

Identification of syntactic ambiguity

Hungarian native speakers' identification patterns
and interpretations of syntactically ambiguous
sentences in English

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1. Introduction

Learning a foreign language requires re-learning basic concepts, writing, speaking and listening, and fundamental grammar rules again from scratch. However, learning a new foreign language has several difficulties, because we have already adapted rules and preferences according to our mother tongue that we often have to overwrite. Moreover, we have to master all specific features of a language to maximise our perception. One of these features is ambiguity, which has some types that appear in more languages yet it is mainly generated by unique factors of a particular language. Hungarian and English are truly different languages in almost every respect, regarding, pronunciation, grammar rules, agglutination or isolation, conjugation, word order etc. These distinct factors and words generate distinct types of ambiguities. Although there are some of the ambiguous structures in common, their interpretation might be dissimilar. Hereby my question is, are Hungarians able to recognise ambiguity in the English language? Do they have the ability to identify syntactic ambiguity, even those which are not ambiguous after translation? What is the process of decoding? What is their first interpretation due to their instincts? With the following research, I attempt to answer at least some of these questions.

Having gone through several articles in both Hungarian and English concerning syntactic ambiguity, I had to realise that studying Hungarians' parsing strategies in English language is quite a unique topic. I have found some relevant experiments, but they studied Chinese and Italian native speakers. Concerning Hungarian literature, they mainly discuss morphological and lexical ambiguities in Hungarian language. Being aware of this, I was looking forward to investigating Hungarian native speakers' abilities when they are dealing with ambiguous English sentences and as discussing a new research topic, I consider this research a test run, or a preliminary survey, however it has led to some undeniable results.

I chose to run the test online in the form of a questionnaire. I have developed two types of questionnaires: type A gave no clue that there might be more possible solutions, when participants had to translate ambiguous English sentences into Hungarian. The participants who filled out questionnaire type A became the control group, where beyond sentence processing, ambiguity awareness could be tested as well. At the same time, participants who submitted questionnaire type B were encouraged to find more possible translations and

openly were informed about the equivocal nature of the sentences. Conclusively, 46 participants submitted valid answers. The sole criterion was to be a Hungarian native speaker besides cultivating English language, hence the age, occupation, gender or the level of English knowledge of the participants varied.

Despite the fact that this research represents a pilot study, it has already identified some essential information about Hungarian native speakers' parsing techniques. First of all, there were more examples for a globally ambiguous structure, where grammar allows to relate the adjunct both to the subject and to the object. The participants were able to detect this phenomenon, still they had a certain preference for the object. Moreover, it is fascinating how world knowledge can overwrite this preference.

Moreover, a few control sentences occurred in the questionnaire, which had solely one reading and one interpretation due to grammatical restrictions. The vast majority was successful in retrieving the correct interpretation of the control sentences, ensuring that the participants were aware of ambiguity and could identify unequivocal sentences as well.

Additionally, the participants of type A, who were not informed about ambiguity while going through the translation task, also submitted more interpretations at the same time. It definitely confirms that these participants were able to recognise ambiguous structures on their own.

The most compelling result implies that Hungarian grammar logic has a role in processing English sentences. Several interpretations were submitted beyond expectations, I refer to them as "unexpected translations" in my paper. These translations for the first sight seemed to be illogical. I have cogitated possible explanations for these submitted translations with the help of follow-up questions. Unfortunately, not every participant replied to these questions, however I based the theory on the given answers and Hungarian grammar logic(2.1). In this case, under Hungarian grammar logic I refer to those rules and allowance which are particular in the Hungarian language and which the participants, for any reason, prefer to use while processing an English sentence.

In the following, I would like to explain the whole study from the first fragment of idea, through the research and analysis to the results that the research has brought.

one control group, consisting of Italians living in Italy and the other group consisted of Italian native speakers living in English speaking countries to see their preferred interpretations of the same sentences. I was planning to carry out a similar experiment with Hungarian native speakers(L1) learning English as a second language(L2) being compared to English native speakers to see what type of logic Hungarian native speakers follow when they are exposed to an ambiguous sentence in English. I have become enthusiastic to find out the first impression of Hungarians when they are reading ambiguous sentences in English. All the processing of sentence perception and considering the possible options are prominent factors in articulating the meaning of a sentence and expressing a translation in the mother tongue.

After having completed deeper research of the literature in this field, I have realised that this topic is far more complex than I previously thought. Therefore I decided to investigate checking only Hungarians in the first place, later on, I am planning to continue this questionnaire sequence, to have a concept of English native speakers' understanding regarding structural ambiguity. Furthermore, it would be compelling to study the case and vice versa, with a Hungarian questionnaire and L1 English L2 Hungarian speaking participants would be compared to L1 Hungarian speakers.

This first questionnaire was supposed to summarise a concept of Hungarian native speakers' abilities to identify different types of ambiguities in the English language, which requires advanced lexical and grammar knowledge of the participants. Nevertheless, finally, I developed two types of questionnaires in order to achieve a more precise result and indeed, they brought more results than I had expected before. These questionnaires proved useful for testing perception and collecting more possible interpretations of ambiguous English sentences based on Hungarian language features' logic. For that reason, I gave a subtitle "Hungarian Native speakers' identification patterns and interpretations of syntactically ambiguous sentences in English" to be more precise about what this paper will be about.

2. Hungarian Research and Literature

I tried to collect the most recent research, papers, and articles which helped me catch up on the newest approaches and latest results in studying the process of ambiguity resolution and awareness. Unfortunately, browsing for Hungarian literature within the field of the syntactic process or structural ambiguity proved to be problematic, as Takács Orsolya mentions, too:

“Most of the literature related to the understanding of the Hungarian language is about the phonetic side of word recognition, the mental lexicon, morphological processing and language acquisition (...) However, the psycholinguistic research in the classical sense of the syntactic structures that are especially characteristic of the agglutinating language type still awaits.”² Concerning the lack of an adequate amount of materials, in the list of literature a few pieces of Hungarian literature are written before the 2000s, even though I intended to deal only with up-to-the-minute work.

2.1. Specific Ambiguity Types in Hungarian

While Hungarian and English have some types of ambiguity in common, Hungarian is a fundamentally distinct language, with the result that Hungarian speakers and learners have to handle other types of ambiguity. This fact might cause difficulty for Hungarian native speakers in identifying different types of ambiguity which are not relevant to the Hungarian language or create surprising interpretations (5.1.3, 5.1.5, 5.1.7., 5.1.9.) of an ambiguous English sentence with Hungarian logic and process. As I have suggested before, it would be quite appealing to investigate how L2 Hungarian speakers can detect and parse this agglutinating language’s unique types of ambiguity. For instance, the Hungarian language syntactically allows quite a free word order and often applies pronoun dropping(5.1.3.) or deletion of different sentence parts(5.1.6.). Moreover, in Hungarian, besides lexical ambiguity, we also find examples of homonymy in affixes (Kornai, 1994), which might be challenging for a native English speaker to perceive. The suffixes of definite verb conjugation and the possessive suffixes in the case of first person singular are the same Gergely és Pléh (1995):³

Ambiguous root without suffix	Ambiguous root with equivocal suffix	Ambiguous root with unequivocal suffix
dob	dob-om	dobsz

²Takács, O. (2013). Felszínes nyelvtani feldolgozás. A mondatmegértés Ferreira-féle elméletéről. *Argumentum*, 9, 363-372. <http://argumentum.unideb.hu/2013-anyagok/takacso2.pdf>.

