The Gendered World of Everyday Objects: An Analysis of Croatian Speakers' Perception of Gender in Language

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The Gendered World of Everyday Objects: An Analysis of Croatian Speakers' Perception of Gender in Language

Submitted in partial fulfilment of the requirements for the B.A. in English

Language and Literature and Pedagogy at the University of

Rijeka

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ABSTRACT

The aim of this B.A. thesis is to delve into how language shapes thought with a specific focus on the influence of grammatical gender in Croatian. By building upon Marijana Gašparović's (2021) study on the same topic, this B.A. thesis aims to explore whether Croatian speakers tend to be influenced by the nature of the Croatian language's gendered nature when assigning names to inanimate objects. To achieve this, first I will discuss what linguistic relativity is, linking it to Neo-Whorfianism and explaining what Gašparović's *Rethinking Linguistic Relativity: An Experimental Study Among Croatian Speakers* (2021) study was about. Afterwards I will delve into explaining how the experiment was conducted, and I will also discuss the results. This research contributes to the greater discourse on linguistic relativity by offering new insights from a Slavic language where gender is embedded deeply into the core of the language.

Keywords: linguistic relativity, grammatical gender, language and thought, Croatian language, gender perception, Neo-Whorfianism

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INTRODUCTION

Language influences our thoughts, perceptions, and social interactions far beyond merely serving as a means of communication. A fundamental aspect of the theory of linguistic relativity is the idea that language moulds our thoughts. It posits that the structure of a language affects how its speakers perceive and conceptualize the world around them. As Edward Sapir observed, "Language is a guide to social reality... it powerfully conditions all our thinking about social problems and processes" (Sapir, 1929). This observation by Sapir emphasizes the control that language has over our perception of complex and convoluted social mechanisms, such as gender.

The grammatical structure of most languages, such as Croatian, inherently weaves in gender into its fabric. Assigning gender to verbs, adjectives, and nouns not only reflects but also reinforces the social norms and ideas about gender roles. Gender encoding of language gives way to some serious questions: does speaking such a gendered language as Croatian affect one's perception of gender? Or alternatively, will the change of public opinion about gender bring a different understanding or use of the language?

Inherent in these questions is the very complex, two-way relation between language and thought, with an interwoven emphasis on gender by means of the Croatian language. This research is guided by the suggestion that structures in the Croatian language not only guide views of individuals regarding gender roles and identities, but in turn are guided by the dynamic societal concepts of gender. This fits very well within the broader debate about linguistic relativity, the theory that "the structure of a language can affect the ways in which its speakers conceptualize their world" (Gumperz & Levinson, 1996).

Marijana Gašparović's (2021) thesis, *Rethinking Linguistic Relativity: An Experimental Study Among Croatian Speakers* is a significant contribution to this field of study in the Croatian language. Her work explores how Croatian with all its gendered structures influences the way Croats perceive and categorize gender. Gašparović's findings suggest that there might be a relation between language and the speaker's mind (Gašparović, 2021). The aim of this paper is to revisit her experiment and replicate it with a slightly different methodology with the goal of replicating her findings.

1. Linguistic relativity hypothesis overview

The linguistic relativity hypothesis often known as the Sapir-Whorf hypothesis, posits that the structure of a language influences its speakers' cognition and perception of the world (Whorf, 1956). This hypothesis is normally differentiated into two entirely distinctive forms: the strong form, which suggests that language determines thought, and the weak version, which argues that language affects thought (Lucy, 1997). While the strong version has largely been discredited, the weak version has garnered quite considerable empirical support, mostly in research into how structures, and particularly grammatical categories, go hand in hand with mental processes.

One key aspect of linguistic relativity is the idea that grammatical categories, like gender, might dictate the conceptual categorization a speaker will use for things. Even in gender-marking languages, such as Croatian for example, speakers still unconsciously attribute to inanimate objects certain characteristics considered appropriate for their grammatical gender. This astonishing fact has been proved by a number of studies, among which the experimental research on Croatian speakers by Gašparović (2021) showed that grammatical gender can be reflected in the cognitive categorization of objects and is likely to affect perception, hence perpetuating the gender stereotypes attached to them.

Gašparović's (2021) work aligns with earlier research on linguistic relativity, suggesting that language not only reflects but also reinforces societal norms and perceptions. Applied to gender, this would mean that grammatical gender of nouns makes speakers choose in the direction of associating certain qualities, such as strength or delicacy, with masculine or feminine objects in this precise order. This is consistent with other findings in language, wherein speakers describe objects in ways that mirror the gender implications of their own language (Boroditsky et al., 2003 Schmidt & Phillips).

