of inductive reasoning in science.

knowledge. Hyland's term *knowledge construction* seems particularly aptly chosen and vivid, as it implies two parallel goals of academic discourse: firstly, authors hope that their findings will be used to “build” on the existing disciplinary knowledge, and secondly, in order to achieve this they try to rhetorically “construct” their discourse as persuasive. Ways of rhetorically framing academic discourse and balancing between various high and low-risk discourse functions in RA texts (see Tang and John 1999) are culture-specific and depend on various community and disciplinary conventions, which are the result of the nature of the research problems and processes (non-experimental/argumentative versus experimental) and the epistemological traditions of the disciplines (Hyland 2000, 2011). Put broadly, authors will use rhetorical strategies which they judge to be productive in achieving academic persuasion and, conversely, they will avoid strategies which they perceive as potentially counter-productive (see Bašić and Veselica Majhut 2017).

3 CORPUS, HYPOTHESIS AND METHOD

The textual analysis in this paper was conducted on a corpus of complete texts of 165 research articles in nine research disciplines, both “hard” and “soft” (computer engineering, mechanical engineering, physics, chemistry, biomedicine, psychology, sociology, linguistics, and literature), in two languages – English and Croatian. The corpus used is the corpus I studied as part of my doctoral research (Bašić 2017). The genre of the RA was chosen as the typical way for scientists to communicate their research findings to their own disciplinary community, whose members are invited to assess and verify their claims. High quality journals were chosen by consulting expert informants for each discipline, and individual research articles were then chosen randomly from one or more issues of the selected journal. The search was limited to issues between 2008 and 2014, to ensure insight into current rhetorical practices in academic discourse.

The names and volumes of the journals from which the RAs were chosen, as well as online bases used to access the articles, are listed in the Appendix at the end of this paper.

The contrastive approach was chosen in order to test the hypothesis that, regardless of the differences between disciplinary practices, epistemologies and disciplinary communities' cultures which are linguistically reflected in the varied typical syntactic framings of reports, verbs of visual perception are used as functional evidentials in RAs in the corpus in all the disciplines and in both languages. More specifically, reports containing verbs of visual perception are used as a rhetorical means of constructing credibility and gaining acceptance for the author's claims. It needs to be emphasized that the analysed corpus does not contain Croatian RA

texts in physics, chemistry and computer engineering, as my expert informants claimed that there were no longer any relevant journals in these disciplines that published contributions in Croatian, due to reasons of international visibility.

The analysis conducted in Bašić (2017) revealed a number of verbs of visual perception conventionally used in reports in different sections of the RAs in the corpus. For the purposes of this paper, a list of the most prominent of these verbs in both English and Croatian RAs was created.⁷ The corpus (in the format of a Word document) was first automatically searched for these verbs using the “Find” option, and then all examples of reporting phrases and clauses which contained verbs of visual perception were identified manually. These reports were then sorted into several categories, according to the reporting perspective that the utterance was framed in. The model and methodology used were developed in Bašić (2017), where reports were classified into the following categories: reports from the authors’ personal perspective, reports from the perspective of the research, reports from an impersonal perspective, reports from other authors’ perspective and reports framed round evaluative expressions such as epistemic modals, hedges or boosters.⁸ The discourse function of the reports was determined by analogy to the model used in Kuo’s (1999) and Tang and John’s (1999) analyses of the use of personal pronouns in scientific journal articles, where discourse function is defined as “the function that the sentence with the personal pronoun has in the immediate context of the RA”, and where it is claimed that the “discourse function reflects the communicative intention of the author of the RA” (Kuo 1999, 130).⁹ By analysing the interaction of the reporting perspective, the discourse function of the report and the meaning of the verb in the particular utterance, the evidential implications and the resulting communicative/rhetorical effects of the analysed utterances were determined.

4 ANALYSIS AND DISCUSSION

The rhetorical strategies used by authors of the RAs in the studied corpus are analysed as a reflection of the authors’ epistemological stances, i.e. the ways in which the authors want the information to be perceived (Mushin 2001). In the analysis

7 The main criterion for classifying the verb as a “verb of visual perception” was that its lexical meaning could in some way be related to the concepts of “looking” or “seeing”.

8 This model was developed through a critical assessment and modification of the classifications proposed by Thompson and Ye (1991), Charles (2006), Rundblad (2007), Hyland (2001), Molino (2010) and Yang (2013).