³ Gergely, G., & Pléh, C. (1995). Alaktani kétértelműségek és a morfológiai feldolgozás a magyarban. *Magyar Pszichológiai Szemle* 51: 1–27. Retrieved November 7, 2022, from https://adt.arcanum.com/hu/view/MTA_MagyarPszichologiaiSzemle_51/?pg=283

	-om: first person, singular suffix	-sz: second person, singular suffix
noun: drum	noun: drum-my (possessive suffix)	-
verb: to throw	verb: throw-I (verb conjugation suffix)	Verb: throw-you

3. Review of the Types of Ambiguity

Polysemy

Polysemy is the coexistence of many possible meanings for a word form or a phrase. There is often a primary sense, and some authors mention that these meanings are related, as they derive from the same basic meaning. They occur both in English and in Hungarian similarly.

Homonyms

Homonyms are different words with distinct meanings, which happen to sound and spelt the same.

Homophones

Homophonic verbs sound the same, with different meanings and/or spelling.

Homograph

One of two or more words spelt alike but different in meaning or derivation or pronunciation.

Vagueness

We talk about vagueness when the limits of possible denotations are not clearly expressed.

Syntactic Ambiguity

As in my experiment I chose to examine syntactic ambiguity, I would like to shortly introduce its types, although I intend to show examples and give further explanation later on in this paper (chapter 5).

Globally Ambiguous Sentences

A globally ambiguous sentence can be interpreted at least in two different ways. The grammatically available interpretations are still present, even after re-reading the sentence and there is no clue for a non-ambiguous solution. Usually, the readers unconsciously choose the more suitable interpretation, hence these kinds of ambiguities remain unnoticed.⁴

Locally Ambiguous Sentences, The Garden-Path effect

A locally ambiguous sentence is a sentence that contains an ambiguous phrase but only one interpretation is available, which will be clarified by the whole structure of the utterance. The ambiguity in a locally ambiguous sentence briefly exists and is resolved as the reader keeps on reading toward the end of the sentence. The garden-path sentence effect occurs when the sentence has a phrase or word with an ambiguous meaning that the reader interprets in a certain way and, when having finished the sentence, there is a distinct meaning instead of what was expected.⁵

4. The Questionnaire⁶

As far as the questionnaire is concerned, I devised two types of tests. I instructed the participants to use their own intuitions and impressions without using any dictionary or other help. My target group was native Hungarian speakers who know the English language at least at an intermediate level. I found some respondents who were not adequate for all the requirements, so I had to discard several answers. In the end, I could analyse 23 answers per questionnaire, altogether 46 submitted questionnaires contributed to this research. Still, there were some given answers which were incomprehensible due to misunderstanding of the assignment or lack of knowledge, so regarding some of the tasks, there will be fewer than 23 answers displayed in statistics and analysis. However, I intend to overview some of the discarded answers in a separate paragraph out of curiosity. I asked for demographic data to be able to categorise answers by age, gender, profession, and level of English language knowledge. As there was no preliminary survey of language skills, the participants' level in English was confessed on a self-declaration basis. However, most of them failed to

⁴ http://www.intro2psycholing.net/glossary/glossary_showterm.php?term_id=398

⁵ Lamers, M., & De Swart, P. (Eds.). (2011). *Case, word order and prominence: Interacting cues in language production and comprehension* (Vol. 40). Springer Science & Business Media.

⁶ Questionnaire A: <https://forms.gle/ski41wF5KSAghyig8>

Questionnaire B: <https://forms.gle/LCPm3UBTRroY5XXVA>

adequately categorise the actual level in light of their given responses. Hence I decided not to create this category, as it would not be relevant.

In type A, respondents were not aware of the purpose or the theme of the questionnaire, so as not to influence their identificational skills of ambiguity. The first task they had to go through consisted of ten syntactically ambiguous sentences, which they had to translate into Hungarian. Then, the second task was a multiple-choice task with pictures (in the following: picture-task), where two possible interpretations were given as responses A and B, C indicated both possibilities, D was *neither* and I have attached to every question a blank option, if anyone could come up with distinct ideas in case they had other interpretations of the given sentences. In this second task, I gave some drawings of the given interpretations as hints to stimulate the thinking of more possible translations. I used the same sentence structures with a slight modification in the picture task to allow respondents to rethink these structures. Besides, there were two illustrated sentences, which were grammatically unambiguous to see whether respondents are capable of detecting syntactically clear sentences. In questionnaire type B, respondents were given some hints that the purpose of the questionnaire is to investigate ambiguity, first they had to go through the picture-task, with the help of illustrations of possible interpretations of the given sentences. They could choose from two different interpretations and *both* or *neither*, moreover they could give their own ideas under the *other* option. Through this task, respondents were encouraged to consider more possible interpretations which clearly had an impact on filling out the second task where respondents had to translate English sentences into Hungarian. There were twelve sentences, nine were ambiguous and three were grammatically unambiguous to test ambiguity awareness as well.

4.1. Methodology

In this experiment I have chosen to write the questionnaires with the help of Google forms. This was the simplest and fastest way to collect a sufficient amount of data. However, I knew that this way only ambiguity in writing can be checked, and other interesting facts, like time of processing and thinking, or ambiguity based on prosody, and intonation. “Moreover, if the prosodic boundary is absent or if it is inconsistent with the syntactic boundary, processing difficulty will increase.” (Pauker et al., 2011) While reading, the prosodic boundary is still present, yet it is not announced by a message sender, it is created by the reader himself as he

reads the sentence silently for himself, which will have an influence on decoding the message and tone, be it correct or not. Later on, in more detailed research I am aware that supervising participants may lead to achieving more accurate results, as it is possible to measure their response giving and reading time, watch their eye movement, examine the whole parsing process or put up follow up questions to get a more precise description of their answers. In order to get the best results that are possible, I gave the participants the opportunity to write down their own ideas regarding every task. Additionally, I collected participants' email addresses and kept in touch with them, so I could ask follow-up questions about their answers if something was unclear and needed an explanation of their thinking method. I did not modify the results due to these later answers, instead, I decided to write a separate section about the answers given later and examine their significance and influence on the results.

As all the answers could have been different, I decided to analyse each and every answer individually. Fortunately, the number of participants made it possible to do it so. Later on, I categorised the answers and compared the two types of questionnaires in tables and diagrams to make it straightforward to draw conclusions. Still, regarding the sentence translation task, almost every sentence has a unique category within types of ambiguity, additionally, their translatability into Hungarian created more subcategories, therefore all the sentences will be discussed separately.

4.2. The Participants

Altogether there were more than 70 submitted questionnaires, however I had to eliminate several of them, therefore finally there were 46 participants whose responses were analysed thoroughly. All the participants voluntarily filled out the questionnaire, they did not receive any payment. While writing down the answers, they were neither controlled by time nor supervised. I instructed the participants to use their own knowledge and instincts without outside assistance of any kind. Their ages varied between 17 and 56 years, and there were almost as many men(45%) as women(52%); in a slight amount, non-binary gender(3%) appeared, too. On average, the participants have been learning English for ten years(varied between 1 and 33 years). I required the participants to declare their skill level in the English language, which, based on their responses did not always correspond to reality - apparently the vast majority overestimated their language level, or they might not have been practising

the English language actively lately. I suppose, a preliminary survey could be an efficient tool to identify and categorise participants based on their language skills.

