

# Anaphora Resolution in Croatian by English-Croatian Professional Translators and Translation Trainees

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UNIVERSITY OF RIJEKA  
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**Anaphora resolution in Croatian by English-Croatian  
professional translators and translation trainees**

Submitted in partial fulfilment of the requirements for the M.A. in English Language and  
Literature and Informatics at the University of Rijeka

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## **Abstract**

This thesis reports on the results of an experimental study investigating the resolution of intra-sentential anaphora and cataphora in Croatian in three native speaker groups – English-Croatian professional translators, English-Croatian translation trainees and a control group of non-translators. The aim of the study was to investigate whether the professional translators and translation trainees were influenced by their use of and exposure to English, their L2, resulting in L1 attrition. The participants were administered a picture selection task in which they read sentences containing null and overt subject pronouns referring to an antecedent that came either before (anaphora) or after the pronoun (cataphora). After each sentence they had to choose between three pictures that showed the antecedent as the subject, the object or an extra-linguistic referent. The professional translators and the translation trainees did not select the subject as the overt pronoun antecedent more often than the control group in sentences with anaphor. In sentences with cataphora, the translation trainees selected the subject the least, while the professional translators selected it slightly more often than the controls. No evidence of L1 attrition was found.

Keywords: anaphora resolution, null subject pronouns, overt subject pronouns, translation, L1 attrition, L2 acquisition, Croatian, English

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## 1. Introduction

The benefits of foreign language learning have been heavily documented and studied over the last few decades. Bilingualism and multilingualism have enabled people around the world to communicate with each other more effectively, and enabled researchers to investigate the cognitive benefits of being able to speak and think in more than one language (Bialystok, 2011). It is not surprising, then, that researchers have also dedicated themselves to discovering what challenges bilinguals face.

Language transfer, a phenomenon where one language impacts the use of another language in a speaker by interfering with features that are different in those languages, is relevant to understanding L2 acquisition in general (Jarvis & Pavlenko, 2008). Language transfer typically occurs in cases in which the realization of a linguistic feature of a learner's L1 is different than the realization of the same feature in the language they are learning. Before becoming sufficiently proficient in an L2, a learner often substitutes the features of the L2 that he/she does not yet know with features from his/her L1 (Köpke & Schmid, 2004). This can include all aspects of a language, from phonology to pragmatics. As the learner becomes more proficient in the L2, the interference from the L1 is reduced. Language attrition is a special case of language transfer in which a language diminishes because of multiple potential reasons, typically a lack of use and extensive exposure to another language. L1 attrition can occur when a speaker is intensively exposed to the L2, typically through migration or extensive use. This results in features of the L2 interfering with features of the speaker's L1.

Sorace and Filiaci (2006, 339-368) proposed the Interface Hypothesis, according to which "interface properties involving syntax and another cognitive domain may not be fully acquirable", while syntax by itself is fully acquirable. The explanation is that an L2 learner does not have enough processing resources available to simultaneously process all aspects of the L2 at the interface between syntax and another domain such as discourse or pragmatics, even if the learner is very proficient in the L2. The Interface Hypothesis attempts to explain how a highly advanced L2 learner can still exhibit non-target-like linguistic behaviour in the target L2 through the concept of interface, which exists between a syntactic structure and the rules that govern its use (Sorace, 2011). Sorace (2011) reports that instabilities in language acquisition can occur at interfaces, and makes a distinction between internal interfaces, syntax-semantics interface and external interfaces, such as syntax-discourse interface, the former being more stable. Sorace (2011) suggests that anaphora resolution, i.e. the context-dependant interpretation of an expression, including anaphora resolution that involves null and

overt subject pronouns, is a property placed at the syntax-discourse interface. However, in an experiment on anaphora resolution in Italian conducted with native speakers of Italian and L1 English near-native speakers of Italian, Sorace and Filiaci (2006) found that the misinterpretation only occurred in near-native speakers of Italian in sentences with the overt pronoun, and that both groups interpreted sentences with the null pronoun appropriately. The results suggest that the overt pronoun causes difficulties in interpretation, while the null pronoun does not.

The aim of this study was to explore potential L1 Croatian attrition in English-Croatian professional translators and translation trainees caused by exposure to L2 English by testing anaphora resolution. This study expands upon previous insights gained in two similar studies by Miličević and Kraš (2014, in press), in which they looked for evidence of L1 Italian and L1 Serbian attrition. In these studies, the main target group were translation trainees, while the control group comprised students who did not study languages or translation. The study reported on in this paper, conducted on L1 Croatian, assumed that translation trainees, despite most likely having greater metalinguistic knowledge than the linguistically naïve control participants, still lacked the necessary amount of L2 exposure and experience in translation for the results to be fully conclusive. The average length of exposure to L2 English of the Italian and Serbian translation trainees (14.5 and 13.97 years), was perhaps too similar to that of the control participants (11.25 and 9.66 years, respectively), possibly impacting the results that showed that the translation trainees opted less for the inappropriate subject antecedent than the control group in sentences with the overt pronoun (Miličević & Kraš, 2014, in press). The underlying assumption is that L1 attrition is more likely to appear with more exposure to the L2 and more translation experience. Therefore, in addition to translation trainees and a non-translator control group, this study included an additional target group of professional translators in order to attempt to both replicate the results of the previous studies and expand them with data pertaining to a group of speakers that have a greater level of exposure to L2 English and experience in translation.

## 2. Pronominal subjects in Croatian

Croatian is a *pro*-drop language, which means that pronominal subjects can either be null (dropped) or overt (expressed). The Position of Antecedent strategy (Carminati, 2002) proposes that in intra-sentential contexts the null subject pronoun is typically interpreted as referring to the subject (as the topical) antecedent, and an overt subject pronoun to a non-subject antecedent. The null pronoun keeps the focus on the primary referent introduced in the sentence, which is typically the pre-verbal subject. When the overt pronoun is present in a sentence, it shifts the focus away from the original discourse topic to a non-subject antecedent which is typically the object of the sentence, but can also be an extra-linguistic referent depending on the context. This feature of null and overt pronoun use was formalized as the Topic Shift feature by Sorace (2000, 2005). The topic shift does not happen with null pronouns and happens with overt pronouns. In other words, the overt pronoun serves to attract the reader's or listener's attention and shift their focus.

The use of the null and overt pronoun is exemplified in (1).

- (1) a. *Zašto je Ivan pao ispit?*  
      why is Ivan failed exam  
      ‘Why did Ivan fail the exam?’
- b. *Zato što pro nije učio.*  
          because *pro* not is studied  
          ‘Because he did not study.’
- c. *Zato što on nije učio.*  
          because he not is studied  
          ‘Because he did not study.’

