

UNIVERZITET U SARAJEVU

FILOZOFSKI FAKULTET

ODSJEK ZA ANGLISTIKU

**THE INFLUENCE OF LEXICAL CHOICES ON LANGUAGE PROCESSING AND
AUDITORY-VISUAL PERCEPTION**

**(UTJECAJ LEKSIČKIH IZBORA NA PROCESIRANJE JEZIKA I
AUDITIVNO-VIZUELNU PERCEPCIJU)**

**ZAVRŠNI MAGISTARSKI RAD
DRUGI CIKLUS STUDIJA (LINGVISTIČKI SMJER)**

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Sarajevo, Septembar 2020.

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ABSTRACT

The aim of the present master's thesis is to examine the influence of lexical choices in (leading) questions on impression-formation and judgment when answering questions about the age of a person on a photograph and the speed of a moving vehicle in a short video. To analyze in what way and to what degree the choice of different lexical items when phrasing a question elicits distinct estimates in numerical quantity, it has been proposed that different versions of the same questions about the estimate of identical matter will yield distinct responses, depending on whether the question contains high-frequency lexical items or near-synonyms of those words in the given context. It has also been proposed that answers from groups presented with the questions of the same lexical structure will be similar irrelevant of the language or the way in which the experiment is conducted. This research relies on methodology used by Loftus and Palmer (1974) and Boroditsky and Thibodeau (2011). The research was conducted in three phases and 150 subjects aged 13-85 participated in the study. The participants were asked to answer to two sets of questions (eight questions in total), i.e. four in Bosnian and four in English. In the first phase of the experiment, subjects were questioned on-site and the questions were in the Bosnian language. The second phase introduced using online surveys to elicit answers, while the language used was also Bosnian. In the final phase, the questions were asked in the English language through an online survey. In order to verify the hypotheses, the subjects were divided into two groups in all the three phases of the experiment. The control group was asked two questions with the aim of obtaining their estimate about the age of a person in a picture and the speed of a moving vehicle in a video. The experimental group was also asked to give their estimate about the same matter, with the slight difference in questions in which a single lexical item was replaced by its near-synonym. Each experiment demonstrated a difference in judgment between the two groups, indicating that the lexical choices used in a question can greatly affect the given answer regardless of the language or the method of collecting or recording the responses.

Key terms: lexical choice, perception, eliciting responses by means of audio-visual input, (leading) question, synonym

SAŽETAK

Cilj ovog završnog magistarskog rada jeste istražiti utjecaj leksičkih izbora u (sugestivnim) pitanjima na rasuđivanje i formaciju impresije u odgovorima na primjeru procjene starosne dobi osobe na fotografiji i brzine vozila u pokretu. S ciljem analiziranja na koji način i u kojoj mjeri izbor leksema pri formiranju pitanja izaziva različite odgovore, sugerira se da će drugačije verzije istih pitanja o procjeni godina osobe na slici i brzine kretanja vozila na video snimku izazvati različite procjene, ovisno o tome da li su u pitanju upotrijebljeni visokofrekventni leksemi ili njihovi približni sinonimi u datom kontekstu. Također se sugerira da će odgovori grupa čija su pitanja iste leksičke strukture biti slični bez obzira na jezik i način na koji je eksperiment sproveden. Ovo istraživanje se oslanja na metodologiju koju su koristili Loftus i Palmer (1974), kao i Borditsky i Thibodeau (2011). Istraživanje u kojem je učestovalo 150 ispitanika u dobi od 13 do 85 godina je sprovedeno u tri faze. Ispitanicima je postavljeno ukupno osam pitanja podijeljenih u dva skupa pitanja, pri čemu su četiri pitanja bila na bosanskom, a četiri na engleskom jeziku. Prva faza eksperimenta je podrazumijevala pristup ispitanicima uživo i postavljanje pitanja na bosanskom jeziku. U drugoj fazi su pitanja također bila na bosanskom jeziku, a za ispitivanje je korišten onlajn upitnik. U posljednjoj fazi eksperimenta jezik pitanja je bio engleski, a odgovori su prikupljeni onlajn upitnikom. S ciljem potvrde navedenih hipoteza, ispitanici su bili podijeljeni u dvije grupe u sve tri faze ovog eksperimenta. Razlog postavljanja dva pitanja ispitanicima u kontrolnoj grupi je bio da se utvrdi koja je njihova procjena o dobi osobe na fotografiji i o brzini kretanja vozila na video snimku. Ispitanicima u eksperimentalnoj grupi su postavljena pitanja o istom, a u kojima je samo jedna riječ bila zamijenjena leksičkom jedinicom djelimično podudarnog značenja. Svaki od eksperimenata je pokazao razliku u procjenama između dvije grupe što potvrđuje da su leksički izbori u pitanju imali značajan utjecaj na odgovore bez obzira na jezik ili metod prikupljanja i bilježenja odgovora.

Ključne riječi: leksički izbor, percepcija, dobijanje odgovora putem audio-vizelnog poticaja, (sugestivno) pitanje, sinonim

1. INTRODUCTION

When I use a word, it means just what I choose it to mean —
neither more nor less.

Humpty Dumpty, *Alice in Wonderland*

Language is tightly woven into human experience that it is scarcely possible to imagine life without it. Chances are that if you find two or more people together anywhere on earth, they will soon be exchanging words. When there is no one to talk to, people talk to themselves, their dogs, even to their plants. In our social relations, the race is not to the swift but to the verbal – the spellbinding orator, the silver-tongued seducer, the persuasive child who wins the battle of wills against a brawnier parent (Pinker, 1995, p. 17).

Despite the fact that certain types of animals have been found to communicate in some way with the members of their kind (see: Aitchison, *Animals that try to talk*, 2008, p. 24), the fundamental distinction which differentiates human species from all other creatures is our complex system of language. The nature of this system has caused numerous debates and given rise to divergent opinions among linguists and philosophers who have long been trying to grasp the understanding of the connections between thoughts and language. Furthermore, the persuasive characteristic of language has been recognized since ancient times.

It is also believed that the language a person speaks influences the way they perceive the world, the idea which originated from the studies of Edward Sapir and Benjamin Lee Whorf. This phenomenon is referred to as the Sapir-Whorf hypothesis. There is a number of studies exhibiting that people from different cultures who are speaking different languages observe the world in distinct ways, especially in terms of understanding space and time.

Although the topic of the present thesis is not completely detached from the considerations given above, especially when it comes to the notions of spatio-temporal relations in different languages, the main topic of this paper is not the comparison between the perceptions of the world through language and among people from different cultures. The central issue discussed here is understanding that (and how) language is used to affect our impressions, judgments and decision-making processes.

For example, the media takes advantage of this potential of language by shaping public beliefs about certain events, situations, and people. In the modern world, where consumer industry is of great importance, businesses heavily rely on advertising as a tool for generating huge profits. Successful advertisements are those that catch consumers' attention, represent the products in the best possible way, and ensure easy memorability. Such goals are achieved by using appealing language and figures of speech. Another field where language is crucial for achieving certain goals is politics. In both politics and the media, language may be used to shift responsibility for particular actions, make others believe in the ideas one wants to promote, instil false beliefs etc.

Several studies (e.g. Loftus and Palmer (1974) and Boroditsky and Thibodeau (2011)) have demonstrated how different lexical choices may activate different associations in the mind and how the way a question is formed may affect the witnesses' answers and responses to an event. The purpose of this study was to investigate how replacing a single word or an expression in a question can alter people's answers and perception, taking into consideration the findings that most people are inaccurate in reporting numerical details as time, speed, and distance.