5. Discussion

5.1. Evaluating Tasks and Answers

When filling out the translation task, similar to the experiment of Zhang and Ding (Zhang and Ding, 2020), one of the group's participants were not informed about the presence of ambiguity. The participants of questionnaire A) were not told that the sentences they have to translate may have more interpretations in order to check their ambiguity identification abilities as well. They had no clue that the theme of the questionnaire is about ambiguity, as the translation task was their first exercise to do while the other group B's participants were inspired to seek more interpretations. Additionally, group B commenced the questionnaire with the picture task, which basically introduced the possibility of more interpretations of a single sentence, as long as the other group only met the pictures in the second task. The sentences appeared in a randomly selected order for every participant. In this section, I have categorised the sentences due to their type of ambiguity and their translatability into Hungarian. Each section has a distinct structure, based on the number of tasks and whether they include returning sentences. If they involve a sentence which has occurred more than once in the questionnaire, then their comparative diagrams are attached to the section as well. Fundamentally, the results of the tasks are summarised in tables at the beginning of every section. The answers are separated by questionnaire and task types.

5.1.1. Clause Boundary

Translation Task I.
Sentence to translate: <i>The professor said on Monday he would give an exam.</i> ⁷

⁷ <https://www.iasj.net/iasj/article/210640>

Hungarian translations	Meaning	Type A	Type B
(1)A professzor <i>hétfőn</i> azt mondta, hogy vizsgáztatni fog.	The professor said on Monday	9	7
(2)A professzor azt mondta, hogy <i>hétfőn</i> lesz a vizsga.	The exam will be on Monday	14	13
(1) & (2)		0	3

In the case of the sentence “The professor said on Monday he would give an exam.”, Hungarian translations possess an important particle, which is **hogy**. **Hogy** regularly appears when reported speech is expressed in Hungarian, as it indicates the segmentation of a sentence. After **hogy** a unity of clause is created. The position of **hogy** and *hétfőn*(on Monday) gives a resolution to ambiguity. **Hogy** roughly can be matched with **that** as a complementizer:

(1)The professor said **that** [*on Monday* he would give an exam].

Equals to translation (1) *A professzor hétfőn azt mondta, hogy vizsgáztatni fog.*

(2)[The professor said *on Monday*](**that**) he would give an exam.

Equals to translation (2) *A professzor azt mondta, hogy hétfőn lesz a vizsga.*

When reading the original sentence, the interpretation and translation will be based on the pause, the imagined place of **hogy**(that). The statistics of the questionnaires clearly display that the majority, 65% of the respondents (including those who considered both interpretations) located **that** after *said*.

On the one hand, this result granted the importance of the information pronounced with respect to the fact that in this sentence the day of the exam may be a more crucial piece of information than when the statement was declared. On the other hand, the position of *On*

Monday would be more natural at the beginning of the sentence, if we wanted to highlight that the sentence was told *on Monday*.

On Monday, the professor said he would give an exam.

In this sentence, the time when the announcement was made is successfully emphasised and its translation in Hungarian would convey the same meaning unequivocally.

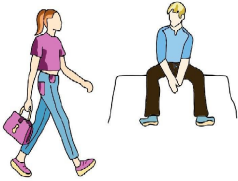
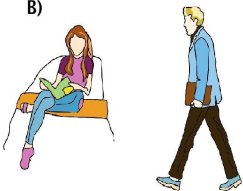
5.1.2. Subject or Object Depictive

Translation Task II.			
The sentence to translate: <i>John saw Jane driving down the street.</i> ⁸			
Hungarian translations	Meaning	Type A	Type B
(1) John látta <i>Jane</i> -t vezetni az utcán. (1.a) John látta, hogy <i>Jane</i> vezet az utcán.	John saw Jane while she was driving.	23	20
(2) John vezetés közben látta <i>Jane</i> -t az utcán.	John was driving when he saw Jane.	0	0
(1) & (2)		0	2

“John saw Jane driving down the street.” This is partially similar to the sentence discussed previously (5.1.1.), regarding the Hungarian translatability characteristics. The translation where **hogy** occurs in the sentence indicates the same situation: (1.a) John saw **that** Jane was driving. Here *Jane* becomes the subject of the dependent clause, while in translation (1), *Jane*

⁸ <https://www.archives.gov/federal-register/write/legal-docs/ambiguity.html>

is in the accusative case thereby *Jane* is the object of *saw*. Whether an object or subject *Jane* is, the adjunct is still related to *Jane*, based on its closeness. It is proved again in the picture task, where the same structure was tested with a different verb and different names and the result was that 98% of respondents preferred the object instead of relating the adjunct to the subject. Regarding the translations, 0% considered that *John was driving*, except for two respondents who filled out questionnaire type B, where the respondents already knew they might be looking for more interpretations. This rate was highly surprising and unequivocal and it was assured by the picture task as well. Despite the fact that both interpretations of *Bob noticed Jenny walking in the park* were given, only a few people considered that *Bob* might be related to the adjunct, but these few people chose *both* options. On the whole, concerning both the given translation and the picture task, a total 0% of participants preferred solely the subject.

Picture task of Translation Task II.			
A)  B) 		Type A)	Type B)
Bob noticed Jenny walking in the park .	A) Jenny was walking	21	20
	B) Bob was walking	0	0
	C) Both interpretations	1	2
	D) Neither:	1	0

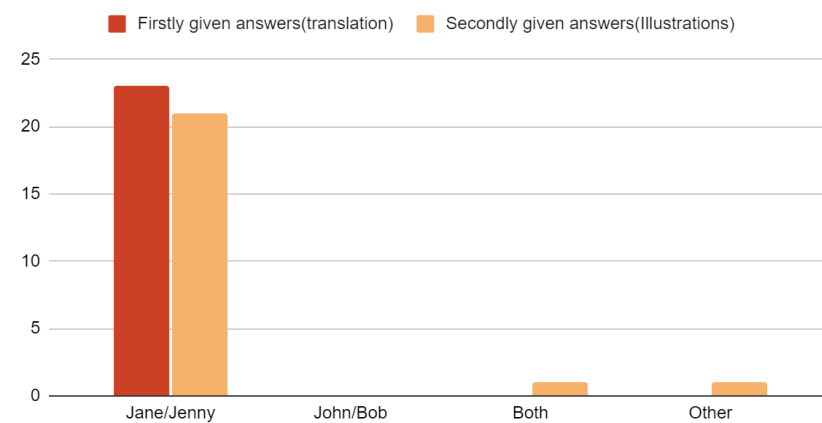
Probably the physical closeness and the unity of the small clause created this result, as in Hungarian translations automatically placing **hogy**(that) in the sentence and a pause after the predicate indicates that the rest of the sentence belongs together.

Concerning that this sentence structure was a returning, as it appeared in both translation and picture tasks, the firstly and secondly given answers can be compared with the help of a diagram (see below). The diagram obviously shows that object relation to adjunct is in favour of the respondents. However, there is a slight change in the secondly given answers, but these respondents only consider the preference of the subject and there is still 0% of respondents who chose the subject as a sole option.

Comparative Diagrams of Translation Task II. and the Related Picture Task

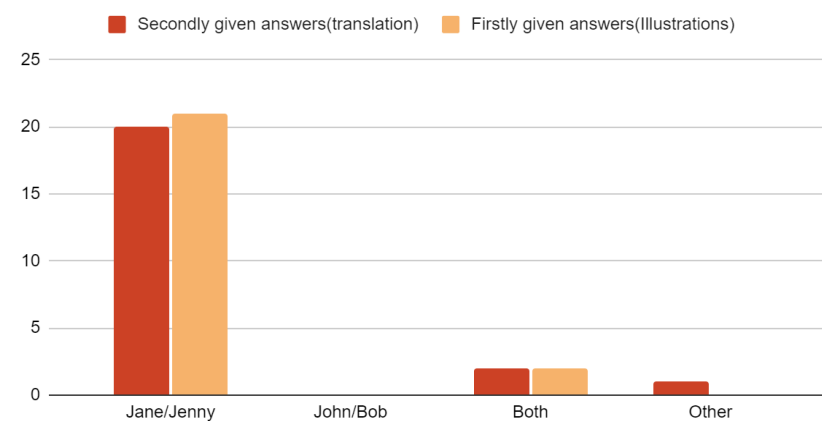
Type A)

Bob noticed Jenny walking in the park./John saw Jane driving down the street.