The use of the null pronoun in (1b) means that the subject of the answer is the same as the subject of the question. The use of the overt pronoun in (1c) would indicate that the subject of (1a) is no longer the discourse topic, i.e. that Ivan failed the exam because someone else who is known from context did not study.

Sentences in (2) further illustrate the use of pronominal subjects in Croatian.

- (2) a. *Je li Ivan prošao ispit?*  
is Ivan passed exam  
'Did Ivan pass the exam?'
- b. *Ne, pro/Ante je prošao ispit.*  
no pro/Ante is passed exam  
'No, Ante passed the exam.'
- c. *Ne, pro pao je ispit.*  
no pro failed is exam  
'No, he failed the exam.'

In the above case, (2c) reflects the same situation as was described in (1b) – the subject does not change so there is no need for a pronoun. In (2b), however, a null subject would be out of place and the sentence would not make sense, because the meaning of the sentence indicates that the topic changed to someone else who passed the exam.

This study, however, analyses intra-sentential anaphora resolution in sentences that do not require additional context, as seen in (3).

- (3) a. *Ivan je čitao pravila dok je pro kuhao ručak.*  
Ivan is read rules while is *pro* cooked lunch  
'Ivan read the rules while he was cooking lunch.'
- b. *Ivan je čitao pravila dok je on kuhao ručak.*  
Ivan is read rules while is he cooked lunch  
'Ivan read the rules while he was cooking lunch.'

In non *pro*-drop languages such as English, the overt pronoun must be present. As the only choice, based on the Position of Antecedent strategy mentioned in the introduction, the pronoun introduced in the subordinate clause refers to the discourse topic, i.e. the subject of the sentence. In *pro*-drop languages like Croatian, the inclusion of the overt pronoun shifts the discourse topic to another antecedent, in this case an extra-linguistic referent not introduced in the sentence. This ambiguity primarily arises in sentences in which potential referents are the same gender as the pronoun. Croatian is a language with very rich verbal inflection so when a



sentence includes two potential referents of different genders, as seen in (4), the overt pronoun could be omitted because the verb already marks the gender.

- (4) a. *Ivan je čitao pravila Andrei dok je pro kuhala ručak.*  
Ivan is read rules Andrea while is pro cooked lunch.  
'Ivan read the rules to Andrea while she was cooking lunch.'
- b. *Ivan je čitao pravila Andrea dok je ona kuhala ručak.*  
Ivan is read rules Andrea while is she cooked lunch  
'Ivan read the rules to Andrea while she was cooking lunch.'

In this case, the verb (the suffix *-la* in *kuhala*) indicates that Andrea was cooking lunch. The verb would be "kuhao", with the suffix *-o*, if Ivan was cooking. The addition of the overt subject in the second sentence is superfluous, except in cases when it could be inferred from context that there was another woman who might have been cooking lunch at the time.

### 3. Previous research on anaphora resolution

Carminati (2002) has shown that null and overt pronouns are interpreted differently in intra-sentential anaphora. The null pronoun typically refers to the topical antecedent, i.e. the subject, while the overt pronoun typically refers to a non-topical antecedent that can be a complement in the sentence or an extra-linguistic referent. This was also observed to be true in Italian-English bilinguals (Serratrice, 2005; Sorace & Filiaci, 2006; Belletti, Bennati, & Sorace, 2007), as well as Italian-Croatian bilinguals (Kraš, 2008a).

Tsimpli et al. (2004) discovered cases of potential L1 Italian attrition in L1 Italian near-native speakers of English. The experiment included anaphoric and cataphoric sentences with the null or overt pronoun in the subordinate clause. The participants were asked to interpret the null or overt pronouns by selecting pictures that matched the sentences in meaning. The results showed that the bilingual group had a higher tendency than the monolingual control group to interpret the overt pronoun as coreferential with the subject of the main clause in both anaphora and cataphora. At the same time, there was no evidence of misinterpretation of the null subject.

Kraš adapted the picture selection task designed by Tsimpli et al. (2004) and tested anaphora resolution in native speakers of Croatian (Kraš, 2008b), Croatian and Italian bilinguals (Kraš, 2008) and L1 Croatian child second language learners of Italian (Kraš, 2016). Both Croatian and Italian are *pro*-drop languages, and Kraš found that all of the groups correctly, i.e. pragmatically appropriately interpreted the antecedents of null and overt pronouns in anaphora and cataphora.

The discovery that ultimately led to the study presented in this thesis was conducted by Cardinaletti (2004, 2005), who examined published translations and found that translators into L1 Italian, a *pro*-drop language, were influenced by their use of L2 English, a non *pro*-drop language, in a way that they over-accepted the overt pronoun in ambiguous sentences with anaphora and cataphora to be coreferential with the main clause subject. However, the interpretation of anaphora and cataphora with the null pronoun in their L1 remained pragmatically appropriate. Translators are a special category of bilinguals because their profession requires them to simultaneously utilize all aspects of two languages. It is also the reason why they are at a higher risk of developing L1 attrition under the influence of their L2. Miličević and Kraš (2014, in press) searched for potential evidence of L1 attrition in Italian and Serbian translation trainees from L2 English using the picture selection task Kraš adapted from Tsimpli et al., through which the participants had to interpret the antecedents of null and overt subject pronouns. They did not find evidence of incipient L1 attrition, but conceded that

further research should be done with experienced translators, and that more answers could lie in the complexities of the act of translating, which includes multiple linguistic and extra-linguistic aspects that go beyond the interpretation of individual sentences. The study presented in this paper is a continuation of the two studies by Miličević and Kraš (2014, in press). It includes professional translators as an additional experimental group, and uses the same picture selection task.

## **4. The study**

### **4.1. Research question and hypothesis**

As an addition to the research previously published by Miličević and Kraš (2014, in press), but based on a different language combination, the following research question was explored in this study: do professional translators from L2 English into L1 Croatian and translation trainees being trained on the same language combination over-accept overt subject pronouns in contexts in which L1 Croatian non-translators prefer null subject pronouns? Taking into consideration previous research on the overuse of overt subject pronouns, particularly in the domains of bilingual language development (Sorace & Filiaci, 2006; Tsimpli et al., 2004) and translation (Cardinaletti, 2004, 2005), this study tests the hypothesis that professional translators and translation trainees from English into Croatian over-accept overt subject pronouns in contexts in which null subject pronouns are preferred.