Furthermore, the present paper will also deal with answering the questions related to the influence of lexical choices in questions to responses obtained, regardless of the language, e.g. whether different lexical choices in questions yield different answers, and if yes – to what extent, whether the replacement of lexical choices in questions has the same effect on responses regardless whether the subjects read or hear the question, and finally, whether lexical manipulation yields the same results in two different languages, e.g. Bosnian and English language.

Therefore, the three hypotheses this research will either confirm or refute are the following:

H1: Replacing a single lexical item in a (leading) question with its near-synonym may affect the answer given to that question.

H2: Responses from subjects who were asked the same version of the question will be significantly similar irrelevant of the language in which the question is asked.

H3: Responses from subjects who were asked the same version of the question will be significantly similar irrelevant of the manner or the method in which the experiment is conducted.

2. THEORETICAL FRAMEWORK

2.1 Language Processing and Knowledge of the World

As we are frequently faced with an extensive number of decisions we need to make and new information that needs to be incorporated into our pre-existing knowledge and in order to understand the way our mind deals with the knowledge of the world or domain-specific knowledge, choices and new situations, it is important to comprehend the processes happening in the brain while we process information.

According to Freeman (2001), all types of behaviour are caused by neural events in the brain. In order to understand what comprises neural events, we need to understand how neurons function as they receive input through dendrites and send it out further through the axon. There are billions of neurons in the human brain, and even though one neuron connects with only about one percent of neurons within its reach, there are still thousands of input and output connections for each neuron. Each new piece of information entails the creation of new connections between the neurons.

Gleitman and Papafragou (2005) suggest that processing a language is one of the central features that distinguish humans from other species. They also claim that many people share the intuition that they think in a language and the absence of language therefore would be the absence of thought. The idea of “linguistic relativity” is that language crucially shapes our mental life and perhaps memory.

One debate about language refers to the possible influence of language on mind. Every language is suggested to have its unique way of observing the world, as well as unique expressions and grammar.

The work of anthropologists, Edward Sapir (1884–1939), and his student, Benjamin Lee Whorf (1897–1941), in this area has come to be known as the Sapir-Whorf Hypothesis. The theory follows two paths: the theory of linguistic relativity and the theory of linguistic determinism. The theory of linguistic relativity states that different cultures interpret the world in different ways, and that languages encode these differences. Some cultures will perceive all water as being the same, while others will see important differences between different kinds of water (rain, flood water and still water, for instance). The difference in perception will be apparent in the languages, because speakers have to articulate the way they see the world, and will develop differences in their languages accordingly.

The term *relativity* refers to the idea that there is no absolute or “natural” way to label the world. We label the world according to our perception of it and that perception is relative: it varies from culture to culture. The Sapir-Whorf Hypothesis also incorporates another theory, the theory of linguistic determinism. This states that not only does our perception of the world influence our language, but that the language we use profoundly affects how we think. Language can be said to provide a framework for our thoughts and, according to the theory of linguistic determinism, it is very difficult to think outside that framework (Thomas & Wareing, 1999, p. 21).

One of Whorf’s most famous explorations of linguistic relativity and linguistic determinism is his 1939 paper “The Relation of Habitual Thought and Behaviour to Language” (reprinted in Carroll, 1956, pp. 134–59). Whorf compared the Hopi language, an indigenous language in the south of the United States, with a group of languages he referred to as Standard Average European (SAE) which included English, French, German and other related European languages. As a result of his research, he claimed that “the grammar of Hopi bore a relation to the Hopi culture, and the grammar of European tongues to our own Western or European culture” (in: Carroll, 1956, p. 138). One of the linguistic differences that Whorf highlighted in his Hopi-SAE comparison was examined in the ways of talking about concepts such as time and space. According to Whorf, all people have an awareness of time, “the basic sense of becoming *later and later*” (in: Carroll, 1956, p. 139). In SAE languages, such as English, French and German, verbs are marked to indicate the present, the past, or the future. The use of this system could be said to reflect and reinforce the belief that time is basically ordered into three separate periods. Therefore, the past is over and done with (and is therefore at the most consigned to memory), the present is happening now, and the future is yet to be and can only be imagined. On the whole, therefore, SAE cultures seem to have interpreted and linguistically represented the abstract concept of time in “physical”, i.e. metaphorical terms, as something that can be divided into discrete units that progress in a linear fashion. Even though the Hopi have a sense of time as “becoming later and later”, they view its passage as a duration of stages rather than as a row of discrete units. An expression such as “ten days”, which reflects a belief that each day is a different entity, is not possible in Hopi, where “the return of the day [is] felt as the return of the same person, a little older but with all the impresses of yesterday” (Whorf, in Carroll, 1956, p. 151).

This concept of time explains why Hopi verbs have no tenses like those in European languages (Thomas & Wareing, 1999).

In the later years, many other researchers conducted a number of relevant experiments in an attempt to prove or disprove the Sapir-Whorf hypothesis.

For example, according to Holyoak and Morrison (2005), speakers of absolute languages reconstruct a shuffled array of objects relative to extrinsic directions in contrast to speakers of Dutch, who reconstruct the array relative to their position. What's more, when speakers of languages with only extrinsic reference systems are asked to point home after being driven hither and thither, they point with impressive accuracy, in contrast to speakers of some other languages, who point at random.

Boroditsky (2011) has conducted a similar research. She has noted that the people of the town of Pormpuraaw in Australia do not use relative spatial terms such as "left" and "right". In the language they speak, which is called Kuuk Thaayorre, cardinal directions (north, east, south, and west) are used at all scales, unlike English, where cardinal directions are only used for large spatial scales. Therefore, in the Kuuk Thaayorre language, it is common to find examples such as "the cup is southeast of the plate" or "the boy standing to the south of Mary is my brother". Because of this, as Boroditsky shows, a five-year-old girl from Pormpuraaw is able to point north precisely without much thinking, while scholars who are speakers of the English language have troubles doing the same. She also found that people, who think differently about space, may also think differently about time. When Kuuk Thaayore speakers were asked to arrange a set of pictures in the correct temporal order, they did so from east to west, irrelevant to which direction they were facing. English speakers arranged those cards from left to right, while speakers of Hebrew would arrange them from right to left.

Furthermore, Brown and Levinson (1993) and Pederson et al. (1998) (in: Holyoak & Morrison, 2005, p.647) suggested that linguistic practices (the absolute vs. the relative system) affect spatial reasoning in language-specific ways. In one of their experiments, Tenejapan Mayan and Dutch subjects were presented with an array of objects (toy animals) on a tabletop. After a brief delay, subjects were taken to the opposite side of a new table (they were effectively rotated 180 degrees), handed the toys, and asked to reproduce the array "in the same way as before". The overwhelming majority of Tenejapan (absolute) speakers rearranged the objects so they were heading in the same cardinal direction after rotations, whereas the Dutch (relative) speakers massively preferred to rearrange the objects in terms of left-right directionality. This covariation of linguistic terminology and spatial reasoning seems to provide compelling evidence for linguistic influences on non-linguistic cognition.

We could also say that English speakers, among others, observe time on a horizontal line. For example, English people “expect good times ahead”, “push deadlines back”, or “move meetings forward”. Mandarin speakers understand time vertically, and use terms such as “up” or “down” to describe time events (Holyoak & Morrison, 2005).

The influence of language systems on perception and thought is a much discussed and broad topic and many questions raised still remain unanswered. In the following part of this chapter, it will be examined how language is used to achieve certain goals, and in relation to the topic of the present paper, we may observe how the way a question is asked may influence the answer that is given.