Type B)

Bob noticed Jenny walking in the park./John saw Jane driving down the street.



Translation Task III.			
The sentence to translate: <i>I walked my dog in sweatpants this morning.⁹</i>			
Hungarian translations	Meaning	Type A	Type B
(1)Én voltam melegítőnadrágban	I was in sweatpants...	23	21
(2)A kutyán volt melegítőnadrág...	The dog wore sweatpants...	0	0
1. & (2)		0	2

It seems to be unequivocal that the first impression is to prefer the subject, despite being farther from the adjunct. More respondents indicated in their answers regarding the translation task and picture task as well, they noticed that the sentence has another interpretation which is grammatically available, however, it seems unnatural - “Both meanings are correct grammatically, but I'd never think of A because it is unnatural.” wrote one participant in his/her answer at the picture task.

Taking into account that world knowledge may overwrite grammatical instincts when the sense of the sentence feels unreal, such as a *dog* in *sweatpants* is unusual or even absurd to see. The picture task of the same sentence assured the results(see below).

⁹ <https://www.tckpublishing.com/ambiguity/>

Picture task of Translation Task III.			
A)  B) 		Type A)	Type B)
I went for a jog with my dog in sweatpants . ¹⁰	A) I was in sweatpants	18	16
	B) The dog wore sweatpants:	3	2
	C) Both interpretations:	2	5

It would be intriguing to modify this sentence. Solely I would change the word *sweatpants* to *shoes* or *coat*, which are more common for a dog wearing them, as not only military and police dogs have these kinds of equipment, but civilians are eager to dress their dogs up against weather conditions. This way, absurdness would be taken away regarding the second interpretation and might change the results.

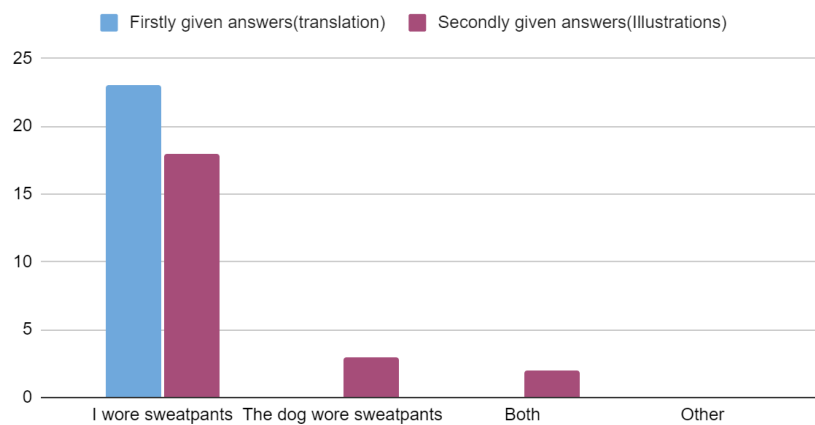
Checking the changes in answers below in the diagrams, it is clear that world knowledge sometimes overwrites grammatical preferences. Respondents of questionnaire A) did not take into account the possibility of other interpretations except for *I wore sweatpants* until the sentence occurred again and the other possibilities were listed, or they did not recognise the ambiguous feature in the sentence. Respondents of questionnaire B) gave various answers firstly when they dealt with the picture task and more interpretations were listed, although, in the second round when they had to translate the sentence, 91% of them submitted a translation which suggested that *I wore sweatpants* instead of the *dog*.

¹⁰ <https://www.tckpublishing.com/ambiguity/>

Comparative Diagram of Translation Task III. and the Related Picture Task

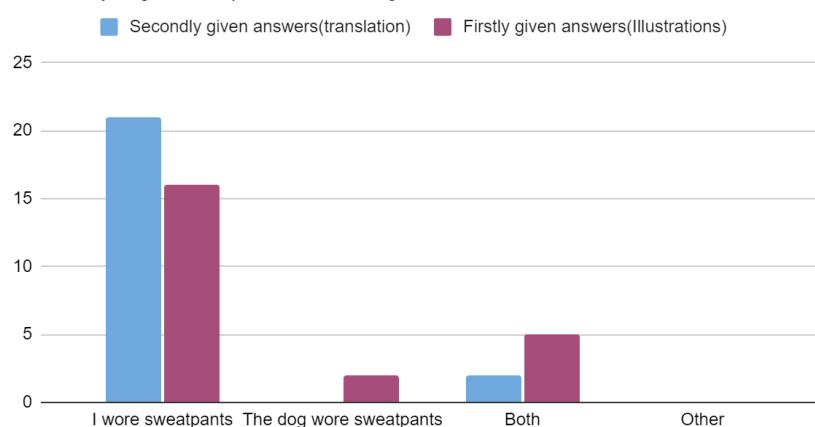
Type A)

I walked my dog in sweatpants this morning.



Type B)

I walked my dog in sweatpants this morning.



Translation Task IV.

The sentence to translate:
*Someone shot the **maid of the actress** that was standing on the balcony.¹¹*

Hungarian translations	Meaning	Type A	Type B
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Hungarian translations	Meaning	Type A	Type B
(1)A szobalány állt az erkélyen.	The maid was standing on the balcony.	20	13
(2)A színésznő állt az erkélyen.	The actress was standing on the balcony.	1	3
(1)&(2)		0	4
(3)Valaki állt az erkélyen.	Someone was standing on the balcony.	0	2

71% of respondents gave a translation which reflects translation (1)'s meaning. This means that object preference triumphs over the subject(*someone*) and (*actress*). It came as no surprise because in the Hungarian translation *the actress* gets a dative case or at least becomes the direct marker of *the maid* - whether the translation is correct. Regarding the translations of meaning (2), these were the fully formed sentences, which disambiguate the original sentence in Hungarian:

¹¹ Cairncross, A., Vogelzang, M., & Trismpli, I. (2021, June). Pseudorelatives, Relatives and L1-Attrition:: Resilience and Vulnerability in Attachment Ambiguities. Retrieved November 13, 2022, from https://www.ling.uni-konstanz.de/securedl/sdl-eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJpYXOjE2NjcwOTQ2NTYsImV4cCl6MTY2Nzc4NTg1MiwidXNlcil6MCwiZ3JvdXBzlpbMCwtMV0slmZpbGUiOiJmaWxlYWRTaW5cL2xpbmducL2NvbTlwMjFeL2Fic3RyYWNoclwwQ2Fpcm5jem9zc183NV9DT00yMDIxLnBkZiIsInBhZ2UiOiExMzA4OH0.mTPnTQCvB-9IIepeUPZDvYrdLF8LzPa2Mh24O5E5IPQ/Cairncross_75_COM2021.pdf

2.a *Valaki lelőtte az erkélyen álló színésznőnek a szobalányát.*

2.a *#Someone shot the [on the balcony] standing actress' maid.*

If we wanted to emphasise that the *princess* was shot, Hungarian grammar logic would demand a demonstrative pronoun which clarifies *who was standing on the balcony*, as I have illustrated below.