### **4.2. Participants**

Three groups of native speakers of Croatian participated in the study – professional translators (n=24), translation trainees (n=24), and University students who do not study any languages (n=24). The professional translators were chosen if one of their language combinations was English-Croatian, and if translation was their source of income; fourteen listed translation as their primary profession and ten as secondary. They were found through personal connections, the Croatian Literary Translators Association and private translation companies. Twelve were primarily literary translators and the other twelve were commercial translators. The translation trainees were all students of the Translation Masters programme of the Department of English of the Faculty of Humanities and Social Sciences at the University of Zagreb, Croatia. The programme lasts four semesters and includes fourteen courses, most of which are directly related to translation theory or practice. At the time of testing, half of the translation trainees were in the second semester and half were in the third semester of the programme. Initial communication with the trainees was established in class with the approval of two of their teachers, after which arrangements were made for individual testing sessions. The control group consisted of University students who were at the time of testing attending a Masters programme in a non-language-related subject at the University of Rijeka, Croatia –

Medicine, Law, Engineering, Cultural Studies, Psychology, Civil Engineering and Computer Science. They were found through personal connections.

Prior to solving the experimental task, which was the main task in the study, all potential participants first filled out a consent form (see Appendix 1) and then underwent a selection process by solving the Oxford Quick Placement Test (versions 1 and 2) from 2001. Because of L1 attrition being related to high L2 proficiency (Tsimpli et al., 2004), professional translators and translation trainees were required to achieve a minimum result of 50/60 in the Test, the range of 50-60 corresponding to the Common European Framework of Reference (CEFR) levels of C1 (advanced) or C2 (highly advanced). The required result was slightly lower for the control group, set at a minimum of 45/60, corresponding to the CEFR levels of higher B2, C1 or C2, meaning higher upper intermediate, advanced and very advanced proficiency in English. The difference between the minimum required results for experimental and control groups exists because a higher B2 level for the controls implies that they have likely reached their required peak proficiency. Since they do not use English professionally, as opposed to the experimental groups, the same standards of testing need not have been applied. Potential participants achieving a lower score than those described above were not considered for the experiment because high L2 proficiency is one of the factors that can cause L1 attrition.

Furthermore, all participants filled out a questionnaire (see Appendices 2-4) in which they were asked to provide details about their education, as well as about their knowledge of and exposure to foreign languages. The questionnaires for professional translators and translation trainees also included questions about their experience with translation, details on the types of texts they translated and language combinations. Basic data on all participants can be found in Table 1.

Participant Group	Age at testing (years)		Length of exposure (years)		Proficiency (OQPT score)	
	Mean	Range	Mean	Range	Mean	Range
Professional translators	36.29	25-60	19	8-46	58	54-60
Translation trainees	23.5	21-24	16.12	12-20	57.08	51-60
Control	24.46	19-27	13.04	6-27	53.08	46-59

Table 1. Participant biodata

It is important to note that the length of exposure data is based on the question “How much time did you spend learning English?” to which participants responded with years spent learning English formally and non-formally (preschool, elementary school, high school, college, language schools). Informal education, the lifelong process of learning that is independent of structured and established formal and non-formal education, cannot be adequately quantified, but it likely plays a significant role in the total exposure of professional translators because of their age and translation careers. Two professional translators, however, answered the question by including informal education, their responses being “every day”. This difference in exposure can also be seen in the answers to the question “How many hours per day, on average, do you spend translating?” to which professional translators answered an average of 6.16 hours and translation trainees an average of 2.34 hours. Additionally, the professional translators were asked the question “How many years have you been a professional translator?” and the average number of years is 9.92 years.

It is interesting to see that the length of exposure shows a distinction between all the groups (and a larger difference between professional translators and the control group), while as far as proficiency tested by the Oxford Quick Placement Test is concerned, the translators and translation trainees are on a nearly identical level (C2 – highly advanced), while the control group is on average on the C1 – advanced level.

### **4.3. Materials and design**

For the experiment itself, a picture selection task was used. The task was originally adapted by Kraš (2008a) from Tsimpli et al. (2004), translated into Serbian by Miličević and Kraš (2015), and translated from Serbian into Croatian for this study. The E-Prime 2 software was used to create and to run the task.

The participants were required to read sentences in Croatian presented one word at a time, without commas to avoid potentially biased interpretations. The experiment was self-paced, meaning that the participants could focus on a word for as long as they wanted and then move to the next one by pressing the space bar on the keyboard. The sentences were divided into four experimental and four control sentence types. All sentences were composed of two clauses – a main clause and a subordinate clause. The main clause included two animate noun phrases of the same gender, one as the subject and the other as the object, and a transitive verb. The structure of the subordinate clauses separated the experimental from the control sentences.

The experimental sentences contained a third person singular null or overt subject pronoun in the subordinate clause. The overt pronouns agreed in gender with the subject and object of the main clause, as well as the extra-linguistic referent shown in one of the pictures in a set. Because of gender agreement, the meaning of the subordinate clause was ambiguous as to the pronoun antecedent. Examples of experimental sentences are shown in (5).

(5) a. Anaphora with a null pronoun

*Majka<sub>i</sub> ljubi kćer<sub>j</sub> dok pro<sub>i/?j</sub> oblači kaput.*  
 mother kisses daughter while *pro* puts on coat  
 ‘The mother kisses the daughter while she puts on the coat.’

b. Cataphora with a null pronoun

*Dok pro<sub>i/?j</sub> oblači kaput majka<sub>i</sub> ljubi kćer<sub>j</sub>.*  
 while *pro* puts on coat mother kisses daughter  
 ‘While she puts on the coat, the mother kisses the daughter.’

c. Anaphora with an overt pronoun

*Majka<sub>i</sub> ljubi kćer<sub>j</sub> dok ona<sub>?i/j/k</sub> oblači kaput.*  
 mother kisses daughter while she puts on coat  
 ‘The mother kisses the daughter while she puts on the coat.’

d. Cataphora with an overt pronoun

*Dok ona<sub>?i/j/k</sub> oblači kaput majka<sub>i</sub> ljubi kćer<sub>j</sub>.*  
 while she puts on coat mother kisses daughter  
 ‘While she puts on the coat, the mother kisses the daughter.’

The control sentences served several purposes – to test if the pictures were clear enough when the meaning of the sentences was unambiguous, and to serve as distractors so the participants would ideally not realize that the test was about pronoun interpretation. Two subordinate clauses from the control set used a gerundive clause, positioned either before or after the main clause, for which the subject of the main clause was the clear agent of the verb in the gerundive form in the subordinate clause. The restrictive relative clause was unambiguously co-referential with the object of the main clause. The control sentences also included sentences with a temporal clause that preceded the main clause and contained a singular animate noun phrase as its subject (the extra-linguistic referent), matched in gender with the subject and object of the main clause. Examples of control sentences are shown in (6).