9 Kuo (1999) identifies some typical discourse functions common to the RA as a genre, regardless of discipline, such as, for example, expressing intention, organizing the text and guiding the reader through the argument, recounting experimental procedure and methodology, making a claim and emphasizing one’s own contribution. For more on the types of discourse functions and the distinction between high and low-risk discourse functions, see Tang and John (1999), Chávez Muñoz (2013), Bašić and Veselica Majhut (2017).

I look at the combination of the lexical meaning of the verb of visual perception, the form of the verb, the discourse function of the report in a particular utterance and the reporting perspective in which the utterance is framed, and try to explain how each of these factors contributes to rhetorically constructing credibility in the analysed utterance. In analysing individual examples, I point to the differences and similarities between the RA texts from various disciplines and the two languages analysed. The verbs of visual perception are underlined in the analysed examples to make them easier to notice. The information about the source of the example sentence is given in brackets after the sentence in the form of bold script abbreviations. The list of the abbreviations used for particular disciplines is given in the Appendix.

4.1 Rhetorical strategy of reporting from the personal authorial perspective in combination with the verbs *observe*; *uočiti*.

The personal authorial perspective in RA texts means reporting in the first person singular or plural, with the first person plural either being used exclusively, as authorial *we*, or inclusively (in a way that it “includes” the constructed reader in the text by engaging them in the rhetorically constructed dialogue).

In the corpus, the most salient verbs of visual perception in reports framed in the personal perspective were the verbs *observe/uočiti* and *show/pokazati* in the English and Croatian corpora respectively. As far as its evidential potential is concerned, depending on the actual context, this rhetorical strategy in both English and Croatian can either imply direct sensory visual knowledge, as in English example 1, or inferring on the basis of observing, as in examples 2 and 3 from the English and Croatian corpora, respectively.

- (1) We observed 136 VTE events during follow-up with incidence of 1.72 (95% CI 1.44 to 2.04) per 1000 person-years during the mean follow-up time of 10 years (table 2). (**MED 9**)
- (2) We have observed an intense occurrence of patterns in this domain, that is, many different occurrences of the patterns in the same metamodel, suggesting that many problems in this domain are intrinsically multi-level. (**CE 6**)
- (3) Svugdje smo uočili stanovitu mjeru semantičke shematizacije. (**LING 5**)

In example 1 the discourse function of the utterance is to report on the findings of an experimental research process. The verb, whose lexical meaning denotes looking, is marked as simple past tense. All this information implies that the

knowledge reported by the utterance was acquired directly through observing the research process. In example 2, however, the same verb is used, but it is marked as present perfect. The perfect here implies a resultative process and the evidential meaning implied by this utterance is that the knowledge reported is inferred on the basis of available cumulative findings. The same is true in example 3 from the Croatian corpus, where the implied evidential meaning is also inferring on the basis of observing, i.e. the primary meaning of the verb of visual perception is extended through metonymic mapping and the resulting meaning actually implies a mental process accompanying the act of the actual observing of the findings.

4.2 The rhetorical strategy of reporting from the personal perspective using inclusive *we* in combination with the verbs *see*, *observe*; *vidjeti*, *uočiti*, *promotriti*, *zapaziti*

It may be claimed that by using this strategy the author tries to prevent the challenging of their claims by creating a sense of dialogue in which the reader is invited to “see for themselves” and verify the validity of the author’s claims. The resulting effect is that the reader will most likely not dispute the claims made. In the English corpus, the most prominent verbs of visual perception used in such reports are *see* and *observe*, as illustrated in examples 4–6.

- (4) As we see in 3.4, suffixes are also quite specific in terms of the word class patterns they signal. (LING 7)
- (5) We can see this tension between “truth” and “fiction” being worked out everywhere in Amy Gutmann’s introduction to the published text and more subtly throughout the cross-disciplinary “reflections” by Marjorie Garber, Peter Singer, Wendy Doniger and Barbara Smuts that follow the lecture-narrative. (LIT 2)
- (6) We can observe that both mean and median comprehension level for the T group are consistently smaller than those in S group. (CE 1)

In examples 5 and 6, the verb of visual perception is preceded by the modal verb *can* used as a hedging device, i.e. as a way of making the claim more tentative, which is generally a strategy used for preventing the potential challenging of one’s propositions. Furthermore, in example 5 the context of the report (the discourse function of interpreting the findings in a non-experimental type of research) makes the concept of “mental activity” (rather than “looking”) more prominent in the interpretation of the evidential meaning of the utterance.