2.b *Valaki lelőtte **annak** a színésznőnek a szobalányát, **aki** az erkélyen áll.*

2.b ***That actress' maid was shot, who is standing on the balcony.*** - makes it unambiguous, that the relative pronoun points to the actress, so the adjunct, again, is related to the actress.

Picture task of Translation Task IV.			
A)  B) 		Type A)	Type B)
Someone shot the maid of the princess <i>that was standing on the balcony.</i> ¹²	A) The maid was shot:	17	15
	B) The princess was shot	3	2
	C) Both interpretations	3	3
	D) Neither or other:	1	3

Translation (3) is an unexpected one, as *someone* is too far away to be attached to the adjunct. There were two translations containing this meaning during the translation task and

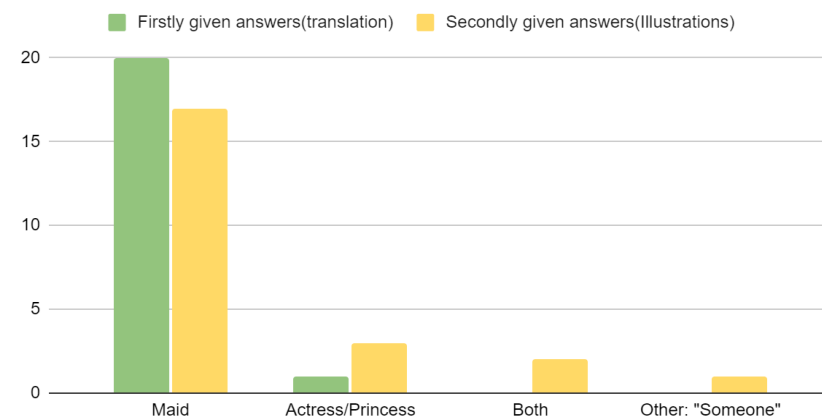
¹² Cairncross, (2021, June), 2nd slide

interestingly, the same structure appeared in the picture task. There were altogether two answers, one in questionnaire A and one in questionnaire B, which also suggested that *someone* is related to *standing on the balcony*. I feel that it is noteworthy to mention that the authors of these four answers were not the same.

Comparative Diagrams of Translation Task IV. and the Related Picture Task

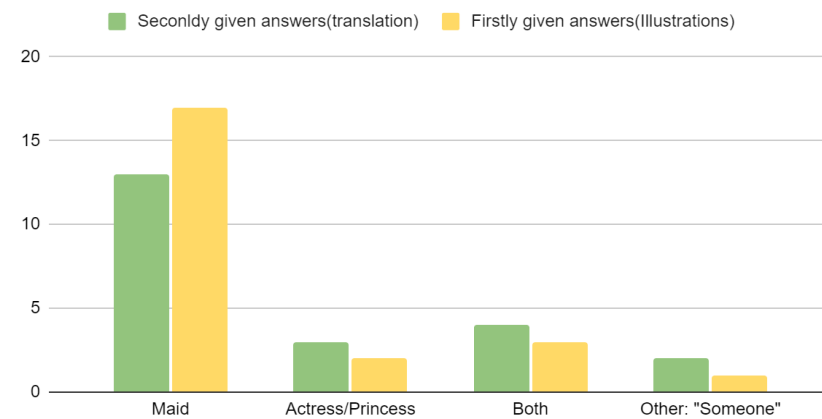
Type A)

Someone shot the maid of the princess/actress that was standing on the balcony.



Type B)

Someone shot the maid of the princess/actress that was standing on the balcony.



At the picture task, there were two of D) *Neither* answers. After follow-up questions via email, I learned that these two respondents misread the sentence, and after a re-reading, they would choose answer A) *the maid*.

Additionally, 45% of the participants identified and mentioned a lexical ambiguity as well, the ambiguous verb *shot*, as it means not only to *shoot* somebody with a gun but to *take a photo* of somebody.

5.1.3. Clausal Object vs Relative Clause

Translation Task V.			
The sentence to translate: <i>The constituents told the representative that they had elected to open the private park to the public.¹³</i>			
Hungarian translations	Meaning	Type A	Type B
(1)A választópolgárok megszavazták a park megnyitását...	The constituents elected to open the private park	12	16
(2)A megszavazott/ megválasztott képviselő...	The elected representative	4	3
(1)&(2)		0	1
(3)Azért választották meg a képviselőt, hogy megnyissa...	The representative was elected to open the private park	5	2

This particular sentence caused the greatest surprise in results. Translation (1) seemed the only relevant reading, however, I felt that the word *elected* can be tricky while processing the sentence. *Elect* in the meaning of *decide/choose* is only available in an elevated style. Still, those respondents who knew or deduced the syntactic role of *elect* based on their grammatical knowledge are in majority(65%) If this meaning is not available in one's mental vocabulary, then one might use the well-known meaning of *elect* in connection with political life or simply connected **that** to the representative. As a result of this syntactic process, respondents submitted sentences like translation (2).

(2)*The constituents told [the representative, that they had elected,] to open the private park to the public.*

¹³ <https://style.mla.org/quiz-ambiguity-with-parts-of-speech/>

Unexpectedly, several respondents proposed translation(3), which I initially considered as a simple misunderstanding of the sentence. Further on, while analysing these answers and consulting with their authors the hidden logic revealed itself:

(3)The constituents [told the representative that] they had elected (him) to open the private park to the public.

Hungarian practices pronoun dropping, so in this situation, the absence of **him** might not create the feeling that something is missing from the sentence, it is possible for Hungarian native speakers to translate a purported (dropped) pronoun. Ergo, the remaining part of the sentence can be translated as a purpose clause, such as in sentences like:

His mother sent him to buy a bag of flour.

I have asked him (in order) to help me.

5.1.4. Adjectival Modification of Coordination

Since language does not favour repetition, several structures exist in order to reduce repeated words and clauses. If a speaker desires to talk about two nouns which are of the same kind and share characteristics, the speaker will plainly use plural forms. This way instead of *the blue house and the blue house*, *blue houses* will be used. When two distinct kinds of nouns share the same characteristic, the speaker will reduce the adjective in common and form a group of the NP-s(noun phrase), however in this manner the structure develops into an ambiguous one. The following two sentences *Small boys and girls are playing hide and seek.* and *Young men and women sat together in the park.* introduce the previously mentioned ambiguous structure. Ambiguity occurs when we connect or group nouns of an NP, and use an adjective before them, which happens to be unclear, whether the adjective modifies only the direct noun after it or the whole group of nouns in the NP. It is also common in the Hungarian language to use grouping, hence ambiguity is not resolved in Hungarian translations. Unfortunately, I had no reply to follow-up questions about these translations, so I suppose that the same structure as the English version suggests grouping, as the adjective modifies both of the nouns in the NP. In addition, there are also translations which make it clear that there is only one modified noun and the picture task also displays unambiguous answers.

Translation Task VI.

The sentence to translate: <i>Small boys and girls are playing hide and seek.</i>			
Hungarian translations	Meaning	Type A	Type B
(1)Kicsi fiúk és lányok	Small(<i>tiny/not tall</i>) boys and girls	9	9
(2)Kisfiúk és kislányok	Small(young) boys and small(young) girls	14	12
(1)&(2)		0	2

In the case of *small boys and girls* a specific situation occurs in Hungarian translations. First of all, the word *small* means *tiny* and *not tall* as well, both of the translations appeared in the Hungarian sentences, and the two adjectives behave distinctively in Hungarian, but *not tall* never appeared as a sole option, only as a note in brackets. The primarily preferred meaning was *tiny*. Concerning translation (1), this meaning suggests that the subjects are physically small or short, however, their age is indefinite. Yet *small*(*kicsi, kis*) in Hungarian (and some other adjectives) have the ability to merge with nouns and precise their meanings as in translation(2) therefore it reflects the sense of young age, too. *Kisfiú* and *kislány* definitely mean that *young, small boy* and *young, small girl*. Due to the results, more Hungarians prefer translation (2), which declares a plus meaning. Though the explanation for this phenomenon is still unrevealed.