2.2 Language in the Media

Our knowledge of the world’s affairs today mostly originates from different media sources. Additionally, different broadcasting institutions and various internet sources decide on what news is significant, what news can be ignored, who is the negative person in the story, and how we should perceive the overall event that is being reported.

The media decide who will get the most time on screen, and what parts of the speech of an individual will be broadcast. It is very common to find the same story reported in distinct and different ways, depending on what a certain media outlet wants to emphasize. One of the most obvious ways the media exert control over the minds of the public is by careful and wise use of language. For example, using phrases such as “the floods of immigrants heading to Europe” dehumanizes the immigrants who are not shown as individual people with their dreams and efforts to provide a better life for their families, but rather as a huge threat and danger.

The carefully constructed metaphors, the use of the passive or active voice, the choice of words with certain connotations all play an important role in the coverage. Such tools can be seen as linguistic devices that persuade people to believe that a certain view of a situation is the correct one.

One example that is relevant today, which describes how the media may instil certain ideas in our minds, is the issue of terrorism. In the media, terrorism is almost always connected to Islam. If there is a case of a Christian person committing a terrorist act, the media tends to focus on that individual, and describe the reasons for his/her act in terms of his/her personality, life choices etc.

That is the reason why we can rarely find news about “Christian terrorism”. On the other hand, when a person committing a terrorist attack is a Muslim, that piece of information will inevitably be mentioned in all the headlines. Such continuous way of reporting results in many negative opinions, attitudes and stereotypes about Muslim people.

The news repeatedly links “Muslim” with “terrorism”. When terror attacks are perpetrated by Muslims, they receive significantly more media attention. One study, after controlling for variables like the number of fatalities, found that attacks by Muslims receive on average 449 percent more media coverage (Corbin, 2017). Another study found that news about Muslims was generally news about terrorism: an analysis of news coverage by three major networks revealed that 75 percent of stories that focused on Muslims was about the Islamic State of Iraq and Syria (ISIS, or “Daesh”) or other militant groups. The other common narrative is that white Christian extremists who commit terrorist attacks are not terrorists. However, there are exceptions. The Oklahoma bombing by a white Christian is generally considered to be an act of terrorism, although the attack was initially blamed on Islamic terrorist groups. For the most part, though, “terrorist” was not the word applied to the white Christian responsible for the Quebec City attack. That list also includes white Christians, often white supremacists, whose ideologies drove them to attack women’s health clinics, police officers, Jewish community centres, and Sikh temples. It includes the white Christian extremist whose slaughter of nine African Americans at a Charleston church, South Carolina, in 2015 is widely recognized as “hate crime” but not necessarily as terrorism. Yet, as former Attorney General Loretta Lynch noted, “hate crimes are the original domestic terrorism. Nevertheless, the terrorist label is usually reserved for when violence is perpetrated by a Muslim” (Corbin, 2017, pp. 460-462).

Thomas and Wareing (1999, p. 49) mention another interesting point of using language in the media - the issue of the source. The following extract from the story about a British rugby player Will Carling and Princess Diana, was published in *The Guardian* in 1995 (*The Guardian*, August 7, 1995), and it read as follows:

“The newspaper claimed Mr Carling arranged to take former England footballer Gary Lineker to lunch with the princess at Kensington Palace earlier this year. A friend of Mr Carling’s is reported as saying: “He [Mr Carling] told me later Gary had bottled out saying, ‘that woman’s trouble.’”

The source for the news is very important for the degree of “factuality”. However, using multiple sources with expressions such as “said”, “told”, “is reported as saying”, “claimed”, makes it difficult to accurately retrieve and understand the original source of the story.

Thomas and Wareing (1999) also suggest that labelling different groups as “us” and “them” can reinforce the negative feelings between the groups (e.g. “‘we’ English who hate ‘you’ Scots”(p. 77)). Furthermore, negative labelling of certain ethnic groups in the media can disempower that group by creating negative stereotypes.

2.3 Language in Advertising

In the present-age world of competitiveness, businesses are continuously persuading potential customers into buying their products and using their services through advertising, by taking advantage of our exposure to TV, magazines and social media. Different advertisements regularly use catchy tunes, celebrities, vivid colors and other tools in order to enhance the sales of their products. Advertisements intended for younger audiences often include children songs and animated characters. Naturally, language is also one of the key instruments in the field of advertising.

Appealing language, strong metaphors, word play, puns, innovative use of idioms and state-of-the-art collocations attract the viewers’ attention and predispose them (Mehwish, Raza, Fakharh, & Bahram, 2015).

According to McQuarrie and Mick (1996), rhetoricians believe that ideas can be expressed in a number of different ways and that in any given situation, one of these ways will be the most effective in an attempt to sway an audience. The way in which a statement is expressed may be even more important than its propositional content.

Figures of speech have an important effect on how a certain advertisement is processed. In their research, McQuarrie and Mick mentioned a number of different figures of speech used for customer persuasion, such as rhyme, assonance, alliteration, repetition, metaphor, irony, rhetorical questions, puns etc.

Another interesting topic when it comes to the effect of language on our perception and advertising is “attribute framing”. The tendency to adopt the provided frame can lead to “attribute-framing effects” (Levin, Schneider, & Gaet, 1998). For example, a package of ground beef can be described as 75% lean or else as 25% fat.

Not surprisingly, it tends to be evaluated more favourably under the former description than the latter (Levin, 1987). Similarly, a community with a 3.7% crime rate tends to be allocated greater police resources than one described as 96.3% “crime free” (Quattrone & Tversky, 1988). Attribute-framing effects are not limited to riskless choices; for example, people are more favourably inclined toward a medical procedure when its chance of *success*, rather than *failure*, is highlighted (Levin et al., 1988). Attributive-framing manipulations affect the perceived quality of items by changing their descriptions. Part of the impact of such semantic factors may be due to spreading activation (Collins & Loftus, 1975), wherein positive words, such as “crime-free”, activate associated positive concepts, and negative words activate negative concepts (as cited in Holyoak & Morrison, 2005, p. 249).

2.4 Language and Politics

During the course of history, violence and wars were the means by which political ideologies were established. However, compared to such forcible approach, imposing political systems through the use of manipulative language may be more common nowadays. One interesting example of how language can be used to shape the minds of humans can be found in the famous book *1984* by George Orwell. The book introduces a dystopian society in which people are under the strict regime in the country of Oceania. People are following the ideology of Ingsoc, and have no other choice. One of the tools used to create such an obedient society is language.

Orwell describes a language called Newspeak, which was created with the sole purpose of controlling what people think. Newspeak does not contain words which would allow people to realize that they lack freedom. There were no words to mark a person not being free and with this new language there was no way to express or even consider rebellious ideas.

The words of Newspeak were stripped of ambiguity and those which would be able to motivate critical thinking were eliminated. Such language allowed the Party leaders to limit thinking and to prevent the possibility of any type of public disagreement to its ideology.

Orwell suggested a number of rules for language use which he believed should be followed by politicians, and all other speakers:

- (1) Never use a metaphor, simile or other figure of speech which you are used to seeing in print.
 - (2) Never use a long word where a short one will do.
 - (3) If it is possible to cut a word out, always cut it out.
 - (4) Never use the passive where you can use the active.
 - (5) Never use a foreign phrase, a scientific word or a jargon word if you can think of an everyday English equivalent.
 - (6) Break any of these rules sooner than say anything outright barbarous
- (Thomas & Wareing, 1999, p. 35).

However, most of these “rules” are frequently broken by politicians, which enables them to exert the control over the public beliefs. For example, figures of speech contribute to the blurriness of the speaker’s message. Long words and foreign phrases are more difficult to be understood and they give impression of a speaker being competent, educated and intelligent, even though the same point could be made by using simpler everyday terms. The passive voice removes the focus from the agent and acts as a neutralizer, and redundant words may be present to distract or confuse the listener/reader.