(6) a. Postposed gerundive clause

*Majka ljubi kćer oblačeći kaput.*

mother kisses daughter putting on coat

‘The mother kisses the daughter while putting on the coat.’

b. Preposed gerundive clause

*Oblačeći kaput majka ljubi kćer.*

putting on coat mother kisses daughter

‘While putting on the coat, the mother kisses the daughter.’

c. Relative clause

*Majka ljubi kćer<sub>j</sub> koja pro<sub>i</sub> oblači kaput.*

mother kisses daughter who pro puts on coat

‘The mother kisses the daughter who puts on the coat.’

d. Temporal clause

*Dok plavokosa gospođa oblači kaput majka ljubi kćer.*

while blond lady puts on coat mother kisses daughter

‘While the blond lady puts on the coat, the mother kisses the daughter.’

After the last word in a sentence, a set of three pictures corresponding to that sentence was displayed. The participants had to choose the picture that best matched their interpreted meaning of the sentence. In all three pictures the subject of the main clause was displayed performing the action described in the main clause, while three different characters were shown performing the action described in the subordinate clause – the subject of the main clause, the object of the main clause, and an extra-linguistic referent. The three pictures in a set came in a systematically varied order to avoid the possibility of participants developing an ordering effect (Krosnick, 1987). As shown by an example picture in Figure 1, corresponding to sentences in (5) and (6), the pictures were always labelled 1, 2 and 3 from left to right as the participants had to choose their answer by pressing the 1, 2 or 3 key on the keyboard. In picture one, the subject of the main clause puts on the coat, in picture 2 an extra-linguistic referent puts on the coat, while in picture 3 the object of the main clause puts on the coat.



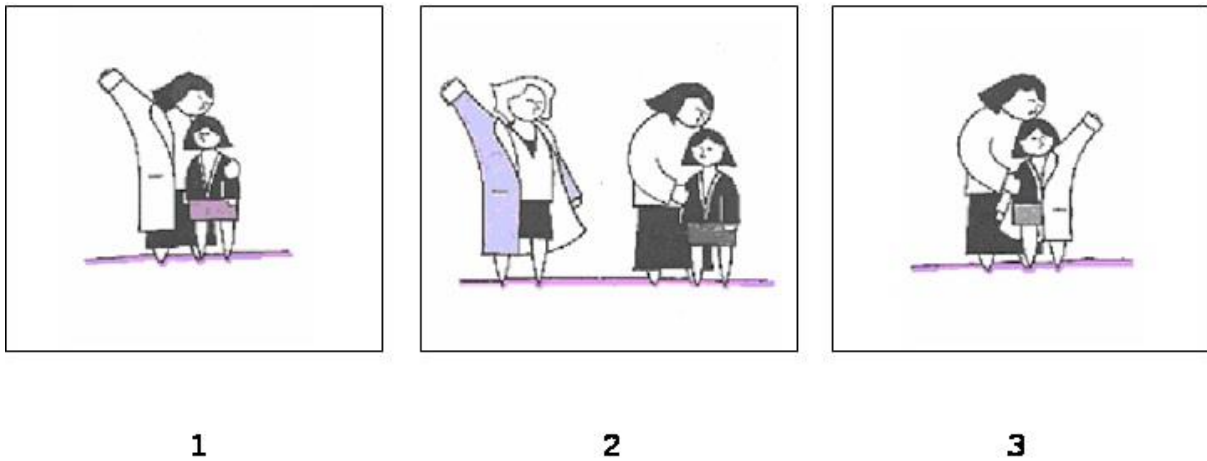


Figure 1. Example of a picture set

The task included a total of 48 sentences accompanied by their corresponding 48 pictures. There were eight presentation lists, and in each list the 48 sentences were distributed across the eight sentence types described above, so that no sentence was written in the same way twice in the experiment. This means that each participant read six sentences of each type while doing the task. The order of appearance of the sentences was randomized.

Every list also included four practice sentences, one of each type of the control sentences, that the participants read to get acquainted with the experiment. The sentences used in the experiment can be found in Appendix 6.

#### **4.4. Procedure**

Participants were tested individually in a quiet room (the author's home, the participant's home or a classroom). After filling out a consent form (see Appendix 1), they were given the Oxford Quick Placement Test to solve. The participants were then given a questionnaire (see Appendices 2-4) to fill out while the test was being corrected. If the test result was too low (which happened in three cases), the participants still did the experimental task, but their results were excluded from the analysis. Before doing the task, all participants read written instructions (see Appendix 5), and were given the choice to use either the character keys number bar or the numeric keypad when selecting responses. When the participants completed the practice sentences, they were told that they were not allowed to ask any questions during the experiment except if they could not recognize who was who in the pictures. If they required assistance with recognizing a character, the author pointed to that character in all three

pictures in order from left to right to avoid suggestions. After testing, the participants were given a reward in the form of candy or chocolate as a form of gratitude for their participation.

#### 4.5. Results

Figures 2 and 3 shown the mean percentages of responses per experimental sentence type. The label “other” represents the extra-linguistic referent response. The results for the sentences with the null pronoun, shown in Figure 2, are entirely expected. Based on the previously described Position of Antecedent Strategy (Carminati, 2002), the preferred interpretation of the null pronoun in intra-sentential anaphora is the subject of the main clause. As can be seen in the figure, all three groups selected the subject as the null pronoun antecedent the most often, and especially in the sentences with cataphora, possibly because of the proximity of the pronoun to the subject of the main clause.