The implications of the linguistic relativity hypothesis are profound, as it suggests that the language we speak may somehow influence the way we view the world. While linguistic relativity does not imply that language limits thought, it highlights how language provides a framework through which we interpret our experiences. As research continues to explore these effects across different languages and cultures, it becomes increasingly clear that linguistic structures play a crucial role in shaping not only communication but also perception and cognition.

1.1. Neo-Whorfianism

Neo-Whorfianism refers to a modern revival and reformulation of the ideas originally proposed by Benjamin Lee Whorf, in particular regarding the linguistic relativity hypothesis. Early presentations of the work of Whorf often were represented as a deterministic view—that is, that language constrains thought However, Neo-Whorfianism offers a graceful perspective in which language may influence, but does not determine, the cognitive processes and perception in subtle, yet meaningful ways. Lucy 1997; Gumperz & Levinson 1996).

One of the central themes that drives Neo-Whorfian research is the idea that grammatical and lexical categorization in language can shape speakers' cognitive patterns and their interaction with the world. This line of inquiry has spawned several empirical studies designed to show how a variety of linguistic structures link up with diversity in perception, memory, and problem-solving across speakers of different languages. (Boroditsky 2001; Levinson 2003).

For instance, Lera Boroditsky (2001) has been a prominent figure in Neo-Whorfian research, conducting numerous studies that demonstrate how language shapes cognitive processes. In one study, Boroditsky (2001) found that speakers of languages with different spatial orientation systems (e.g., relative versus absolute directions) think about space differently. English speakers, who typically use relative terms like "left" and "right," performed differently on spatial reasoning tasks compared to Guugu Yimithirr speakers, who use cardinal directions (north, south, etc.) for spatial orientation, suggesting that their habitual use of language influences their cognitive strategies.

Another important contribution to Neo-Whorfianism is the work of John Lucy, who focused on the effects of grammatical categories on cognition. Lucy's (1992) research with Yucatec Maya speakers showed that linguistic differences in how plurality is marked influenced how speakers categorize objects. Specifically, Yucatec speakers, whose language does not obligatorily mark plural nouns, were less likely to group objects based on number compared to English speakers, for whom pluralization is a mandatory grammatical feature.

Similarly, Stephen C. Levinson's research has explored how linguistic relativity operates in the domain of spatial cognition. Levinson (2003) demonstrated that speakers of languages with different spatial frameworks (e.g., absolute vs. relative) perceive and remember spatial relationships differently. These findings support the Neo-Whorfian perspective that language influences cognitive processes by providing habitual ways of thinking about and interacting with the world.

Neo-Whorfianism also engages with the idea that language can influence not just individual cognition but also cultural practices. Gumperz and Levinson (1996) argued that linguistic practices are deeply intertwined with cultural norms and that studying these practices can provide insights into how different societies perceive and categorize their environments. This approach has been supported by cross-linguistic studies that reveal how language influences areas such as color perception, time perception, and even emotional experiences (Majid, Bowerman, Kita, Haun, & Levinson, 2004; Roberson, Davidoff, Davies, & Shapiro, 2005).

In sum, Neo-Whorfianism offers a more flexible framework for understanding the relationship between language and thought than earlier deterministic models. By focusing on how language influences rather than dictates cognition, Neo-Whorfianism allows for the investigation of the complex, bidirectional relationship between linguistic practices and cognitive processes. As research in this field continues to expand, it provides increasingly sophisticated insights into the role of language in shaping human experience.

1.2. Marijana Gašparović's (2021) findings in depth

Marijana Gašparović's (2021) study, *Rethinking Linguistic Relativity: An Experimental Study Among Croatian Speakers*, offers a significant contribution to the ongoing discourse surrounding linguistic relativity, particularly within the context of languages with gendered grammatical structures It deals with debates in empirical linguistic relativism research, related to the way that languages of inanimate nouns with grammatical genders involve gender ascription. This is being related to object categorization and perception in the Croatian language.

Gašparović (2021) elaborates much on the Neo-Whorfian approach, talking much about language as something that conditions thought in a subtle but important way, passively but not deterministically. In particular, her work is concerned with one Slavic language having a rather developed system of grammatical gender—the Croatian language. Croatian nouns are categorized into masculine, feminine, and neuter genders, and these categories often align with cultural stereotypes and expectations regarding gender.