Although Newspeak is an exaggeration of the extent to which a language is used for brainwashing, it is still a fact that political leaders make use of language as a powerful persuasion instrument.

The notions of face-threatening acts and of mitigation are also useful in understanding the practices of political talk – in particular euphemising strategies, forms of evasion, forms of solidarity and exclusion, and some devices of persuasion. The fact that politeness phenomena seem natural in everyday socialised interaction makes them, to a degree, unnoticeable in political exchanges. If a politician wishes to tell his or her electorate that taxes “are to be raised”, unemployment figures are “up”, inflation is “spiralling”, and the enemy is “massing on the border”, then these face-threatening acts (requesting sacrifices, issuing bad news, giving warnings) are verbalised in a strategic fashion, in order to lessen the affront. The politician, therefore, has to achieve a balance between positive-face strategies and negative-face strategies. On the one hand it will be necessary to address the positive face – appealing to patriotism, to pulling together, brotherhood, the cause of the proletariat, civilised values, and

similar concepts that have as part of their frame some notion of the special characteristics of the self's group. It will follow that linguistic choices of particular kinds are made. A classic example is the repeated use of the first-person plural inclusive pronoun ("we" in English). On the other hand, such a politician will have to address negative-face risks – seeking to minimise the dangers to the freedom and security of both the collectivist and of the individuals that constitute it. This motivation will be matched by verbal behaviour of particular kinds – simply not referring to threatening referents, for example, or referring to them obliquely or by euphemism (Chilton, 2004, pp. 40-41).

Moreover, David (2014) and Thomas and Wareing (1999) suggest that figures of speech, the three-part statements and the careful use of pronouns are all linguistic devices that are evident in the speeches of politicians. In the political jargon, metaphors are used to describe abstract terms by means of referring to physical entities in order to activate certain associations and motivate thinking in certain a direction. For example, in the political discourse, we can find metaphors such as "UNEMPLOYMENT IS DISEASE", "NATION IS FAMILY" etc.

Another figure of speech one can notice in political speeches is the use of euphemisms (e.g. "little boy" and "fat man"). Euphemisms used when it comes to weapons and minimizing their destructive power, and similar examples, are used to strip a certain event, or thing of negative connotations. By employing such expressions, speakers are able to promote their ideology, and talk about certain ideas while diminishing the dangerous, unfair, or wrong aspects of it.

One more strategy that can affect our perception is the so-called "tree-part statement" strategy of referring to things in groups of three. Such strategy originates from the idea that things occurring in threes are commonly found in different cultures, stories etc. Listing and grouping items in threes may be easily memorable when listening and aesthetically pleasing while both listening and reading. Politicians are well-known for adopting such manner of referring to things in their speeches. This can be seen in the following examples:

- (1) "The attempt to create a politically unified Europe is dangerous, devious and undemocratic." (British Conservative Party election pamphlet, 1997)
- (2) "We recognize that a strong country is built from the bottom, not the top: that conformity quickly becomes the enemy of diversity. And that the imposition of social blueprints leads to authoritarian centralized government."
(British Liberal Democrat Manifesto, 1997)

Similarly, Tony Blair claimed that three main commitments of the Labour party were “education, education, education”, while the Conservative Party was concerned with “unity, unity, unity” (Thomas & Wareing, 1999).

Pronouns are also exploited for this purpose. When talking about something that is ambiguous and when there is uncertainty if something is perceived by public as negative, then politicians tend to refer to “we”. This allows them to detach the responsibility of certain actions. When an action is undoubtedly positive, then some politicians will often use the pronoun “I” in order to take credits for great political endeavours.

Additionally, Thomas and Wareing (1999, p. 31) mention implicature as another device that enables political orators to transfer their hidden messages. Implicatures prompt the audience to make assumptions that have not been made explicit by the speaker. Since they are not directly expressed, it is more troublesome for the audience not to be persuaded by the speakers’ views. Examples listed by Thomas and Wareing are the following:

(3) “We will save the NHS”

(4) “Invest in a future we can all enjoy”

The first example implies that NHS needs to be saved from the bad leadership of the party that is currently in power. In a similar way, the second example proposes that the way things are at the moment is not beneficial for all people.

As can be concluded from the examples given above, language plays a major role in directing people’s thought processes. This chapter described how various language strategies are used to achieve desired outcomes in different domains, while the following chapter illustrates the way in which word occurrence and co-occurrence, metaphor, and sentence structure influence human perception. Additionally, the same chapter will examine how language in leading questions, the questions that are characterized by suggestive ideas that push respondents to answer in a particular way, affects the given response. For instance, when comparing “Did you find the speech amazing?” to “How did you find the speech?”, it is noticeable that the first version of such an inquiry suggests a desired answer and could be classified as a leading question.

3. THE EFFECT OF LEXICAL CHOICES IN QUESTIONS TO RESPONSES

3.1 Semantic prosody

In the previous part of the thesis, we have examined some ways language is used to manipulate the listener or the reader. In addition to this, the word's typical co-occurrence may affect how that word is perceived in some other, unrelated contexts. This phenomenon in which the meanings of words are heavily influenced by the words that tend to occur with them is referred to as semantic prosody. An example of semantic prosody can be found when comparing the words "cause" and "produce". It may be suggested that these lexical items may be synonymous to a great extent and depending on the context. However, "cause" typically collocates with negative words such as *damage, pain, cancer, concern, disease, harm* etc., while "produce" usually collocates with *results, effects, images, electricity, films* etc. (Hauser & Schwarz, 2016). Of course, if the word is pronounced, then the listener would know if the meaning of the word is that of a noun (/ˈprɒdju:s/) or a verb /prəˈdju:s/).

Therefore, Hauser and Schwarz (2016) conducted a study with the purpose of discovering the degree to which semantic prosody affects how people interpret sentences. In one part of their studies, they assigned the participants to read one of the following sentences:

(5) "Surprisingly, ingestion of the substance produces endoctrination of abdominal lipid tissue."

(6) "Surprisingly, ingestion of the substance causes endoctrination of abdominal lipid tissue."

Following this task, the participants were asked if "endoctrination of abdominal lipid tissue" is a good or a bad thing. The word "endoctrination" is not an actual word, just an ambiguous term. The results showed that participants were more likely to judge "endoctrination of lipid tissue" as a bad thing if they read the sentence containing the verb "cause" compared to those who read the version of the sentence with the verb "produce".

However, it is important to emphasize that through their research, Hauser and Schwarz have noted that the effects of semantic prosody are most evident when occurring in an ambiguous context, while the effects are significantly weaker in unambiguous contexts. This suggests that the power of semantic prosody may be limited to certain conditions. Nevertheless, this phenomenon should not be ignored as it can still affect our judgment and decision-making processes.

3.2 Metaphors and responses

Boroditsky and Thibodeau (2011) conducted a study in which they wanted to investigate how different metaphors affect human reasoning about certain social issues. The objective of this research was to discover how different metaphors depicting crime influenced the way people understand and construe possible solutions for it. The metaphors used in this study were:

(7) “CRIME IS A VIRUS”

and

(8) “CRIME IS A BEAST”.

The researchers wanted to learn if comparing crime to a virus would prompt people to propose the solutions for fighting it the same way they would suggest to fight the virus epidemic. They were also curious if talking about crime as if it was a beast would persuade the participants to offer similar solutions they would offer when dealing with an actual wild beast. In the study, the subjects were given a report about increasing crime rates in the City of Addison. One version described crime as *a virus*, while the other version described it as *a beast*.