In the Croatian corpus, a wider range of verbs of visual perception is found in this type of reports, as illustrated by examples 7–10.

- (7) Usporedbom srednje koncentracije Cu za lokalitet Ivan Sedlo s trima ruralnim lokalitetima u Velikoj Britaniji (0,29, 0,20 i 0,65 $\mu\text{g L}^{-1}$), vidimo kako su vrijednosti s lokaliteta Ivan Sedlo više. (CHEM 1)
- (8) Odnos tropâ i neizvjesnog statusa ljudskog zaoštren je, vidjeli smo, u raspravi B. Johnson o ženskoj lirici. Promotrimo li iznova, u svjetlu De Manove argumentacije, etička pitanja koja je ona otvorila (...), vidimo da neodlučna antropomorfizacija pobačenih plodova ostaje trajno poetičko obilježje ženske lirike. (LIT 7)
- (9) Osvrnemo li se na stanovit broj tekstova napisanih nakon raspada Jugoslavije, uočit ćemo da se jedna poprilično velika skupina njih često spominje u kontekstu književnosti emigracije i egzila. (LIT 10)
- (10) Možemo zapaziti kako je na najstariju generaciju utjecao punk koji je dolazio sa Zapada (Sex Pistols, Clash, Ramones, Exploited, UK Subs, Dead Kennedys itd.), a na sve druge, mlađe, generacije više je utjecala već uspostavljena pulska scena nego strani bendovi, pa su... (SOC 9)

Again, the evidential interpretations in these examples will be inferred from the context. In example 7, the implication of direct visual acquisition of knowledge is more prominent, as the reader is invited to look at the figures to verify the claim, while in examples 8–10 the context makes it clear that the degree of the authors' interpretation of the findings is higher and the evidential meaning of inferring is more prominent than the meaning of visually acquiring knowledge. This is especially true in example 10, where the hedging device *možemo* emphasizes a lower degree of commitment to the proposition. It is also interesting to notice that in the discourse function of arguing the claims and finding support for them in examples 8 and 9 the authors frame their reports as conditional clauses, which is a way of negotiating the interpretation with the reader and getting the reader to agree, since the reader feels that they are directly involved in the inductive process of reasoning and inferring on the basis of observing.

4.3 Reporting from the personal authorial perspective in combination with the verbs *show; pokazati, prikazati*

Unlike the previously analysed verbs such as *observe, see* and *vidjeti, uočiti*, the verbs *show/pokazati* in RA texts in English and Croatian, respectively, behave in

the same way that other verbs of visual perception behave when they are combined with an inclusive *we*, i.e. the meaning of the verb *show* in itself implies active engagement of the reader of the text in “looking” and “seeing” what the presented information offers. In English RAs in the corpus authors usually use the verb *show* in reports from the personal perspective in the high-risk discourse functions of announcing what their research contribution will be or pointing to what they have contributed to the field of study, as illustrated by examples 11 and 12.

- (11) I show that both patterns exhibit a strong phonological within-pole relation, namely a strong preference for having their slots filled with phonologically similar elements, where phonological similarity is manifested in alliteration patterns. (LING 9)
- (12) As I shall show, several different cognitive factors go together in shaping topic-comment structures in signed languages. (LING 6)

A major difference between English and Croatian framings of high-risk discourse functions is that authors in English RAs will frequently use the first person singular, while authors of Croatian RAs will prefer the first person plural, especially the authorial *we* (see Bašić and Veselica Majhut 2017). What is more, in these discourse functions Croatian personal perspective reports will commonly contain a hedging device, which is used as a politeness strategy to make the propositions more tentative and prevent potential criticism. This might be a signal of disciplinary community notions of appropriateness (see Bašić and Veselica Majhut 2017). Typical examples of this kind of reports in Croatian texts are illustrated by 13–15.