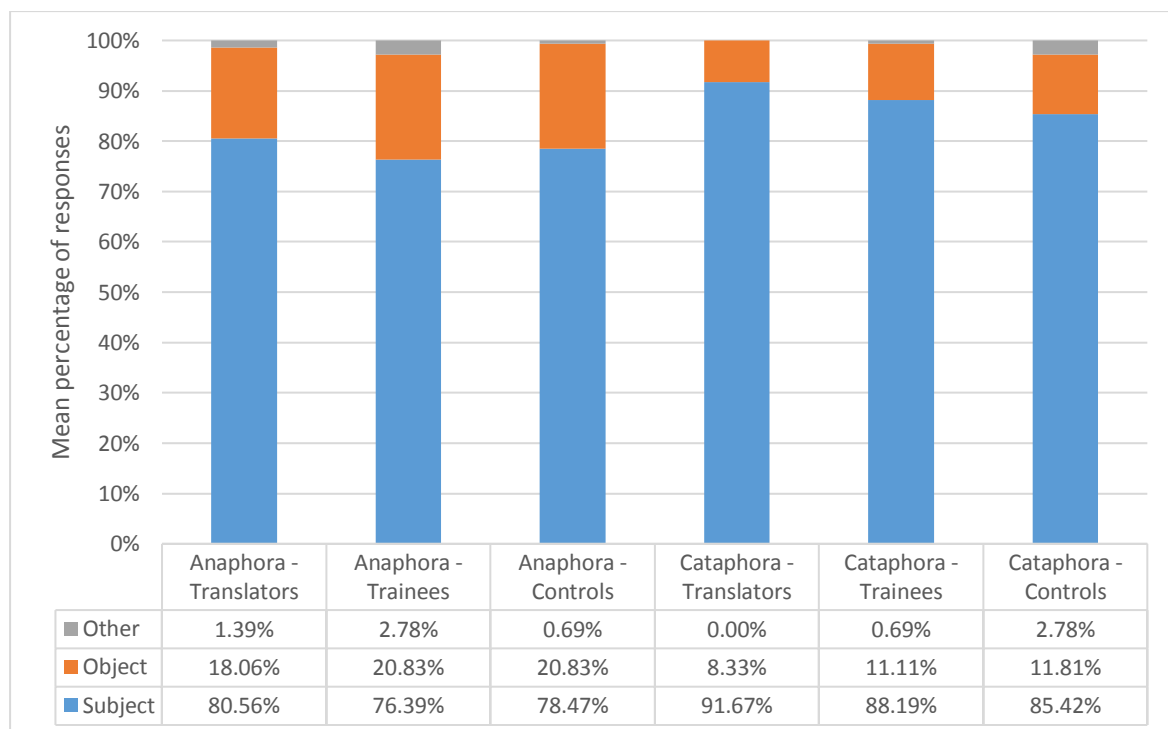


Figure 2. Anaphora and cataphora with the null pronoun results

More relevant to the research question, however, are the results for the sentences with the overt pronoun, shown in Figure 3. Contrary to the hypothesis, in the sentences with anaphora the professional translators and translation trainees selected the subject less often than

the controls (3.47% vs. 6.94% vs. 12.50%, respectively). In the sentences with cataphora the translators chose the subject more often than the controls (9.72% vs. 7.64%) and the translation trainees chose it the least (2.08%), while the object and extra-linguistic referent choices are again in line with the Position of Antecedent strategy and previous research (Miličević & Kraš, 2014, in press). In anaphora the predominant answer of all participant groups is the object of the main clause, likely due to the proximity of the pronoun to the object. In cataphora the responses are divided between the object and the extra-linguistic referent for professional translators and translation trainees, while the controls opted for the extra-linguistic referent more often. In these cases it is likely that discourse pragmatics and context dictate the choice of referent. Since the sentences were presented out of context, the responses were split depending on how the participants assumed the context, i.e. matching the sentences to known or expected real life experiences.

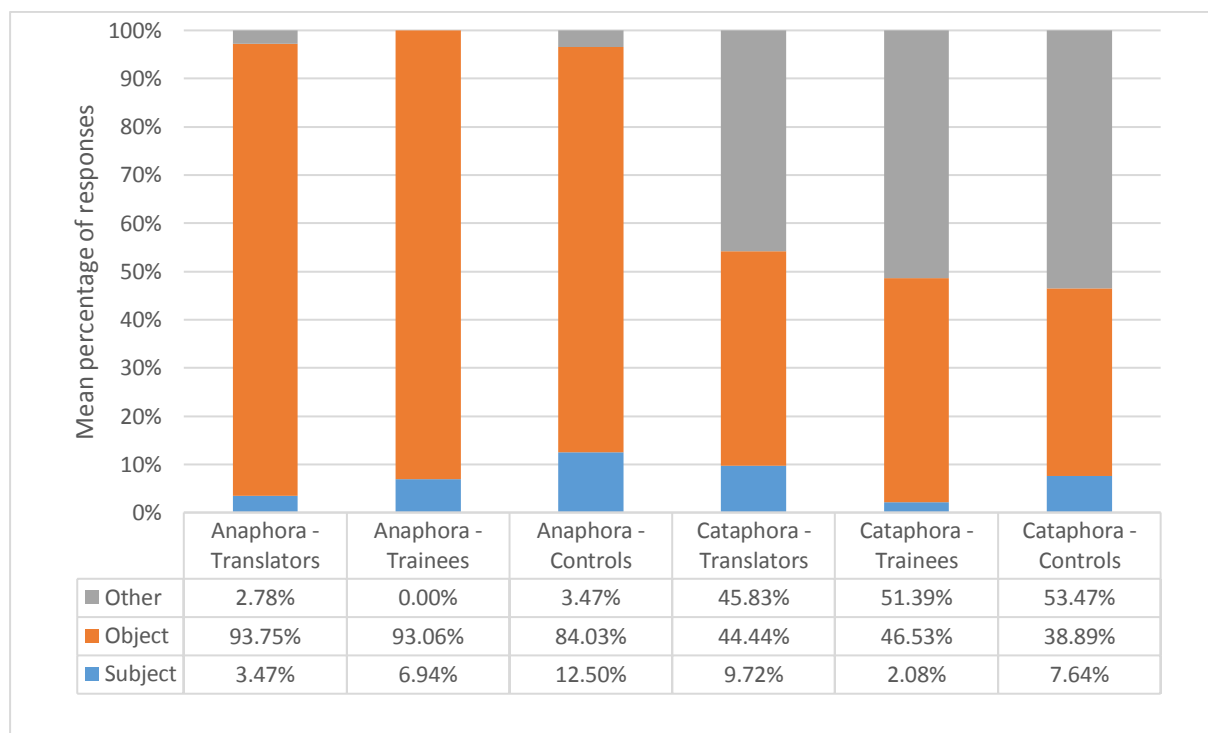


Figure 3. Anaphora and cataphora with the overt pronoun results

The responses to the unambiguous control sentences are shown in Table 2. These responses were expected and similar in both experimental groups and the control group. All three groups correctly interpreted the meaning of the sentences and selected the appropriate agents – the subject in the preposed and the postposed gerundive clauses, the object in the relative clauses, and the extra-linguistic referent in the temporal clauses.