Translation Task VII.
The sentence to translate: <i>Young men and women sat together in the park.</i> ¹⁴

¹⁴ <https://www.tckpublishing.com/ambiguity/>

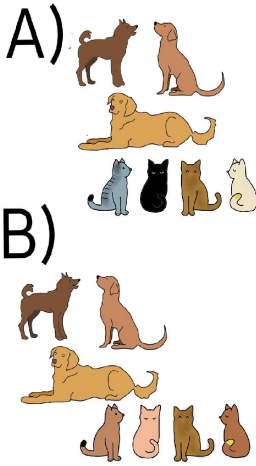
Hungarian translations	Meaning	Type A	Type B
(1)Fiatal férfiak és nők	Young men and women	21	20
(2)Fiatal férfiak és hölgyek (2.a) Fiatalemberek és nők	Young men and ladies Young men(juvenile) and women	3	0
(3)Fiatalemberek és fiatalasszonyok	Young men and young ladies	0	1

93% of the respondents responded with the same structure as the original English sentence, therefore the ambiguity is still not resolved. Yet, the global logic of the grouping structure would be to handle them together, as the mathematical equations in the bracket, and anything in the bracket modifies everything that is inside. Except for three responses, the adjective in every translation refers to both nouns in the NP. Concerning translation (3), the respondent attempted to declare more precisely that he or she used grouping, but it is not an entirely correct translation. Translation (3) is interestingly a similar structure to the *kisfiúk és kislányok* from the previous task(above in this chapter), in the view of the merge of the adjective and noun, although this merge creates a totally different meaning. *Fiatalasszony* means a woman, who is newlywed¹⁵, such as *fiatalemberek*; which means *juvenile*, an underage man. While *fiatal férfi* és *fiatal nő* means *young man* and *young woman*, which only indicates that these people are not old and this meaning is vague.

These two exceptional answers, which reflect the meaning of translation (2) definitely separate the two subjects, however, translation (2.a) contains a lexical error, as *fiatalemberek* is written as a single word again and is not correspondent to the meaning of the original sentence.

Picture task of Adjectival Modification of Coordination

¹⁵ <https://helyesiras.mta.hu/>

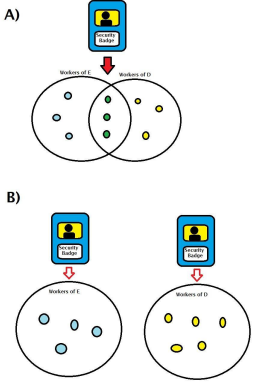
	Brown dogs and cats are relaxing.	Type A)	Type B)
	A) Both cats and dogs are brown	12	9
	B) Only the dogs are brown	4	5
	C) Both interpretations:	7	7
	D) Neither or other:	0	2

The picture task allowed analysis of unambiguous answers concerning adjectival modification of coordination. The results reveal that more than half of the respondents, 76%, feel it is natural to make a group of the nouns and to use the adjective only once before the group, so it modifies both nouns. However, 40% of these respondents considered both options, while in the sentences, *Young men and women sat together in the park.* and *Small boys and girls are playing hide and seek.* had an absolutely low rate in considering both options. It seems that the pictures helped the participants recognise the ambiguity in this structure, therefore more of them perceived both interpretations. I found it curious that there were two D) *neither* answers: I contacted these two respondents via email after they had filled out the questionnaire, and they answered that in the picture, not all the animals are relaxing (two dogs and the cats are sitting, apparently only one dog is relaxing), consequently due to the statement both the answers A) and B) are false - while drawing the pictures, I did not recognise this contradiction between the statement and the picture. Accidentally, the sentence illustrates lexical ambiguity, too, and two over-achiever respondents detected it.

5.1.5. Grouping or Deletion

Deletion is a norm to avoid surplus repetitions yet deletion in most cases leads to an ambiguous structure syntactically. It can be disambiguated by world knowledge in the first place, as logic dictates that we recognise the deleted part of the sentence and perceive the

original meaning. In fact, originally the grouping, in this case, is between two clauses. Yet at the moment someone writes down the sentence by deleting the repeated part, apparently *and* conjoins two NP-s and they might become one group. As it can be understood based on the results, the vast majority(56%, excluding the participants who chose answer *C) both*) prefer to refer the predicate to the grouped NP-s separately, as it were without applying deletion.

Picture Task Related ‘Grouping or Deletion’			
	The guard shall issue security badges to employees who work in Building D and Building E . ¹⁶	Type A)	Type B)
	A) employees who work in either building D or building E:	12	14
	B) employees who work in both buildings:	5	5
	C) Both interpretations:	6	4

The fully formed sentence of translation A):

*A) The guard shall issue a security badge to **each employee who works in Building D and each employee who works in Building E.***

¹⁶ <https://www.archives.gov/federal-register/write/legal-docs/ambiguity.html>

Though if we strictly look at the sentence given in the example only grammatically, it should be handled like the other examples above(5.1.4.) as there are also two NP-s connected by the word *and* to form a structure. Still, answer B) is not as popular on its own as answer A), with only 21% of the participants choosing answer B).

*B)The guard shall issue a security badge to each employee who works in **both Building D and Building E.***

This example roughly had the same results as the previous picture task with *brown dogs and cats* - the main preference and handling method is clearly seen and is different regarding the example *in Building D and Building E* and *brown dogs and cats*. Moreover, there is quite a high rate of those participants who recognised the ambiguity in both sentences and absolutely a low rate occurred in the number of those participants, who solely chose the answer, which is however a possible interpretation but is unusual concerning world knowledge.

5.1.6. Adverbial Modification of Verb or Object

Translation Task VIII.			
The sentence to translate: <i>I invited the person with the microphone.</i>			
Hungarian translations	Meaning	Type A	Type B
(1)Meghívtam azt a személyt a mikrofonnal.	I invited that person with the help of the microphone.	7	11
(2)Mikrofonos személyt	The person possesses the microphone	10	9

(1)&(2)		1	2
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This sentence demonstrates an efficient analysis, as in Hungarian the two translations of *with the microphone* completely differ from each other. When *with microphone* implies an instrumental case, the Hungarian correspondent is *mikrofonnal* (see in translation (1)). Otherwise, when the adjunct *with the microphone* is related to the object *person*, it develops into an adjective, *mikrofonos*(see translation (2)).

Highly surprising that the number of choices of the two kinds of interpretation is equal, in the absence of one. I have to confess I expected that translation (1) will be more eminent, as the direct, word-to-word translation of *with the microphone* is corresponding to *a mikrofonnal(the microphone-with)*. It might be thanks to the closeness of *person* to the adjunct that they are translated together, which phenomenon is already known to be favoured by the participants(see above, 3.1.2.).