- (13) Budući da je taj san uvukao i feminističku kritiku kao aktivnu sugovornicu te otvorio prostor za razmatranje protokola čitanja književnog teksta, nastojat ćemo pokazati da okršaje psihoanalize i dekonstrukcije valja smjestiti na sâm početak psihoanalize, a ne na početak njezina upletanja u čitanje književnih tekstova. (LIT 6)
- (14) Upravo je pitanje antropomorfizacije greben razumijevanja na koji se uvijek nasukavaju sve figure, a da bismo pokazali koje su posljedice te neobilaznosti, čitat ćemo paralelno De Mana (1984) i Johnson (2010). (LIT 7)
- (15) U ovom radu želimo prikazati svoja iskustva s upotrebom PICC-a u bolesnika s hematološkim tumorima, uz poseban osvrt na infektivne komplikacije. (MED 10)

The common denominator for all types of reporting from the personal perspective is that the author of the RA is implied as having authority over the presented information. Consequently, the author will be criticised or held responsible if the

reader assesses the presented information as open to dispute. For this reason, authors of RAs sometimes use other reporting perspectives and rhetorical strategies to “objectify” their claims and rhetorically minimize the role of the researcher in the research process, or to engage in a textual dialogue with other authors and their findings (Hyland 2011). These rhetorical strategies will be illustrated in the following sections.

4.4 The rhetorical strategy of reporting from the perspective of the research process or some segment of the research process combined with the verbs *show; pokazati/prikazati*

In this rhetorical strategy, the subject of the report is an “inanimate” nominal referent such as *research, analysis, findings, results; istraživanja, studije, radovi, rezultati, podaci*, which is combined with the verbs of visual perception *show* in English and *pokazati/prikazati* in Croatian, respectively. By using this strategy, the effect of factuality and impartiality of the presented claims is enhanced, as illustrated in English example 16 and Croatian example 17.

- (16) This review shows that there is a range of psychosocial interventions for individuals with intellectual disabilities or lower-functioning autism spectrum disorders that can be provided by non-specialist service providers. (MED 4)
- (17) Rezultati naše studije, zajedno s rezultatima ostalih studija provedenih u Hrvatskoj, pokazuju da je prevalencija atopijskog dermatitisa II. stupnja 5,76%.7–10 (MED 7)

The wide variety of noun phrases used as subjects in this kind of reports reflects the range of different methodologies used in particular disciplines and the varied nature of their research problems and processes. Broadly speaking, in both English and Croatian, in experimental research, the evidential interpretation of such reports will be “visually acquired knowledge”, as illustrated in English examples 18 and 19, while in non-experimental research the interpretation will be “inferential knowledge”, as illustrated in Croatian example 20.

- (18) Recent simulations show the flow of the granular material inside such a cavity under normal gravity for a vertically shaken system [24, 25]. (PHYS 6)
- (19) Krivulje ovisnosti koeficijenata brzine reakcije o temperaturi pokazuju jasan prijelom. (CHEM 8)

- (20) Analiza slogana na dijakronijskoj razini pokazala je razvojni put od prvotnoga poziva na zajedništvo i solidarnost prema kasnijoj izrazitoj separaciji na dvije polarizirane skupine (*mi i vi*). (SOC 6)

4.5 The rhetorical strategy of reporting from other authors' perspectives in combination with verbs *observe, see; uočiti, zapaziti, vidjeti, promatrati*

Reporting from other authors' perspectives is one of the chief rhetorical strategies for constructing the RA text, as intertextuality is an inherent principle of academic writing and the construction of disciplinary knowledge (see Swales 2004 and Hyland 2011). By using this perspective the author exhibits familiarity with disciplinary knowledge, opens research space for their own work (Swales 1990, 2004) and builds on the existing knowledge by adding their findings. In the function of reporting on other authors' findings, the evidential interpretation of the meaning of the verbs of visual perception leans towards the direct visual mode of knowing only in a limited number of cases, as in English example 21.

- (21) Park et al. 55 directly observed nanoparticle super lattice formation. (CHEM 5)

In most cases in both the English and Croatian corpora, however, the evidential interpretation in this reporting perspective will lean more towards emphasizing the mental process, i.e. knowledge acquired by means of inferring on the basis of observing, as English example 22 and Croatian example 23 illustrate.

- (22) For example, as Mulinari and Neergaard observe from interviews of immigrant union activists in Sweden, many native Swedes assume that immigrants cannot be full participants in the collective historical experience of Swedish... (SOC 1)
- (23) L. Zadeh (1965) uočio je da je članstvo u nekim kategorijama stupnjevito (rich people, tall man), a u drugima nije (senator). (LING 6)

In Croatian RAs in the corpus, the shift from the purely "visual" interpretation is grammatically marked by a specific syntactic structure that is used to ensure the "inferential" interpretation, namely the construction containing a verb of visual perception and the adverbial linker *kao*, resulting in constructions *vidjeti kao* (Eng. *see as*) and *promatrati kao* (Eng. *observe as*, in the meaning of "consider"), as seen in examples 24 and 25.