Sentence Type	Group	Subject	Object	Other
Preposed gerundive clause	Translators	95.83%	4.17%	0%
	Trainees	93.75%	6.25%	0%
	Controls	93.75%	3.5%	2.9%
Postposed gerundive clause	Translators	94.44%	4.86%	0.7%
	Trainees	95.8%	1.4%	2.8%
	Controls	95.01%	2.9%	2.09%
Relative clause	Translators	3.5%	96.5%	0%
	Trainees	4.9%	93%	2.1%
	Controls	5.56%	94.44%	0.00%
Temporal clause	Translators	1.39%	2.09%	96.52%
	Trainees	3.5%	1.4%	95.1%
	Controls	2.9%	7.5%	89.6%

Table 2. Responses in control sentences

## 5. Discussion

The aim of the study was to test how professional translators and translation trainees interpret null and overt subject pronouns in Croatian in comparison to a control group of non-translators. Previous studies by Miličević and Kraš (2014, in press) were conducted on translation trainees and non-translators so this study expanded this line of research by including a group of translators with longer exposure and experience in English in order to determine whether the factor of extensive exposure could result in L1 attrition. In previous studies, translation trainees selected the subject of the main clause as the overt pronoun antecedent less often than the control group, indicating that no L1 attrition occurred. The likely explanation was that their current training and heightened meta-linguistic knowledge compared to the control group proved to be an advantage in correctly interpreting the overt pronoun. Those results were in disagreement with the findings of Cardinaletti (2004, 2005) and Baroni and Bernardini (2006), who discovered cases of possible L1 attrition, manifested as the overuse of the overt subject pronoun by examining texts translated into Italian. Because of the fact that there was no evidence of subject pronoun misinterpretation in a picture selection task, Miličević and Kraš (2014, in press) suggested that overt pronoun overuse might not be a manifestation of L1 attrition, but a phenomenon that only occurs in the translation process.

The study presented in this paper included a group of professional translators whose translation training was less recent and immediate, and who had longer exposure through their active professional use of English. As shown by the results presented in the previous section, the professional translators and the translation trainees selected the subject of the main clause as the overt pronoun antecedent less often than the control group in anaphora. In cataphora, the professional translators interpreted the overt pronoun as referring to the subject of the main clause slightly more often than the control group, while the translation trainees selected it the least. The results for anaphora with the overt pronoun are in line with the results of Miličević and Kraš (2014, in press), suggesting that the translators' and trainees' university level education in English and translation training result in greater metalinguistic knowledge and awareness so that they have an advantage over the non-linguistically trained controls when doing comprehension tasks.

The results are less clear in the case of cataphora with the overt pronoun. The professional translators selected the subject as the overt pronoun antecedent more often than the other two groups, and the translation trainees selected the subject the least. While the

difference between the professional translators and the control group is not large (9.72% vs. 7.64%), it could be attributed to the translators' longer exposure to the informal conversational style in which grammatical and syntactic errors occurs more frequently, but also to their exposure to reading materials, especially if the overuse of overt subjects happens more often in translated texts, as suggested by Cardinaletti (2004, 2005). However, when the translation trainees are compared with the control group (2.08% vs. 7.64%), those results again fall in line with previous research, showing that the trainees select the subject as the overt pronoun antecedent less than the controls, possibly because of their heightened metalinguistic awareness and current training.

The question that arises from the results is why there is a greater difference between the professional translators and the translation trainees (9.72% vs. 2.08%). Both percentages are under 10% so the difference is still not large or significant, but interesting to contemplate and consider. It is simply likely that the translation trainees, again, because of their current training and university commitments, are more focused on doing structured linguistic tasks.

## 6. Conclusion

The purpose of this study was to contribute to the body of knowledge on L1 attrition by complementing previous similar studies done with translation trainees and non-translator controls. The study attempted to detect L1 attrition in an additional experimental group – professional translators. No evidence of L1 Croatian attrition was found in either the professional translators or translation trainees that translate from L2 English. However, the participants only performed one comprehension task targeting a single grammatical feature. When presented with such a task, experienced translators and translation trainees are likely to be more focused on identifying the grammatical feature being studied because of their increased metalinguistic knowledge and awareness. Translation, on the other hand, is an entirely different process that is far more complex than sentence by sentence interpretation and analysis, as it requires the simultaneous use and focus on all linguistic, as well as extra-linguistic aspects of two languages.

At present, the cumulative evidence from experiments on anaphora resolution does not suggest that L1 attrition in translators is taking place. Further exploration could be done through analyses of translated texts, as well as different tasks such as translation or production. It seems that evidence for L1 attrition in translators, if any exists, is more likely to be found through tasks that mimic reality more accurately, i.e. in conditions that are as similar to translation as possible.

## 7. Appendices

### 7.1. Appendix 1 – Consent form

#### PRISTANAK NA SUDJELOVANJE U ISTRAŽIVANJU

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**Tema istraživanja:** Razumijevanje rečenica u hrvatskom jeziku

**Glavni istraživač:** Vladivoj Lisica, 2. godina diplomskog studija engleskog jezika i književnosti i informatike, Filozofski fakultet u Rijeci

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Potpisivanjem ovog obrasca potvrđujete da dobrovoljno sudjelujete u istraživanju o hrvatskom jeziku koje se sastoji od rješavanja testa znanja engleskog jezika, popunjavanja upitnika i rješavanja zadatka na računalu u ukupnom trajanju od 45-60 minuta. Tijekom rješavanja zadatka na računalu čitat ćete rečenice i povezivati ih sa slikama, a vaši će se odgovori pohranjivati. Vaš potpis također predstavlja odobrenje za upotrebu podataka za potrebe istraživanja. Vaši osobni podaci neće biti nigdje objavljeni, niti će se koristiti u druge svrhe. Od sudjelovanja možete odustati u bilo kojem trenutku, a Vaši podaci neće biti uključeni u obradu podataka.

<b>Ime i prezime:</b>	<b>Potpis:</b>
<b>Datum:</b>	

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## 7.2. Appendix 2 – Questionnaire for professional translators

### Upitnik

#### 1. DIO: Opći podaci

1. Ime i prezime: \_\_\_\_\_
2. Spol:                    M    Ž
3. Godina rođenja: \_\_\_\_\_
4. Mjesto rođenja: \_\_\_\_\_
5. Studij(i) koji/e ste završili: \_\_\_\_\_
6. Sveučilište na kojem ste studirali: \_\_\_\_\_
7. Primarno zanimanje: \_\_\_\_\_

#### 2. DIO: Podaci o jezicima koje poznajete

1. Imate li osim hrvatskog još koji materinski jezik?                    DA                    NE  
Ako je odgovor DA, koji? \_\_\_\_\_
2. Koje strane jezike poznajete? Poredajte ih prema stupnju poznavanja, počevši od jezika koji poznajete najbolje: \_\_\_\_\_
3. Za svaki od stranih jezika koje poznajete, odgovorite na pitanja u tablici.