5.1.7. Ellipsis, Coreference Resolution

Translation Task IX.			
The sentence to translate: <i>Bill loves his wife and so does Harry.</i>			
Hungarian translations	Meaning	Type A	Type B
(1)A saját feleségüket szeretik	They love their own wives	17	19
(2)Bill feleségét szeretik mindketten	They both love Bill's wife	2	0
(1)&(2)		0	3

(3) <i>Bill Harry-t is szereti</i>	<i>Bill loves Harry too</i>	4	1
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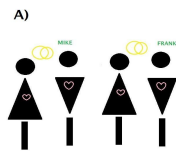
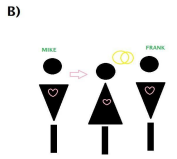
As ellipsis is an applied structure in Hungarian, too, the word-to-word translations remain ambiguous the same way. Therefore, this sentence was tested as a picture task too(only the names were renewed), to unequivocally see what respondents mean when using this structure.

The sentence form without deletion:

Bill/Frank loves his wife, and Harry/Mike loves his wife, too.

Fundamentally, *so does* is supposed to replace (*Harry*) *loves his wife, too*(translation (1)/A)), although other elements could be deleted from the sentence as well. As in translation(2)/A):

Bill/Frank loves his wife, and Harry/Mike loves Bill/Frank's wife, too.

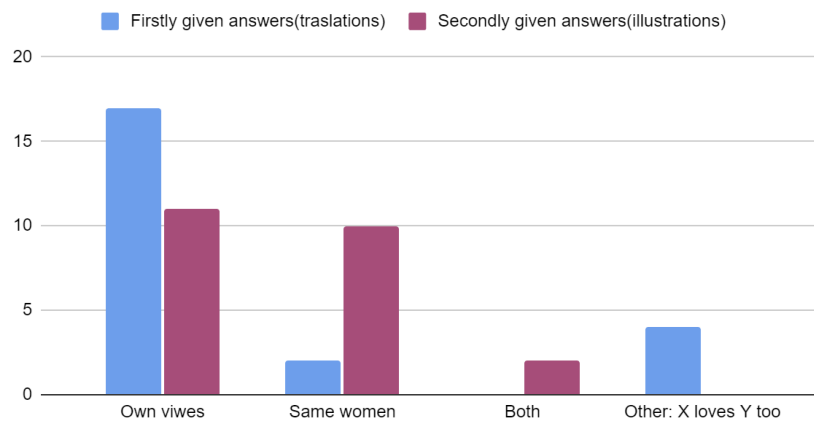
Picture Task of Translation Task IX.			
 		Type A)	Type B)
Frank loves his wife and so does Mike.	A) Frank and Mike love their own wives	11	11
	B) Frank and Mike love the same woman:	10	5
	C) Both interpretations:	2	6
	D) Neither or other:	0	1

As it seems, in the result table of the translation task, 78% of respondents use the exact same ambiguous structure in Hungarian as well. However, the picture task shows a great change in the answers rate(see below the diagram). This change might propose that 48% of respondents primarily use the structure as only *loves his wife, too* was deleted from the sentence, and 32% handle the sentence as *so does* replaces *loves Bill/Frank's wife, too*. Offering the other interpretation of the sentence caused a growth in considering both options from 4% to 17% regarding both questionnaires. Obviously, follow-up questions and more tests could lead to a more precise result of how people use ellipsis.

Comparative Diagrams of Translation Task IX. and the Related Picture Task

Type A)

X loves his wife, and so does Y.



Type B)

X loves his wife, and so does Y.



An undeniably engaging translation occurred in the translation task (translation (3)) and in the picture task, one *other* answer suggested the same translation, that *Bill/Frank loves Harry/Mike, too*.

The explanation for this phenomenon is indistinct, for that reason, I depict some possible ideas. **X** will stand for **Bill/Frank** and **Y** will stand for **Harry/Mike**.

(3) X loves his wife, and so does Y.

Looking at *does*, it logically presents the deletion of the predicative, the interaction, *loves*. Question tags are taught on lower levels when teaching English, so supposedly all participants knew their principle of operation.

Jane likes dogs, and so do I.

Gina hates physics, and so does Oliver.

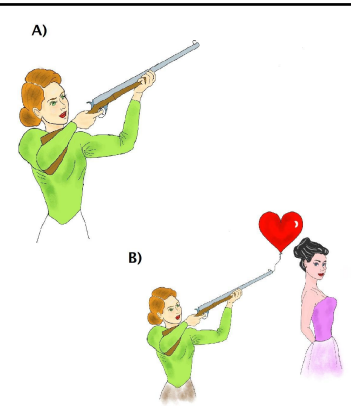
Predicative and object are the same, only the subject changes. With the condition that we suppose that we have deleted the subject X from the dependent clause, Y becomes the object of 's interaction. X becomes a purported dropped pronoun, which is relevant in Hungarian to delete pronouns, as it is a pro-drop language. Additionally, the nominative and accusative form of Y is the same in English, therefore, it is translatable to Hungarian both ways.

(3) X szereti a feleségét, ahogy (X szereti) Y-t (Accusative) is.

(3) X loves his wife, and (dropped pronoun X) so does Y (accusative).

I would like to highlight that this is only a hypothesis, which requires more investigation.

5.1.8. Lexical Ambiguity

Picture Task of Lexical Ambiguity			
		Type A)	Type B)
Nicole is a girl hunter .	A) Nicole is a female hunter	9	9
	B) Nicole is flirting with girls (a womaniser)	8	7
	C) Both interpretations:	6	6
	D) Neither or other	0	1

In fact, this example is an odd-one-out, as it is not a type of syntactic ambiguity primarily. Otherwise, even if one is not familiar with the meaning of the phrase, grammar knowledge has an impact on translation, whether we consider *girl* as an adjective or an object of *hunter*. It is not truly relevant that a *hunter* is hunting for *girls* as a duck-tolling dog hunts for ducks, yet grammatically, it is not an impossible interpretation. Hence, it will be worth testing this sentence in a translation task in further research, but recently it has been only examined as a lexically ambiguous sentence, tested in the picture task.

Interestingly, the primary meaning of the phrase *female hunter* is only slightly more frequent within the participants' answers than *womaniser*, concerning those who chose C) *both*

answer. Even the one participant, who submitted *other* option wrote that he or she could not decide, because in speech he or she would generally think of a *womaniser*, however, the written form conveys the meaning of *female hunter*. It might be the consequence of the meaning *womaniser* being a slang phrase. Slang is well-known to be used mainly in speech and slang words and phrases are too informal to be viewed as standard in a language. Slang words and phrases might be incorrect or illogical when the literal meaning is considered. All in all, the meaning *womaniser* might be hidden or unavailable even for people who cultivate the English language on a higher level. Particularly in written form, it is hard to retrieve this meaning.

5.1.9. Control sentences

Both questionnaires included control sentences, which have only one possible reading and grammar offering an unambiguous solution. These control sentences were supposed to test ambiguity awareness of the participants beyond resolution. Expectedly, if the participants have a good basis of grammar knowledge, they will not seek more interpretations and will submit only the correct translation of the control sentences. However, a few respondents wrote some surprising translations, which seemed illogical at first sight.

Translation Task of Control Sentence I.			
The sentence to translate: <i>When the detective asks if the goods are stolen, the honest reply.</i> ¹⁷			
Hungarian translations	Meaning	Type A	Type B
(1) Az őszinte (ember) válaszol	The honest (people) reply	13	13
(2) A válasz őszinte	The reply is honest	4	9
(3) Őszintén válaszolj!	Reply honestly!	4	1

¹⁷ <https://style.mla.org/quiz-ambiguity-with-parts-of-speech/>

The sentence above appeared in both types of questionnaires as a translation task. Despite the fact this sentence possesses only one reading, participants could not retrieve it without difficulty. Nevertheless, 56% of respondents submitted the relevant translation, out of them several respondents mentioned that this sentence might be grammatically wrong. I did not attempt to check thoroughly why they feel that because I considered it would be problematic to discuss via email as it is challenging to articulate the reason.