- (24) Autori (Speer i sur., 2001.; Perren i sur., 2004.) upozoravaju na manjak socijalne integracije i socijalne podrške u suvremenom društvu, što vide kao posljedicu činjenice da ljudi češće ne žive u istom susjedstvu kao njihove obitelji, kolege s posla ili prijatelji. (SOC 2)
- (25) Silić i Pranjković (2005) tvorbu riječi promatraju kao dio morfologije, koju dijele na tvorbu oblika riječi i tvorbu riječi... (LING 10)

In both English and Croatian, in cases where the inferential evidential meaning is expressed, the verbs are marked as present tense, which is a rhetorical way of presenting information as factual, i.e. marking the knowledge as accepted by the disciplinary community and not open to dispute.

4.6 Rhetorical strategy of reporting on the findings of one's research from an impersonal perspective in combination with verbs *see, observe; uočiti, vidjeti, zapaziti, primijetiti, promotriti*

This strategy emphasizes impartiality and objectivity (Bašić 2017; Hyland 2011). By foregrounding the findings rather than the researcher, the information is presented as factual and the intended communicative effect is that the findings are perceived as persuasive and the knowledge presented as not disputable. In English texts, the impersonal perspective is generally realised by using the passive form, in the discourse function of reporting on some stage of the research process, and the verbs of visual perception are marked as past tense, to signal what knowledge was visually/inferentially acquired at some point in the research, as illustrated by example 26.

- (26) Compared with the comprehension task, much more variation was observed among the scores from the production task (see Table 4). (LING 5)

Conversely, in Croatian RA texts a prominent syntactic form used in impersonal reports in the discourse function of reporting on the findings and results of the research process is the so-called “impersonal construction”, a combination of the verb and the reflexive particle *se*. Furthermore, in the impersonal construction the verb of visual perception is typically marked as present tense. This is a rhetorical strategy that emphasizes the effect of the factuality of the presented information, as the implication is that the same knowledge would be “observed” by anyone who was to “look” at it. This effect is illustrated by Croatian examples 27 and 28.

- (27) Na temelju rezultata hi-kvadrat testa uočavaju se značajne razlike na sve tri promatrane varijable. (SOC 3)

- (28) Kod 12,6% ispitanika (45 njih) zapaža se odbacivanje nelegitimnih načina postizanja uspjeha (...) Iz ovih se rezultata vidi da je konzistentni meritokratski svjetonazor najprisutniji u istraživanoj populaciji, ... (SOC 1)

Another prominent verb of visual perception in this kind of report is the verb *show*; *pokazati* in English and Croatian, respectively. Again, in English, in impersonal reports the verb *show* is usually marked as simple past tense, in the discourse function of reporting individual research findings, or as present perfect tense, for reporting cumulative findings, as illustrated in English examples 29 and 30.

- (29) The strongest effects were shown for individuals with intellectual disability without autism (five of six effect size estimates 0.50). (MED 4)
- (30) Typically, in cancer cells, TGF-b has been shown to induce epithelial-to-mesenchymal transition (EMT), which plays a critical role in metastasis and is associated with chemotherapy resistance in numerous cancers. (MED 11)

In Croatian, the equivalent discourse functions are realized by using the verb *pokazati* in the “impersonal form”, in the past and present tense respectively, as illustrated by Croatian examples 31 and 32.

- (31) Pokazalo se da sudionici istraživanja koji doživljavaju veći strah od procjene drugih ljudi doživljavaju i veću anksioznost u socijalnim interakcijama. (PSY 5)
- (32) S tim u vezi, unutar domicilnoga znanstvenog istraživanja pokazuje se da nedostaje sustavno i kontinuirano istraživanje navedene problematike (...) 84,85 (MED 8).

This is a rhetorical strategy that can greatly enhance the apparent impartiality and factuality of the propositions made.

4.7 Rhetorical strategy of using multimodality (using non-textual modes of presenting information, i.e. figures, tables, graphs, etc.) in combination with verbs *note*, *notice*, *see*; *vidjeti*

By using this rhetorical strategy, the author directs the reader towards the important information and invites them to “see for themselves” by “looking” at the findings presented in tables, figures, graphs, etc, as illustrated by English and Croatian examples 33 and 34, respectively.