Jezik (upisati →)	_____	_____	_____	_____
S koliko ste godina počeli učiti ovaj jezik?				
Koliko ste dugo učili ili učite ovaj jezik?				
Koristite li aktivno ovaj jezik? Ako DA, koliko često i u kojim situacijama? (npr. <i>svakog dana, pišem mejlove...</i> )				
Jeste li ikad proveli više od tri mjeseca u zemlji u kojoj se govori ovaj jezik? Ako DA, gdje, kad, koliko dugo i zašto? (npr. <i>šest</i>				

<i>mjeseci u Italiji zbog posla 2010.)</i>				
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### 3. DIO: Iskustvo u prevođenju

1. Koliko se dugo profesionalno bavite prevođenjem (u godinama/mjesecima)? \_\_\_\_\_

2. Koliko ste dugo studirali prevođenje na fakultetu (ako uopće)? \_\_\_\_\_

3. Jeste li pohađali neki tečaj prevođenja izvan ili nakon studija?                      DA                      NE

Ako je odgovor DA, navedite detalje. \_\_\_\_\_

4. Koliko sati dnevno, u prosjeku, prevodite? \_\_\_\_\_

5. Koliko slovnih znakova dnevno, u prosjeku, prevedete (prema vašoj procjeni)? \_\_\_\_\_

6. Prevodite li u još kojoj kombinaciji jezika osim hrvatskog i engleskog?                      DA                      NE

Ako je odgovor DA:

a) Navedite koje su to kombinacije: \_\_\_\_\_

b) Koliki postotak Vašeg ukupnog vremena provedenog prevodeći otpada na prevođenje u kombinaciji hrvatski i engleski? \_\_\_\_\_

7. U tablici označite kakve tekstove prevodite i koliko često; navedite smjer prijevoda. Ako prevodite u više kombinacija jezika, uključite ih sve. Možete ostaviti neka polja prazna.

→	Učestalost	Rijetko	Ponekad	Često
Poezija	_____>_____	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____	_____>_____
Dramski tekstovi	_____>_____	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____	_____>_____
Književna proza	_____>_____	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____	_____>_____
Esejistika	_____>_____	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____	_____>_____

	_____>_____	_____>_____	_____>_____
Novinski tekstovi	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
Stručni tekstovi (navedite struke, npr. <i>ekonomija, medicina, pravo, informatika...</i> )	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
Ostalo (navedite vrstu tekstova, npr. <i>reklame, titlovi filmova...</i> )	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____

### 7.3. Appendix 3 – Questionnaire for translation trainees

## Upitnik

#### 1. DIO: Opći podaci

8. Ime i prezime: \_\_\_\_\_

9. Spol:                    M    Ž

10. Godina rođenja: \_\_\_\_\_

11. Mjesto rođenja: \_\_\_\_\_

12. Koji diplomski studij pohađate i gdje? \_\_\_\_\_

13. Na kojoj ste godini studija? \_\_\_\_\_

14. Koji ste preddiplomski studij završili, gdje i kada? \_\_\_\_\_

15. Jeste li već završili neki diplomski studij?      DA                    NE

Ako je odgovor DA, koji, gdje i kada? \_\_\_\_\_

#### 2. DIO: Podaci o jezicima koje poznajete

4. Imate li osim hrvatskog još koji materinski jezik?                    DA                    NE

Ako je odgovor DA, koji? \_\_\_\_\_

5. Koje strane jezike poznajete? Poredajte ih prema stupnju poznavanja, počevši od jezika koji poznajete najbolje. \_\_\_\_\_

6. Za svaki od stranih jezika koje poznajete, odgovorite na pitanja u tablici.

Jezik (upisati →)	_____	_____	_____	_____
S koliko ste godina počeli učiti ovaj jezik?				
Koliko ste dugo učili ili učite ovaj jezik?				
Koristite li aktivno ovaj jezik? Ako DA, koliko često i u kojim situacijama? (npr. <i>svakog dana, pišem mejlove...</i> )				
Jeste li ikad proveli više od tri mjeseca u zemlji u kojoj se govori ovaj				

jezik? Ako DA, gdje, kad, koliko dugo i zašto? (npr. šest mjeseci u Italiji zbog posla 2010.)				
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### 3. DIO: Iskustvo u prevođenju

8. Koliko sati dnevno, u prosjeku, prevodite? \_\_\_\_\_

9. Koliko slovnih znakova dnevno, u prosjeku, prevedete (prema vašoj procjeni)? \_\_\_\_\_

10. Prevodite li u još kojoj kombinaciji jezika osim hrvatskog i engleskog?      DA      NE

Ako je odgovor DA:

c) Navedite koje su to kombinacije: \_\_\_\_\_

d) Koliki postotak Vašeg ukupnog vremena provedenog prevodeći otpada na prevođenje u kombinaciji hrvatski i engleski? \_\_\_\_\_

11. Imate li profesionalnog iskustva u prevođenju?      DA      NE

Ako je odgovor DA, precizirajte (objavili ste neki prijevod, prevodili ste za neku televiziju i sl.).

\_\_\_\_\_

\_\_\_\_\_

12. U tablici označite kakve tekstove prevodite i koliko često; navedite smjer prijevoda. Ako prevodite u više kombinacija jezika, uključite ih sve. Možete ostaviti neka polja prazna.

→ Učestalost	Rijetko	Ponekad	Često
Poezija	____>____ ____>____ ____>____	____>____ ____>____ ____>____	____>____ ____>____ ____>____
Dramski tekstovi	____>____ ____>____ ____>____	____>____ ____>____ ____>____	____>____ ____>____ ____>____
Književna proza	____>____ ____>____ ____>____ ____>____	____>____ ____>____ ____>____ ____>____	____>____ ____>____ ____>____ ____>____
Esejistika	____>____ ____>____	____>____ ____>____	____>____ ____>____

	_____>_____	_____>_____	_____>_____
Novinski tekstovi	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
Stručni tekstovi (navedite struke, npr. <i>ekonomija, medicina, pravo, informatika...</i> )	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
Ostalo (navedite vrstu tekstova, npr. <i>reklame, titlovi filmova...</i> )	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____
	_____>_____	_____>_____	_____>_____

## 7.4. Appendix 4 – Questionnaire for the control group

### Upitnik

#### 1. DIO: Opći podaci

1. Ime i prezime: \_\_\_\_\_
2. Spol:                    M    Ž
3. Godina rođenja: \_\_\_\_\_
4. Mjesto rođenja: \_\_\_\_\_
5. Što studirate i gdje? \_\_\_\_\_
6. Na kojoj ste godini studija? \_\_\_\_\_
7. Ako ste na diplomskom studiju, koji ste preddiplomski studij završili, gdje i kada?  
\_\_\_\_\_
8. Jeste li već završili neki studij koji nije obuhvaćen prethodnim pitanjem?      DA              NE  
Ako je odgovor DA, koji studij, gdje i kada? \_\_\_\_\_

#### 2. DIO: Podaci o jezicima koje poznajete

7. Imate li osim hrvatskog još koji materinski jezik?                    DA              NE  
Ako je odgovor DA, koji? \_\_\_\_\_
8. Koje strane jezike poznajete? Poredajte ih prema stupnju poznavanja, počevši od jezika koji poznajete najbolje. \_\_\_\_\_
9. Za svaki od stranih jezika koje poznajete, odgovorite na pitanja u tablici.