In one experiment, the participants were presented with the text that read as follows:

(9) “Crime is a wild beast preying on/ virus infecting the city of Addison. The crime rate in the once peaceful city has steadily increased over the past three years. In fact, these days it seems that crime is lurking in/plaguing every neighbourhood. In 2004, 46.177 crimes were reported compared to more than 55.000 reported in 2007. The rise in violent crime is particularly alarming. In 2004, there were 330 murders in the city, in 2007, there were over 500.”

Half of the participants were presented with “the virus version”, and the other half was presented with “the beast version”. Following this experiment, they were asked about what should be done to reduce the crime rate in this city. They were also asked to underline the part of the report that was the most influential for the decision they made.

The results showed that metaphors affected the solutions the participants proposed about the crime problem in the city of Addison. Those who read the report comparing crime to a virus suggested social reform as their solution, emphasizing the need to fight the poverty and improve education. On the other hand, the participants faced with the metaphor of crime

being a beast directed their solutions to jailing prisoners and introducing stricter laws. In general, the participants were more likely to suggest enforcement strategies (65%) than a social reform solution (35%).

However, those participants who were presented with the CRIME IS A BEAST metaphor were more likely to suggest enforcement (74%), than those offered the crime-as-virus framing (56%).

One interesting point of this research was the fact that only 3% of the participants underlined metaphor as the influential factor for making their decision. The great majority of them noted that the statistics mentioned in the report were the most important factors in their decision-making process. This finding suggests that metaphors operate covertly, or in other words, people are often not aware that they are under the influence of metaphors.

Following this study, Boroditsky and Thibodeau (2013) conducted another series of similar experiments to explore the matter even further. They wanted to investigate additional aspects surrounding metaphors. One part of the study included a text in which a metaphor for crime was expressed using a single word, i.e. *crime/beast*:

(10) “Crime is a virus/beast ravaging the city of Addison. Five years ago, Addison was in a good shape, with no obvious vulnerabilities. Unfortunately, in the past five years the city’s defence systems have weakened, and the city has succumbed to crime. Today, there are more than 55.000 criminal incidents a year – up by more than 10.000 per year. There is a worry that if the city does not regain its strength soon, even more serious problems may start to develop.”

Unlike in their previous experiments, this time the participants were offered a list of solutions for the crime problem. The solutions suggested either stricter law enforcement, for example, *Increase prison sentences for convicted offenders*, or social reform solutions as in *Reform education practices and create after school programs*. This was done due to the fact that the authors wanted to examine whether the metaphors that were offered simply made certain response options more available in their memory and that was the reason they chose it, or if the metaphors can actually affect what solution is perceived as the best one. The results showed that even when participants had a list of solutions in front of their eyes, the metaphor they were exposed to affected their choices. This shows that metaphors do not only influence which opinion will come to mind first, but also which opinion may be seen as the best.

This study also explored whether the participants were aware that the metaphor they have read was influential to their thought and solution-finding processes. Similar to the study the authors conducted two years prior, a great majority of participants did not identify the metaphor as the main factor affecting their decision. Only 3% of participants indicated that metaphors were responsible for the way they thought about crime.

Furthermore, the authors of the study investigated to what degree memorizing the metaphor would affect participants' reasoning. In certain experiments, the participants were asked to try to recall the missing words in the statement:

(11) "Crime is a _____ ravaging the city of Addison."

Overall, 47% recalled the metaphoric frame. However, it was found that those who remembered and those who forgot the metaphor were equally affected by it. This again shows that metaphors operate covertly.

All these metaphor-related experiments demonstrate that people can unknowingly be motivated to think in a certain direction about different matters, including the complex ones such as social policies.

3.3 Questioning in Court

Another interesting study regarding how lexical choices may change perception was conducted by Mizuno, Nakamura and Kawahara (2013). Their research took place in Japan in the court setting. They aimed to investigate if the interpreters' choice of words would change the judgment of lay judges (lay judges are randomly chosen citizens that join professional judges in criminal trials in Japan) during a court procedure. The researchers prepared a scenario resulting in death. The scenario included a robust man (the victim) beating another man in the park. The defendant appears and tries to stop that fight. The victim assumes a fighting pose, and the defendant, scared that he might be beaten too, kicks the victim. The victim falls, hits his head and dies. The lay judges were shown questioning of a foreign language-speaking defendant. They created two versions of a movie, but with different interpreting. In the first version, the victim's acts were described as more violent, while the acts of the victim were expressed using unmarked and neutral expressions. In the second version of the movie, the opposite was the case – the victim's acts were described with unmarked and neutral expressions, while their "more violent" equivalents were used for the defendant's acts. Additionally, the defendant's remorse was also interpreted differently.

The first version included the typical way Japanese speakers express their apologies. The second version featured an atypical Japanese apology. This was done because Japanese courts put a great importance on the defendant's remorse when determining the sentence. After playing both versions to two groups of lay judges, they were asked to judge several aspects of this case. Even though, there was no significant difference in the lay judges' judgment of the guilt or severity of the guilt, the analysis showed that there was a significant difference in the evaluation of the defendant's remorse. Lay judges who were shown the first version of the movie rated the defendant as more remorseful.

3.4 Questioning Using Audio-Visual Input

Wang and Culotta (2018) also studied the effects lexical items have on audience perception. In one part of their study, they noticed that changing a word in a sentence for its synonym may yield different interpretations of that sentence. For example, they compared the following two sentences that were used to describe the neighbourhood of an apartment listed on Airbnb:

(12)

(12a) There are plenty of shops nearby.

and

(12b) There are plenty of boutiques nearby.

Replacing the word *shop* with the word *boutique* increased the desirability of that neighbourhood, possibly because the word *boutique* connotes a high-end shop which reinforces the idea that the apartment is in a better neighbourhood.

Much earlier, Loftus and Palmer (1974) conducted a research with the goal of discovering whether the phrasing of a question elicits distinct answers. The first experiment included forty-five participants. They were shown seven films that were portraying traffic accidents. After watching each film, the subjects were given questionnaires. The main question was about the speed of the colliding vehicles. The subjects were separated into five groups, and each was asked a seemingly identical question. However, the verb used in the question was different for each group. They were presented with one of the variations of the following question:

(13) "About how fast were the cars going when they hit/ smashed/ collided/ bumped/ contacted each other?"

Each verb yielded different mean estimates. The average speed estimates for separate verbs were as follows:

Table 1. Loftus and Palmer findings (1974)

SMASHED	40.5 mph
COLIDED	39.3 mph
BUMPED	38.1 mph
HIT	34.0 mph
CONTACTED	31.8 mph

These results show that a change in just one word can affect witnesses' memory. The authors of this study believe that there are two interpretations of these findings. First, because of the subject's uncertainty, a verb may have biased their response. Another interpretation would be that the question asked actually changes the subject's memory of the accident. If the latter is true, subjects may remember other details that did not occur in the accident they saw, but which generally occur in accidents where vehicles move at high speeds. In order to investigate this second interpretation, the authors conducted another experiment.

In the second experiment, there were one hundred and fifty participants. They were shown a film featuring an accident. As in the previous experiment, the participants were given a questionnaire in which they described the accident, and then answered some questions, the main of which was their judgement of the speed of the colliding vehicles.

One third of the subjects were asked the following form of the question:

(14) "About how fast were the cars going when they smashed into each other?"

The other third gave their judgments after being asked:

(15) "About how fast were the cars going when they hit each other?"

The last third of the participants were not asked about the speed of the vehicles. A week later, the subjects returned and answered a number of questions without watching the video again.