- (33) Additionally, no evidence of substantial publication bias was observed from the Begg ($p=0.533$) and Egger regression tests ($p=0.849$; *see* online supplementary table B in appendix 1). (**MED 8**)
- (34) Kategorizirani odgovori prikazani su u Tablici 3, iz koje *se vidi* da je značajan dio studentske populacije višega socijalnog podrijetla, tj. roditelji su u 1., 2. i 3. kategoriji zanimanja (45,4% očeva i 51% majki). (**SOC 1**)

5 CONCLUSION

The lexical meanings of verbs of visual perception (e.g. *see, observe, show; uočiti, vidjeti, zapaziti, promatrati, pokazati*) conventionally imply knowledge acquired by means of looking, observing and inferring on the basis of observing. This kind of knowledge is conventionally perceived as reliable and therefore not challenged. This is why authors of RA texts use reports containing verbs of visual perception as a rhetorical means of ensuring acceptance of their claims. The findings of this study confirm the hypothesis that reports featuring verbs of visual perception are used to rhetorically construct credibility in the RAs in all nine disciplines and in both languages analysed in the corpora. There is a range of conventional rhetorical strategies that authors in particular disciplinary communities and in particular discourse functions within the RA use to this end, and each of these strategies carries a certain “epistemological potential”. However, the actual evidential (and consequently epistemological) interpretation of each utterance is ultimately derived from the interaction of the lexical meaning of the verb, its grammatical coding, the reporting perspective, the discourse function of the utterance and a range of pragmatic concerns (primarily the considerations of the disciplinary and community cultures involved).

The theoretical model and methodology for analysing academic discourse presented in this paper may be used to gain insight into rhetorical strategies used in RA writing in other languages and disciplinary communities, and the findings may have practical use as reference materials for RA authors, translators and students mastering the art of academic writing. However, as the primary focus of the paper was to present a qualitative analysis of typical syntactic framings of verbs of visual perception in RAs, an obvious limitation of the presented study is a lack of quantitative data. In this respect, some future research might aim to gather data on the frequency of use of these verbs in particular parts of the RAs or particular disciplines, which would provide a fuller picture of the prominence of verbs of visual perception among the conventional ways of reporting in particular disciplines.

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Appendix

I used the following databases for access to full texts of research articles in English and Croatian:

Science Direct, arXiv, PLOS, ACM Digital Library, Taylor & Francis Online Journal Library, Sage Journals, Hrčak.

The RA texts in the corpus were randomly chosen from the issues of the journals listed below. The abbreviations used in the text for particular research disciplines are given in the brackets in bold.

COMPUTER ENGINEERING (**CE**)

ACM Transactions on Software Engineering and Methodology, Vol. 23, No. 2, No. 3, No. 4, Vol. 24, No. 1, No. 2, 2014

MECHANICAL ENGINEERING (**ME**)

American Journal of Mechanics and Application 2 (1), 2 (2), 2 (3), 2 (4), 2 (5), 2014

Strojarstvo 52 (3), 2010., 53 (2), (5), (6), 2011., 54 (1), (4), (5), 2012., 55 (3), 2013.

PHYSICS (PHYS)

Physical Review Letters, Volume 111, 2014

CHEMISTRY (CHEM)

The Journal of Physical Chemistry, 117, 2013

International Journal of Hydrogen Energy 38, 2013

Chem. Commun. 49, 2013

Dalton Transactions 42, 2013

Journal of the American Chemical Society 135, 2013

MEDICINE (MED)

PLOS Medicine, Volume 11, Issue 11, 2014

British Medical Journal Open, September/October 2014

Nature Communications, January 2014

Liječnički vjesnik 2013., godište 135. i 2014., godište 136.

PSYCHOLOGY (PSY)

Clinical Psychology Review 34, 2014

Journal of Personality and Social Psychology, American Psychological Association, 2014

Psihologijske teme 23 (2014)

SOCIOLOGY (SOC)

Work, Employment, and Society 25 (2), 2011

Human Relations 64 (3), 2010

Društvena istraživanja 20 (2011), 21 (2012), 23 (2014)

LINGUISTICS (LING)

Applied Linguistics 35/4, 2014

Cognitive Linguistics 22/1, 2011

Suvremena lingvistika 72 (2011), 74 (2012), 75 (2013), 76 (2013), 79 (2015)

LITERATURE (LIT)

Journal of Postcolonial Writing Vol. 49 No. 4, No. 5, 2013

Umjetnost riječi LVII (2013), 1–2, 3–4, LVIII (2014), 2