Through a series of experiments, Gašparović (2021) examined how native Croatian speakers assigned gendered characteristics to inanimate objects based on their grammatical gender. For example, she explored whether objects with masculine grammatical gender were more likely to be perceived as strong or large, while those with feminine grammatical gender were associated

with qualities like delicacy or smallness. Her findings indicated that participants indeed tended to attribute gender-stereotyped characteristics to objects in line with their grammatical gender. This suggests that the grammatical structure of Croatian influences speakers' perceptions and reinforces cultural norms related to gender.

One of the key implications of Gašparović's (2021) study is its support for the idea that grammatical gender can have a profound impact on cognitive categorization. Her research showed that even in cases where the gender of objects is arbitrary—since objects themselves do not have biological sex—speakers still tended to impose gendered attributes consistent with the grammatical gender their language assigns to the object. This aligns to a broader Neo-Whorfian view that linguistic categories guide thought processes and perceptual experiences (Gašparović, 2021).

Moreover, Gašparović's (2021) findings contribute to the understanding of how linguistic relativity operates in the context of a language with a strong gender system like Croatian. She demonstrated that speakers are often unaware of how deeply these grammatical structures influence their cognition, reflecting the subtle yet pervasive nature of linguistic relativity. Her study also raises important questions about the extent to which these influences might shape broader cultural and societal norms, especially regarding gender roles and expectations.

In conclusion, Gašparović's (2021) research provides valuable empirical evidence for the linguistic relativity hypothesis within the Croatian context. Her work not only reinforces the idea that language influences thought but also highlights the specific mechanisms through which this influence occurs, particularly through the lens of grammatical gender. As such, her study represents a significant contribution to both linguistic theory and the understanding of how language shapes human cognition.

2. Experiment

In this experiment, the goal was to replicate the experiments conducted by Marijana Gašparović (2021) in her research paper "Rethinking Linguistic Relativity: an Experimental Study among Croatian Speakers". I chose a different, yet similar method in her third experiment which hinged on assigning a male and female voice to inanimate objects or animals in children's movies. It is a little different in this experiment because the goal for the participants was to assign a name to each object. This was done to see if the name they have assigned to these objects was masculine or feminine. Images of everyday objects were put in pairs of two for a total of 10 pairs, or 20 objects. They were put in pairs specifically because you can find them near each other or because they go together when you think of one object. This was done to see if there was any influence on the perception of their gender by the participants. In the table below you can see each pair, as well as the translation in Croatian and their grammatical gender.

Feminir	ne nouns	Masculine nouns	
English	Croatian	English	Croatian
fork	vilica	knife	nož
hat	kapa	scarf	šal
dress	haljina	coat	sako
bag	torba	belt	remen
lamp	svjetiljka	table	stol
pencil	olovka	paper	papir
vase	vaza	flower	cvijet
ball	lopta	goal	gol
shirt	košulja	coat	kaput
candle	svijeća	wax	vosak

Fig. 1 Table of feminine and masculine nouns used in the experiment

2.1. Participants

The study was conducted on one group of participants. The Croatian speaking group numbered 72 and out of those 72, a vast majority (84,72%) were women, 13,89% were men and 1,3% were non-binary. Out of those 72 participants, 26 (36,11%) were between the ages of 18 and 25, 6 (8,3%) were aged between 26 and 35, 13 (18,06%) were aged between 36 and 45, 17 (23,61%) of them were aged between 46 and 55, 9 (12,5%) of them were aged between 56 and 65, while only 1 (1,39%) participant was aged 65 and above. They all confirmed that their mother tongue is Croatian and therefore I deemed them suitable for this experiment.

2.2. Materials and Procedure

On Google Forms I constructed a questionnaire which consisted of 5 sections. The first section consisted of questions asking for the participants' personal information for analysis on the group level. Sections 2 through 5 consisted of questions which involved images of everyday objects put in pairs. Such objects include things like a fork and a spoon among other things. There are in total ten pairs of objects, 20 objects in total. They were put in randomly in the sections for them not to be next to each other. Each of these objects was there in the form of an image which represented it. The participants had two questions attached for each image. The first question was to identify the object in the image. This step was necessary due to the many interpretations the objects could have. The coat for example was sometimes misinterpreted as a jacket, which in Croatian has a different grammatical gender, therefore rendering the answer from that participant moot. The second question was to name the object in the image. The participants were instructed to answer with only one word. In the image below you can see an example of an object with the two aforementioned questions. The text of the question is in Croatian because the participants are all Croatian speaking.