The question the researchers were interested in was the following:

(16) "Did you see any broken glass?"

In the video, the subjects were shown a week prior, there was no broken glass. The authors hypothesized that those who were asked the question containing “smashed” were more likely to answer “yes” to this question. The results proved just that. Out of fifty students who answered the question with “smashed”, sixteen of them claimed that there was broken glass in the scene. Seven of those who answered the question with “hit” the week before, confirmed that they remember broken glass in the video. In the control group, only six of the participants believed that they saw broken glass in the video (Loftus & Palmer, 1974).

Therefore, the verb “smashed” lead to more “yes” responses and to a higher average estimate of the speed of the vehicle. The results of this study show that asking a question containing a verb with a “higher intensity” may affect the subject’s memory of a certain event. In other words, according to this study, the manner in which a question is asked greatly influences the answer that will be given. The questions used in this previously described research could be classified as “leading questions”, since using the verb “smashed”, for example, has a strong suggestive power that the vehicle was indeed moving at a high speed, which can prompt respondents into answering the question in a certain manner.

One very interesting example of subliminal effects of language comes from the lab of John Bargh (Bargh et al. 1996). They reported an experiment that cleverly primed participants with the idea of being elderly. They did this by having the participants convert word jumbles into sentences. Several of the trials had words associated with the elderly, such as *old*, *retired*, and *wrinkle*. When they were finished, the participants were informed that the experiment was over and they could leave. However, the real data collection had only just begun. As the participants left the lab, a collaborator in the hallway recorded the time it took each person to walk from the lab to the elevator. The participants who had been given the words related to old age walked significantly slower than the participants who had done a version of the word jumble task that did not prime the elderly stereotype. This result sounds unlikely, but the finding has since been replicated by a number of labs. Thus, it appears that unconsciously activating a concept may influence motor processes (e.g. walking) related to that concept (see: Feldman, 2006, p. 85).

4. RESEARCH METHODOLOGY

Having studied and read about the given examples of effects and changes lexical choices can bring about, I have decided to conduct my own experiment where I will employ different versions of questions inquiring about the same matter, in an attempt to investigate and analyse the potential change in the perception caused by lexical manipulation.

To test the hypotheses, an experiment was conducted in May 2020 and it consisted of three parts. Participants of all ages and both genders were questioned, i.e. participated in the survey, since the goal of the research was to analyse the answers of general population. Each part of the study included 50 subjects.

In all the three experiments, the participants were separated into two groups. Each group was shown the same picture and the same video. The picture featured a middle-aged woman, while the video showed a car passing by the camera. Both groups were asked to give their estimate about the woman's age, and to try to guess at what speed the car in the video was moving.

Even though the participants were shown the same picture and the same video, the questions were not identical. The questions that were asked are provided below:

Group A (EL):

Q1 "How old do you think this **woman** is?", and

Q2 "At what speed do you think the car **drove by** the camera?"

Group B (EL):

Q1 "How old do you think this **old lady** is?", and

Q2 "At what speed do you think the car **raced by** the camera?"

The first two parts of the research (in further text: Experiment 1 and Experiment 2) were conducted in the Bosnian language. Therefore, proper translation equivalents of the previously given questions were used. The questions that were asked are provided below:

Group A (BL):

Q1 „Po Vašem mišljenju, koliko godina ima ova **žena**?“ and

Q2 „Po Vašem mišljenju, kojom brzinom je ovaj automobil **prošao** pored kamere?“

Group B (BL):

Q1 „Po Vašem mišljenju, koliko godina ima ova **starica**?“ and

Q2 „Po Vašem mišljenju, kojom brzinom je ovaj automobil **projurio** pored kamere?“

The questions used when surveying group B in all the three experiments contained lexical items with suggestive power, while the questions presented to the participants of group A have no such suggestive power since they featured high-frequency lexical items instead. In other words, questions presented to the participants of group B can be categorized as leading questions.

Experiment 1 was conducted on-site, while Experiment 2 took form of an online survey. Since both experiments were in the Bosnian language, the aim was to compare the results obtained from the on-site approach where the participants listen to the questions asked by the researcher, and the results of the experiment where the participants read them instead.

In the third part of research (in further text: Experiment 3), the approach was identical to Experiment 2, the only difference being that Experiment 3 was conducted in the English language with proper English equivalents of the questions from the previous two experiments. The purpose of this experiment was to contrast the lexical influence on perception between the two languages.

5. RESULTS AND DISCUSSION

5.1 Experiment 1

In the first stage of the research, an experiment was conducted in the way that each participant was approached individually by the author of the present thesis (on the street, bus, etc.), with the aim of the answers not being affected by the opinions of others. They were shown the picture of a woman (see: Appendix) and given twenty seconds to assess her age, and they were allowed to see the video featuring the car only once. Since the experiment was conducted in Bosnia and Herzegovina, the questions were first translated. Therefore, group A was asked the following questions: „Po Vašem mišljenju, koliko godina ima ova žena?“ and „Po Vašem mišljenju, kojom brzinom je ovaj automobil prošao pored kamere?“, and the group B answered the questions: „Po Vašem mišljenju, koliko godina ima ova starica?“ and „Po Vašem mišljenju, kojom brzinom je ovaj automobil projurio pored kamere?“

These 50 participants were separated into two groups, each including 25 participants. Group A was asked about the age of the woman by using the translation equivalent of the word “woman” („žena”) in the question. Furthermore, in the second question, when the perception about the speed of the car was investigated, they heard a question containing the translation of the verb “drove by” (the camera) („prošao pored” (kamere)). For group B, the questions were slightly altered. The first question included the translation of the phrase “old lady” („starica”), while the second question included the translated verb “raced by” (the camera) („projurio pored” (kamere)). It is also important to note that, in this analysis, only the estimate numbers were collected.

The average estimate of the woman’s age by group A was 61, while group B judged the woman to be 65 years old. Similar results were obtained from the second question as well. Group A participants have given the average of 80 km/h for the speed of the car in the video, while group B assessed the speed as 93 km/h. The results are presented in the tables below (Table 2, Table 3, Table 4, Table 5):

Table 2. Experiment 1 Q1A

PARTICIPANT	AGE	GENDER	ANSWER TO THE QUESTION: „PO VAŠEM MIŠLJENJU, KOLIKO GODINA IMA OVA ŽENA?“
1.	23	male	84
2.	29	female	61
3.	25	female	70
4.	60	male	58
5.	55	male	66
6.	19	female	60
7.	70	male	50
8.	24	male	47
9.	16	female	60
10.	58	male	70
11.	67	male	60
12.	19	female	64
13.	36	male	55
14.	16	male	53
15.	23	female	60
16.	22	female	50
17.	70	male	60
18.	52	female	50
19.	26	male	72
20.	20	male	60
21.	22	female	63
22.	21	female	50
23.	23	male	79
24.	55	female	65
25.	32	male	64
AVERAGE			61

Table 3. Experiment 1 Q1B

PARTICIPANT	AGE	GENDER	ANSWER TO THE QUESTION: „PO VAŠEM MIŠLJENJU, KOLIKO GODINA IMA OVA STARICA?“
1.	41	female	58
2.	85	male	58
3.	16	female	70
4.	43	female	80
5.	19	male	64
6.	23	female	57
7.	27	female	55
8.	15	female	58
9.	51	female	60
10.	75	female	70
11.	20	female	60
12.	24	female	65
13.	25	female	60
14.	34	female	63
15.	39	female	70
16.	22	male	65
17.	23	female	65
18.	13	male	67
19.	16	male	59
20.	28	male	69
21.	72	female	70
22.	24	male	70
23.	24	female	70
24.	70	female	80
25.	68	female	60
AVERAGE			65