In Hungarian adjectives can behave as nouns resembling in this sentence:

the honest people

az őszinte emberek

the honest

az őszinték

In English, it is demanding to retrieve the actual meaning, especially when someone makes an effort to translate the clause separately, and does not study the sentence as a whole - supposedly the 33% of respondents who submitted translation(2) attempted this way. In clause, *the honest reply*, the duality of *reply* may be delusive. *Reply* can behave as a noun and as a verb, too. In consequence, if *the honest reply* is looked at as an NP, the clause individually can mean that the response is honest, while looking at the rest of the sentence, the predicate is missing from the clause. Processing the translation following this logic possibly causes the feeling that the sentence is incomplete.

A complete clause where *the honest reply* is an NP:

*The honest reply **made a difference**. (predicate addition)*

Translation (3) might be granted to the fuse of insufficient grammar knowledge and some moral perception that people should be honest when they are exposed to a question. This is merely a conjecture at this point which has not been verified yet and requires further research.

The following sentences occurred in different forms of tasks in questionnaires A) and B). The participants of questionnaire B) were expected to give a translation of the following two control sentences to see if being aware of ambiguity has an influence on their translations. Participants of questionnaire A) had to recognise these unambiguous sentences while going through the picture task.

Translation Task of Control Sentence II.		
Type B		
The sentence to translate: <i>Emily texted George while in Paris.</i>		
(1) Emily míg Párizsban volt, írt George-nak.	Emily was in Paris.	21
(1) & (2) George volt Párizsban	Emily was in Paris & George was in Paris	2

Picture Task of Control Sentence II.	
Type A)	A)  B)  Emily texted George while in Paris.
A) Emily was in Paris:	
20	
B) George was in Paris:	
1	
C) Both interpretations:	
2	

This example demonstrates that *while* disambiguates the sentence, to know precisely, who *was in Paris*. As it is visible in the results, 89%(excluding those who considered both interpretations) of respondents gave a translation which articulates that *Emily* was in *Paris*

instead of *George*, or chose the answer A) which offers the same meaning of the sentence. There was only one participant out of forty-six, who chose *George* as a sole option, and merely four other participants fell for the idea that this sentence is ambiguous. This suggests that most of the participants possess adequate grammar knowledge because based on previous results the closeness of the object to the adjunct (instead of the subject) is preferred in case of sentences which have more possible interpretations.

In the same way as before, this sentence *Erica, driving down the street, saw Lisa.* also has only one possible reading, therefore it has one solution concerning meaning. 84% of the respondents manage to submit a translation which conveys the correct meaning of the original sentence. On the other hand, these results might be the consequence of an earlier detected phenomenon. In this example, the subject is directly placed before the adjunct, and as previously (5.1.1., 5.1.2.) closeness and placement had an eminent role in creating a relation between the adjunct and the subject or the object. Unfortunately, recently I do not own sufficient data to declare if this previously articulated phenomenon has an influence on the participants' choice of answer and on their translations. Furthermore, as I have mentioned before, preliminarily the participants were not tested and categorised based on their language knowledge, they declared themselves their level of skills, which entangles examining this question thoroughly.

Translation Task of Control Sentence III.		
Type B		
The sentence to translate: <i>Erica, driving down the street, saw Lisa.</i>		
(1) Erica vezetett.	Erica was driving.	22
(1) Erica vezetett. & (2) Lisa vezetett.	Erica was driving. & Lisa was driving.	1

Picture Task of Control Sentence III.	
Type A)	A) Lisa  B) Erica  Erica, driving down the street, saw Lisa.
A) Erica was driving: 17	
B) Lisa was driving: 4	
C) Both interpretations: 2	Erica, driving down the street, saw Lisa.

6. Conclusion

To sum up the experiences, at least one conclusion is unquestionable about ambiguity awareness. When participants were informed that ambiguity may arise, they were more successful in identifying more possible interpretations. It is overtly visible in the answers of questionnaire B)'s participants, that a greater amount of options are given or considered, than the other group's participants. It is also concordant with the facts, that returning questions made participants think more thoroughly. All these slight differences in choice are demonstrated in the diagrams(5.1.2., 5.1.6.) proving that reevaluation and modification of answers shift to considering more options, rather than changing their minds completely. Moreover, the study assured that grammar is not the only eminent feature that has to be taken into account when one seeks the meaning of a sentence. World knowledge and speculations

¹⁸ Picture:

https://media.istockphoto.com/id/935482490/hu/vektor/fiat-al-n%C5%91-aut%C3%B3t-vezet-rajzfilmes-emberek-karakter-elszigetelt-illuszt%C3%A1ci%C3%B3k.jpg?s=612x612&w=is&k=20&c=oIG2_gkYKLeKa8EEv35GanS5A5UvtmcGGol5us9hq8w=

can easily overwrite grammatical rules and preferences to get the most realistic meaning due to the situation.

Besides, it is certainly interesting what kind of strategies the participants used to resolve ambiguity. Object preference had an outstanding role, as there were more sentences which tested whether the participants relate the adjunct to the object or to the subject. On a large scale, even when grammar allowed the choice of relating the subject to the adjunct, the object was primarily preferred, unless world knowledge demanded subject preference. The closeness and position of the adjunct had a great impact on making a decision, too. Likewise, in the first example (5.1.1.) the positions of the sentence part *On Monday* had a decisive role in the processing of the sentence's meaning. Additionally, the participants, who were not informed about ambiguity while dealing with the translation task, submitted more interpretations of a sentence to be translated at the same time. These participants verified that they are capable of identifying ambiguity in English sentences without any guidance.

As I have already stated, there were several immediately incomprehensible and truly surprising Hungarian translations of certain sentences, which still causes great puzzlement. Some of these translations were only thanks to not adequate grammar knowledge, yet other translations sheltered influences of Hungarian grammar logic. For instance, the translations in (5.1.3) and (5.1.6.) which demonstrate interpreting imaginative dropped pronouns, which is relevant in Hungarian as a pro-drop language. Without a doubt, in the lack of sufficient data and further information, these are exclusively assumptions, nevertheless, truly intriguing assumptions.

Undeniably, to be able to identify certainly the parsing patterns and strategies Hungarian native speakers use in the English language, further investigations are highly required. Firstly, receiving additional information by asking follow-up questions about the given responses would provide a better sight into the process of disambiguation and translations. Moreover, a face-to-face occasion with participants would allow for obtaining live feedback from the respondents and another benefit of face-to-face occasions is that their time and method of thinking can be studied, too.

To speak briefly of the experiences regarding ambiguity awareness, despite the fact that there were some failures when participants dealt with the control sentences, the vast majority

managed to accomplish them and did not commit to looking for more interpretations when there were not any. Hence, one of my main questions has been answered, whether Hungarians can detect ambiguous structures in English sentences. In this view, I confidently state that these results contribute to the proof of the ability of native speakers of Hungarian to identify ambiguity in the English language without a doubt that adequate grammar and lexical skills are available.

Beyond any doubt, with the help of this research, I could partially answer my questions specified in the introduction. However, these results raise a large number of questions which require further discussion.

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<https://forms.gle/ski41wF5KSAGhyjg8> - Questionnaire Type A

<https://forms.gle/LCPm3UBTRroY5XXVA> - Questionnaire Type B

7.2. Pictures

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All the other pictures are my own work.