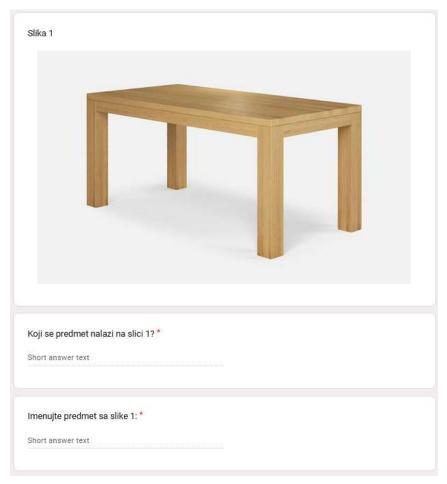


Fig. 2 Example of a question in the questionnaire

2.3. Limitations

The main limitation was the number of participants, had there been a larger amount of participants the results would have been clearer. The best results could be achieved if every age group had at least one hundred participants or more.

Some of the participants incorrectly identified the objects which hampered analysis on some of the pairs. It is most evident with the candle and wax pair because almost all save two identified the wax as a candle making the pair invalid.

Lastly, the experiment was also carried out online which made it impossible to have complete control over the participants and the conditions in which they filled out the questionnaire in.

2.4. Hypothesis

Building on the findings of Gašparović's (2021) study, this research hypothesises that participants will consistently assign names which align with the grammatical gender of the nouns in the Croatian language. I expect to see that objects with the feminine grammatical gender will be given feminine names, while objects with the masculine grammatical gender will be assigned masculine names. I anticipate this outcome because the grammatical gender of nouns in the Croatian language is deeply rooted in the participants perception of these same objects.

Furthermore, I expect the introduction of pairs to have an influence on the participants naming process. The pairing of objects might reinforce the expected gendered naming patterns or introduce nuances in the way the participants perceive and assign names.

2.5. Results

The study analysed the gendered perception of objects based on their grammatical gender by evaluating the percentage of masculine and feminine names assigned to various objects. The results show a clear pattern in how participants tended to associate names with the grammatical gender of objects. The results confirm my hypothesis generally.

For **masculine-gendered objects**, the majority of names assigned were masculine. Specifically:

- Nož (knife) was assigned masculine names 97.22% of the time, and feminine names
 2.78% of the time.
- *Šal* (scarf) had 91.67% masculine and 8.33% feminine names.
- *Sako* (blazer) was overwhelmingly associated with masculine names (98.61%) and rarely with feminine names (1.39%).
- *Remen* (belt) had a masculine name association of 97.22%, with feminine names at 2.78%.
- *Stol* (table) was linked to masculine names 93.06% of the time, with feminine names at 6.94%.
- *Papir* (paper) showed 81.94% masculine and 18.06% feminine name associations.

- *Cvijet* (flower) had the most balanced distribution among masculine objects, with 55.56% masculine and 44.44% feminine names.
- *Gol* (goal) was predominantly linked to masculine names (95.83%) compared to feminine names (4.17%).
- *Kaput* (coat) had 77.78% masculine and 22.22% feminine names.

On average, masculine-gendered objects were assigned with masculine names 87.65% of the time and feminine names 12.35% of the time.

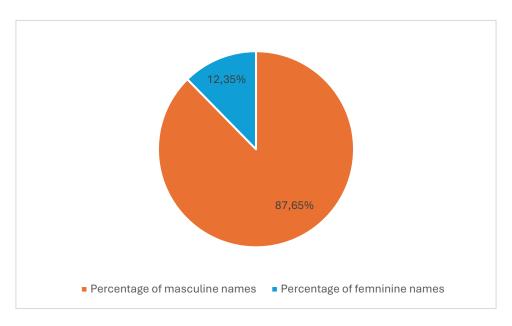


Fig. 3 Percentages of masculine and feminine objects assigned to masculine objects

For **feminine-gendered objects**, the trend was similar, with a predominant association of feminine names:

- *Vilica* (fork) was associated with feminine names 90.28% of the time and masculine names 9.72% of the time.
- *Kapa* (cap) had 72.22% feminine and 27.78% masculine names.
- *Haljina* (dress) was exclusively associated with feminine names (100.00%).
- *Torba* (bag) also had 100.00% feminine names, with no masculine names assigned.
- *Svjetiljka* (lamp) was linked to feminine names 83.33% of the time, with masculine names at 16.67%.