Table 4. Experiment 1 Q2A

PARTICIPANT	AGE	GENDER	ANSWER TO THE QUESTION: „PO VAŠEM MIŠLJENJU, KOJOM BRZINOM JE OVAJ AUTOMOBIL PROŠAO PORED KAMERE (KM/H)?“
1.	23	male	60
2.	29	female	60
3.	25	female	120
4.	60	male	65
5.	55	male	120
6.	19	female	70
7.	70	male	80
8.	24	male	80
9.	16	female	90
10.	58	male	80
11.	67	male	150
12.	19	female	70
13.	36	male	80
14.	16	male	70
15.	23	female	80
16.	22	female	100
17.	70	male	70
18.	52	female	70
19.	26	male	70
20.	20	male	75
21.	22	female	55
22.	21	female	50
23.	23	male	75
24.	55	female	80
25.	32	male	80
AVERAGE			80

Table 5. Experiment 1 Q2B

PARTICIPANT	AGE	GENDER	ANSWER TO THE QUESTION: „PO VAŠEM MIŠLJENJU, KOJOM BRZINOM JE OVAJ AUTOMOBIL PROJURIO PORED KAMERE (KM/H)?“
1.	41	female	60
2.	85	male	70
3.	16	female	60
4.	43	female	50
5.	19	male	55
6.	23	female	90
7.	27	female	70
8.	15	female	80
9.	51	female	100
10.	75	female	110
11.	20	female	70
12.	24	female	150
13.	25	female	150
14.	34	female	50
15.	39	female	80
16.	22	male	85
17.	23	female	70
18.	13	male	105
19.	16	male	97
20.	28	male	70
21.	72	female	200
22.	24	male	80
23.	24	female	80
24.	70	female	150
25.	68	female	150
AVERAGE			93

5.2 Experiment 2

In the second stage, the research took the form of an online survey. The survey consisted of the same questions, the picture, and the video used in Experiment 1. However, this time, the participants read the questions, unlike in Experiment 1 where they just heard them. They were provided with a scale which they used to indicate their opinion about the woman's age and the car's speed.

The second experiment was also conducted in the Bosnian language. It included 50 participants who were separated into two groups as well. The groups were questioned in the same way and using the same methodology like the groups from the first experiment, except for this questioning taking form of an online survey.

Two anonymous surveys were formed, one for group A and one for group B with the appropriate questions. First, the participants were asked about their age and gender, and after that they answered the relevant questions.

The results showed that the average assessment of the woman's age was 58,6 for group A, and 61 for group B. When it comes to the speed of the car, the average for the group A was 74,6 km/h, and 82,6 km/h for group B.

The results are presented in the tables below (Table 6, Table 7, Table 8, Table 9):

Table 6. Experiment 2 Q1A

PARTICIPANT	AGE	GENDER	ANSWER TO THE QUESTION: „PO VAŠEM MIŠLJENJU, KOLIKO GODINA IMA OVA ŽENA?“
1.	39	female	66
2.	23	female	49
3.	20	female	73
4.	24	female	61
5.	25	female	66
6.	26	female	61
7.	28	male	62
8.	30	male	48
9.	27	male	50
10.	26	male	55
11.	24	female	46
12.	25	male	60
13.	21	female	55
14.	25	female	55
15.	30	male	65
16.	27	female	60
17.	25	female	61
18.	25	male	60
19.	29	female	60
20.	26	male	66
21.	19	female	51
22.	19	female	58
23.	24	female	62
24.	23	male	58
25.	25	female	58
AVERAGE			58.6

Table 7. Experiment 2 Q1B

PARTICIPANT	AGE	GENDER	ANSWER TO THE QUESTION: „PO VAŠEM MIŠLJENJU, KOLIKO GODINA IMA OVA STARICA?“
1.	48	female	58
2.	18	female	65
3.	26	male	55
4.	32	male	62
5.	25	male	64
6.	17	female	63
7.	25	female	56
8.	30	female	57
9.	33	female	55
10.	25	male	63
11.	24	female	55
12.	24	female	61
13.	25	female	70
14.	32	male	48
15.	23	female	75
16.	25	female	58
17.	25	female	68
18.	25	male	63
19.	28	male	49
20.	24	male	68
21.	21	female	65
22.	25	female	71
23.	31	male	62
24.	22	female	50
25.	30	male	65
AVERAGE			61

Table 8. Experiment 2 Q2A

PARTICIPANT	AGE	GENDER	ANSWER TO THE QUESTION: „PO VAŠEM MIŠLJENJU,KOJOM BRZINOM JE OVAJ AUTOMOBIL PROŠAO PORED KAMERE (KM/H)?“
1.	39	female	97
2.	23	female	80
3.	20	female	60
4.	24	female	84
5.	25	female	57
6.	26	female	56
7.	28	male	82
8.	30	male	100
9.	27	male	50
10.	26	male	60
11.	24	female	81
12.	25	male	60
13.	21	female	58
14.	25	female	80
15.	30	male	100
16.	27	female	80
17.	25	female	50
18.	25	male	70
19.	29	female	80
20.	26	male	80
21.	19	female	75
22.	19	female	100
23.	24	female	80
24.	23	male	65
25.	25	female	80
AVERAGE			74.6

Table 9. Experiment 2 Q2B

PARTICIPANT	AGE	GENDER	ANSWER TO THE QUESTION: „PO VAŠEM MIŠLJENJU, KOJOM BRZINOM JE OVAJ AUTOMOBIL PROJURIO PORED KAMERE (KM/H)?”
1.	48	female	91
2.	18	female	100
3.	26	male	100
4.	32	male	70
5.	25	male	90
6.	17	female	64
7.	25	female	80
8.	30	female	60
9.	33	female	80
10.	25	male	60
11.	24	female	85
12.	24	female	95
13.	25	female	70
14.	32	male	90
15.	23	female	75
16.	25	female	77
17.	25	female	80
18.	25	male	95
19.	28	male	79
20.	24	male	80
21.	21	female	85
22.	25	female	80
23.	31	male	95
24.	22	female	100
25.	30	male	85
AVERAGE			82.6

5.3 Experiment 3

The third part of the research was identical to the second one, the only difference being that it was conducted in the English language. This time, group A judged the woman to be 60,5, while group B judged her age to be 61,7. Group A participants guessed the speed of the car to be 65,8 km/h, while group B estimated the speed to be 74,7 km/h.