- *Olovka* (pencil) had 90.28% feminine and 9.72% masculine name associations.
- *Vaza* (vase) was associated with feminine names 97.22% of the time, and masculine names 2.78% of the time.
- *Lopta* (ball) had 70.83% feminine and 29.17% masculine names.
- Košulja (shirt) showed 66.67% feminine and 33.33% masculine name associations.

On average, feminine-gendered objects were assigned with feminine names 85.65% of the time and masculine names 14.35% of the time.

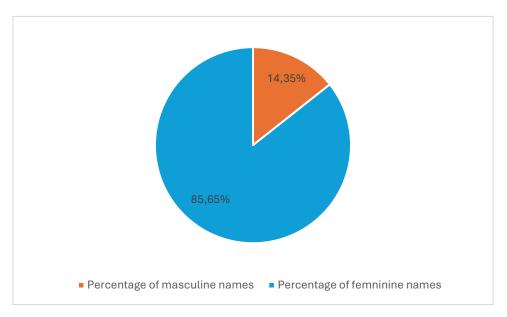


Fig. 4 Percentages of masculine and feminine names assigned to feminine objects

These results indicate a strong alignment between the grammatical gender of objects and the gendered names assigned to them by participants. The consistency across both masculine and feminine objects suggests that grammatical gender significantly influences perception and name assignment

2.6. Discussion

The results of this study reveal a pronounced tendency for participants to assign names that correspond with the grammatical gender of the objects presented. On average, masculine-gendered objects were given masculine names 87.65% of the time, while feminine-gendered objects were assigned feminine names 85.65% of the time. This strong alignment between

grammatical gender and name assignment supports the idea that language structure, particularly grammatical gender, significantly influences cognitive processes and perceptions.

These findings are consistent with the broader literature on linguistic relativity, which suggests that the language we speak, including its grammatical structures, can shape our thoughts and perceptions. In particular, this study echoes the insights of Marijana Gašparović's *Rethinking Linguistic Relativity: An Experimental Study Among Croatian Speakers* (2021), which explored how grammatical gender in the Croatian language influences cognitive categorization and perception. Gašparović's (2021) work highlighted that grammatical gender could subtly guide speakers' associations and perceptions, often reinforcing gender stereotypes. Our study adds to this body of knowledge by demonstrating a similar effect in the assignment of gendered names to objects, showing that even in a controlled experimental setting, participants are heavily influenced by the grammatical gender of objects.

Interestingly, the pairing of similar objects with different grammatical genders appears to have a nuanced impact. Although the overall trend aligns with the grammatical gender of the objects, the variation observed in certain pairs—such as *Cvijet* (flower) or *Košulja* (shirt) and *Kaput* (coat)—suggests that the pairing might introduce a degree of cognitive dissonance or contrast that influences name assignment. For instance, *Cvijet*, a masculine-gendered noun, received 44.44% feminine names, which is notably higher than the average for other masculine objects. This could be because flowers are culturally associated with femininity, creating a conflict between the grammatical gender and the cultural connotation of the object, which was further highlighted by the pairing with a feminine object.

Similarly, *Košulja* (shirt), which is feminine, received 33.33% masculine names when paired with *Kaput* (coat), a masculine object. This suggests that while grammatical gender plays a significant role, the nature of the paired objects might lead participants to perceive or categorize them in a way that occasionally overrides grammatical gender. However, these effects are relatively minor compared to the strong overall influence of grammatical gender.

Gašparović's (2021) study also proposed that the impact of grammatical gender might be more profound in languages with a strict gender system, like Croatian. The present findings support this notion, indicating that Croatian speakers are highly attuned to grammatical gender, even in tasks that do not explicitly require them to consider gender. This attunement likely results from years of linguistic conditioning, where grammatical gender consistently aligns with certain cultural and perceptual categories.

In conclusion, the study underscores the significant influence of grammatical gender on cognitive processes, particularly in the context of name assignment. While pairing similar objects with different grammatical genders may introduce some variation in responses, the dominant pattern remains one where grammatical gender strongly dictates perceptions. This work contributes to ongoing discussions in linguistic relativity, suggesting that even in languages with relatively rigid gender systems, the cognitive effects of grammatical structures are both pervasive and persistent. Future research could explore whether these effects are as strong in languages with less prominent or more fluid gender distinctions, or in cross-linguistic contexts where participants are exposed to multiple gender systems.

CONCLUSION

This thesis set out to explore the relationship between language and thought, particularly through the lens of the linguistic relativity hypothesis, with a focus on how grammatical gender in the Croatian language influences cognitive processes. By focusing and replicating on the findings of Marijana Gašparović's (2021) study, this study tried to examine whether Croatian speakers are influenced by the very nature of their gendered language when assigning names to inanimate objects.

The results of this study reinforce the core tenets of linguistic relativity. Specifically, they demonstrate a strong correlation between the grammatical gender of nouns and the gendered characteristics that speakers ascribe to objects. The consistent pattern of assigning gendered names in line with the grammatical gender of objects—87.65% for masculine and 85.65% for feminine objects—provides robust evidence that grammatical structures deeply influence cognitive categorization. These findings align with Gašparović's (2021) earlier research, confirming that the grammatical gender system in Croatian plays a significant role in shaping speakers' perceptions and reinforcing cultural norms related to gender.

Moreover, the study highlights the nuanced impact of pairing similar objects with different grammatical genders. While the overall trends strongly support the influence of grammatical gender, instances where cultural connotations appear to conflict with grammatical gender suggest that language's influence is complex and multifaceted. This complexity underscores the idea that while grammatical gender has a pervasive influence, other cultural and contextual factors can also shape cognitive outcomes.

This thesis adds to our understanding of linguistic relativity by providing fresh insights from a Slavic language like Croatian, where gender is deeply embedded in the grammar. It shows that grammatical structures, such as gendered nouns, aren't just technical aspects of language—they are closely connected to how we think and interact with societal norms. These findings suggest that language doesn't just shape our individual thoughts; it also plays a crucial role in how cultures as a whole understand and interpret gender.

That said, the study did have some limitations. The participant group was relatively small and not very diverse, and conducting the research online presented some challenges. Future studies could overcome these issues by including a broader range of participants and exploring how grammatical gender influences thought in different contexts and languages. It would also be interesting to examine how changes in language might impact societal views on gender.

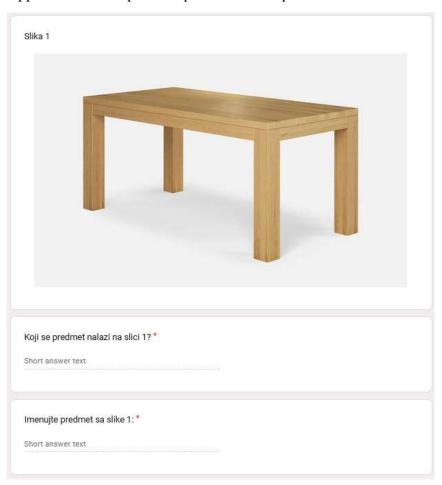
In summary, this thesis highlights the important role language plays in shaping our thoughts, especially through the use of grammatical gender. It underscores the need to understand how these linguistic structures affect both our individual perspectives and the collective way we see the world.

APPENDIX

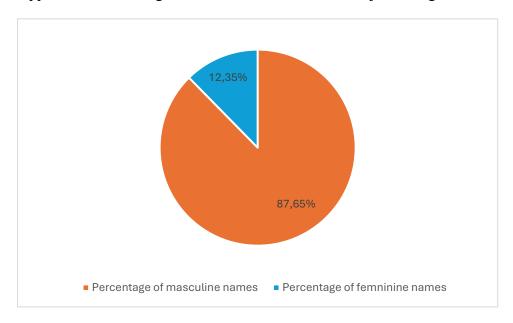
Appendix 1: Table of feminine and masculine nouns used in the experiment

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dress	haljina	coat	sako
bag	torba	belt	remen
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pencil	olovka	paper	papir
vase	vaza	flower	cvijet
ball	lopta	goal	gol
shirt	košulja	coat	kaput
candle	svijeća	wax	vosak

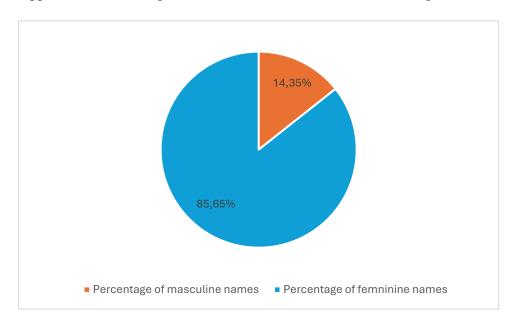
Appendix 2: Example of a question in the questionnaire



Appendix 3: Percentages of masculine and feminine objects assigned to masculine objects



Appendix 4: Percentages of masculine and feminine names assigned to feminine objects



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