The results are presented in the tables below (Table 10, Table 11, Table 12, Table 13):

Table 10. Experiment 3 Q1A

PARTICIPANT	AGE	GENDER	ANSWER TO THE QUESTION: "HOW OLD DO YOU THINK THIS WOMAN IS?"
1.	22	male	55
2.	23	female	55
3.	22	female	65
4.	37	female	62
5.	19	female	55
6.	22	female	68
7.	25	female	56
8.	21	male	64
9.	21	male	55
10.	17	female	49
11.	22	female	57
12.	23	female	64
13.	20	male	62
14.	22	female	60
15.	22	male	61
16.	26	female	61
17.	24	female	62
18.	25	female	57
19.	25	female	55
20.	25	female	63
21.	25	female	67
22.	25	female	71
23.	31	female	57
24.	29	male	64
25.	22	male	68
AVERAGE			60.5

Table 11. Experiment 3 Q1B

PARTICIPANT	AGE	GENDER	ANSWER TO THE QUESTION: “HOW OLD DO YOU THINK THIS OLD LADY IS?”
1.	44	female	75
2.	28	female	65
3.	22	male	63
4.	33	female	75
5.	26	female	62
6.	43	female	59
7.	28	female	57
8.	25	female	55
9.	26	female	60
10.	42	female	60
11.	26	female	60
12.	35	female	65
13.	44	female	60
14.	22	female	60
15.	25	female	61
16.	28	female	69
17.	34	female	54
18.	26	female	62
19.	46	female	70
20.	24	female	65
21.	35	male	56
22.	40	female	65
23.	24	female	55
24.	45	female	48
25.	25	male	57
AVERAGE			61.7

Table 12. Experiment 3 Q2A

PARTICIPANT	AGE	GENDER	ANSWER TO THE QUESTION: “AT WHAT SPEED DO YOU THINK THE CAR DROVE BY THE CAMERA (KM/H)?”
1.	22	male	80
2.	23	female	69
3.	22	female	71
4.	37	female	40
5.	19	female	60
6.	22	female	80
7.	25	female	67
8.	21	male	70
9.	21	male	75
10.	17	female	45
11.	22	female	75
12.	23	female	100
13.	20	male	40
14.	22	female	82
15.	22	male	56
16.	26	female	80
17.	24	female	70
18.	25	female	60
19.	25	female	35
20.	25	female	59
21.	25	female	70
22.	25	female	92
23.	31	female	70
24.	29	male	50
25.	22	male	50
AVERAGE			65.8

Table 13. Experiment 3 Q2B

PARTICIPANT	AGE	GENDER	ANSWER TO THE QUESTION: “AT WHAT SPEED DO YOU THINK THE CAR RACED BY THE CAMERA (KM/H)?”
1.	44	female	80
2.	28	female	80
3.	22	male	60
4.	33	female	100
5.	26	female	50
6.	43	female	80
7.	28	female	100
8.	25	female	70
9.	26	female	70
10.	42	female	70
11.	26	female	80
12.	35	female	84
13.	44	female	47
14.	22	female	80
15.	25	female	63
16.	28	female	82
17.	34	female	100
18.	26	female	82
19.	46	female	60
20.	24	female	70
21.	35	male	85
22.	40	female	80
23.	24	female	70
24.	45	female	65
25.	25	male	60
AVERAGE			74.7

All the three experiments demonstrated that lexical choices in questions about a picture and a video yielded distinct answers although all the participants were asked the same two sets of questions (oral and written) in different languages. This may mean that replacing a lexical item in a question by its near-synonym which is believed to have a suggestive power, affects how our mind perceives certain events and situations and how the question may elicit different responses.

This study is in alignment with the results from the several researches previously referred to in this paper. As demonstrated before, particular words, expressions and metaphors may have strong suggestive power that usually goes unnoticed. Therefore, such lexical manipulations operate covertly.

In the case of this study, using the phrase “old lady” activated the participants’ general knowledge about what age is usually connected to this term (which also differs in different cultures), which subtly guided the thought process in place. Similarly, the verb form “raced by” is generally connected to high speeds, and employing it triggers those previous associations made in our minds.

The obtained results exhibited another interesting phenomenon. Group A, which was the control group, since the participants belonging to that group heard the questions featuring neutral expressions, judged the age and the speed to be less than what group B answered in each separate experiment. However, it is interesting to note that there is a significant difference between the answers of groups that heard the same question.

For example, the average speed according to group A in the first experiment was 80 km/h. When that question was asked in an online survey in the same language, the average speed was judged to be 74,6 km/h. Furthermore, when the question was translated into the English language, it created even a bigger gap between the answers of the control groups in the experiments. This time the speed was estimated to be 65,8 km/h. This illustrates that a lexical choice is not the only factor affecting our perception.

The present study also indicates that the way data is collected plays a great role. This may mean that hearing a question and reading a question activates different responses. Such results could be explained by assuming that the researcher’s tone, vocal colour, pitch etc., are strong contributors which are not present when a participant reads a question on a screen.

In the online experiment, where the questions were asked in the Bosnian language, the average speed given by group A who read the question containing the word „prošao” was 74,6 km/h. The term was translated into English as “drove by”, and such question structure yielded the average of 65,8 km/h. Replacing the word „prošao” with „projurio” caused the average to increase to 82,6 km/h, while using the word “raced by” instead of “drove by” prompted participants to give the average of 74,7 km/h. This may be due to the fact that the translations used were not true “equivalents”, or that different languages observe movement differently.

Since the number of male participants who took part in the research was significantly smaller compared to the number of female participants in each experiment, no definite conclusions regarding the influence of lexical manipulations on different genders can be made. Similar is the case with the age of the participants. A great majority of all participants fall into the category of young adults. Therefore, further research is required to investigate the potential differences in the responses between people belonging to different genders and age groups.

6. CONCLUSION

The aim of the present master's thesis entitled "The Influence of Lexical choices on Language Processing and Auditory-Visual Perception" was to examine, gain an insight into and discover potential effects lexical choices may have on our impression of the world when it comes to providing responses to questions. To analyse in what way and to what degree the choice of different lexical items when phrasing a question elicits distinct estimates in responses, it has been proposed that different versions of the same questions about the estimate of the identical matter will yield distinct responses, depending on whether the question contains high-frequency lexical items or their "intensified" near-synonyms. The eight questions in total asked in two different languages, i.e. English and Bosnian, were directly asked or read from the screen.

Another point raised here refers to the degree of perception influence in terms of the way data was obtained. According to the experiments described above, the effect of words with a suggestive power is stronger when participants hear a question in a live situation. The difference between the answers of control and experimental group was the greatest in the experiment conducted in person, by directly communicating with the participants.

However, data showed that in each separate experiment, the answers of participants from the control group were distinct from the answers of participants from the experimental group. This shows that in identical conditions, lexical choices play a role in directing people's thoughts, but that the lexical choice is not the only relevant component which directs the answer from which certain conclusions about the perception of the world may be retrieved. Although in this thesis, we worked with eight questions and two sets of questions, it would be interesting to conduct related experiments in the future, especially when it comes to the influence of the media on peoples' impression-formation and responses to questions related to current issues.

To conclude, the purpose of the present research was to analyze and demonstrate the subliminal effects that language may have on readers or listeners. Therefore, the goal of the study was raising awareness of the possible thoughts directing processes, navigated by a careful language use, in different areas of human life. As illustrated before, language can influence the way we perceive social issues, political figures, and it can also affect decisions made in court. Hence, the mindfulness of such effects may play a great role in preventing thought manipulation achieved by using a number of different language strategies.

Although in this thesis the author has opted for experimenting with lexical items and their near-synonyms without consulting different dictionaries, it would be interesting to conduct similar but more extensive experiments featuring other synonyms listed in the dictionary, for example, investigating what change using the term “a senior citizen” instead of “an old lady” would bring about.

Additionally, there are many other variables that could be tested in the future research in order to gain a better understanding of the matter described in this thesis, for instance, using identical questions that were used in this study but presenting a different picture, or investigating how different intonation, and word emphasis can affect the given estimates, as well as conducting separate surveys for different genders and age groups, or comparing the answers of subjects who were given allotted time for giving their answers to the answers of participants who had unlimited time to make their judgments. Likewise, interesting findings could be obtained by analyzing the results of subjects approached individually, and those who were approached in larger groups, or even by analyzing the degree of influence of a leading question on participants coming from different educational or cultural backgrounds.

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APPENDIX

AUDIO-VISUAL MATERIALS USED FOR RESEARCH

Danford, N. (2020). 'Health' Collection [Photograph of an elderly woman]. *Pinterest*. Available at: <<https://www.pinterest.com/pin/119204721372505983/>>.

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