Jezik (upisati →)	_____	_____	_____	_____
S koliko ste godina počeli učiti ovaj jezik?				
Koliko ste dugo učili ili učite ovaj jezik?				
Gdje i na koji način ste učili ili učite ovaj jezik? (npr. u školi; na fakultetu; na tečaju; spontano,...)				
Koristite li aktivno ovaj jezik? Ako DA, koliko				

<p>često i u kojim situacijama? (npr. <i>svakog dana, pišem mejlove...</i>)</p>				
<p>Jeste li ikad proveli više od tri mjeseca u zemlji u kojoj se govori ovaj jezik? Ako DA, gdje, kad, koliko dugo i zašto? (npr. <i>šest mjeseci u Italiji zbog posla 2010.</i>)</p>				



## 7.5. Appendix 5 – Written instructions for the experiment

### UPUTE

Glavni dio ovog istraživanja sastoji se od rješavanja zadatka na računalu. Na početku ćete se upoznati sa zadatkom kroz vježbu, tijekom koje možete postavljati pitanja ako nešto ne razumijete.

U zadatku trebate povezati rečenice sa slikama. Prije početka svake rečenice na ekranu ćete vidjeti zvjezdicu (\*), a zatim će se rečenica prikazivati riječ po riječ. Na sljedeću riječ sami prelazite pritiskom na tipku **razmak** (*space*). Poslije zadnje riječi u rečenici na ekranu će se pojaviti tri slike. Svaka će slika biti označena brojem (1, 2 ili 3). Pritiskom na tipkovnicu trebate odrediti koja slika najbolje prikazuje smisao rečenice: za sliku 1 pritisnite tipku 1, za sliku 2 tipku 2, a za sliku 3 tipku 3. Iako će vam se ponekad možda učiniti da je moguće odabrati više slika, morate se odlučiti za samo jednu. Nastojte što brže izvršiti odabir – zanima me vaš **prvi dojam**. Nakon što odaberete sliku, na ekranu će se ponovno prikazati zvjezdica, nakon čega će početi sljedeća rečenica i tako sve do kraja zadatka.

## 7.6. Appendix 6 – Sentences used in the experiment

### Practice items

1. Trener razgovara sa sportašem držeći bocu.
2. Učiteljica pokazuje na učenicu koja nešto govori.
3. Trčeći ulicom policajac ugleda lopova.
4. Dok gospodin u žutoj košulji toči vino gost plaća konobaru.

### Presentation list A

1. Otac pozdravlja sina dok vozi bicikl.
2. Majka grli djevojčicu dok jede sladoled.
3. Glumac odgovara novinaru dok ulijeva vodu u čašu.
4. Tetka dodaju šalicu nećakinji dok poslužuje čaj.
5. Odvjetnik pomaže klijentu dok potpisuje dokument.
6. Bolničarka gura čistačicu dok izlazi iz lifta.
7. Majka uspavljuje djevojčicu držeći plišanog medvjedića.
8. Čuvar ugleda beskućnika hodajući parkom.
9. Starija gospođa pozdravlja djevojku prelazeći ulicu.
10. Profesor razgovara s domarom pušeći lulu.
11. Kći masira majku slušajući glazbu.
12. Gospodin u odijelu prijeti mladiću zatvarajući prozor.
13. Taksist razgovara s klijentom dok on nosi torbe.
14. Majka ljubi kćer dok ona oblači kaput.
15. Mladić pridržava starijeg gospodina dok on gubi ravnotežu.
16. Baka pokazuje fotografiju unuci dok ona doručkuje.
17. Dječak slijedi čovjeka s brkovima dok on gura kolica.
18. Djevojčica promatra crvenokosu gospođu dok ona čita časopis.
19. Djevojčica daje cvijet majci koja nosi vazu.
20. Djed nešto govori unuku koji čita knjigu.
21. Dadilja miluje djevojčicu koja čita bajku.
22. Delinkvent napada starijeg gospodina koji izlazi na ulicu.
23. Starica se približava čistačici koja gleda na sat.
24. Kondukter uzima kartu od putnika koji zijeva.
25. Dok vozi auto sin dodaje naočale ocu.
26. Dok razgovara telefonom majka češlja kćer.
27. Dok čeka autobus svećenik se obraća turistu.
28. Dok svira violinu nastavnica se smiješi djevojčici svijetle kose.
29. Dok silazi niz stube novinar fotografira predsjednika.
30. Dok radi na računalu šefica ispravlja tajnicu.
31. Perući suđe majka kori kćer.
32. Ulazeći u sudnicu svjedok pokazuje optuženog.
33. Gaseći svjetlo majka pokriva djevojčicu.

34. Zatvarajući torbu dostavljač daje novac blagajniku.
35. Pijući kavu crnokosa gospođa sluša prijateljicu.
36. Skrećući iza ugla dječak se sudara s gospodinom.
37. Dok on otvara vrata portir pozdravlja poštaru.
38. Dok ona pegla majka nadzire kćer.
39. Dok se on igra loptom crnokosi dječak pogađa mladića.
40. Dok ona gleda televiziju kći zove majku.
41. Dok on poništava kartu lopov potkrada putnika.
42. Dok ona broji novac blagajnica nešto govori gospođi svijetle kose.
43. Dok kućna pomoćnica pere pod majka grdi djevojčicu.
44. Dok gospodin u prugastim hlačama šalje pismo dječak zviždi čistaču.
45. Dok starica drži kišobran dadilja oblači djevojčicu.
46. Dok policajac prolazi ulicom pijanac provocira gospodina.
47. Dok žena s torbom ulazi u ured plavokosa gospođa daje dokumente službenici.
48. Dok djed reže tortu otac čestita rođendan sinu.

#### Presentation list B

1. Otac maše sinu vozeći bicikl.
2. Majka grli djevojčicu jedući sladoled.
3. Glumac odgovara novinaru ulijevajući vodu u čašu.
4. Tetka dodaje šalicu nećakinji poslužujući čaj.
5. Odvjetnik pomaže klijentu potpisujući dokument.
6. Bolničarka gura čistačicu izlazeći iz lifta.
7. Majka uspavljuje djevojčicu dok ona drži plišanog medvjedića.
8. Čuvar ugleda beskućnika dok on hoda parkom.
9. Starija gospođa pozdravlja djevojku dok ona prelazi ulicu.
10. Profesor razgovara s domarom dok on puši lulu.
11. Kći masira majku dok ona sluša glazbu.
12. Gospodin u odijelu prijeti mladiću dok on zatvara prozor.
13. Taksist razgovara s klijentom koji nosi torbu.
14. Majka ljubi kćer koja oblači kaput.
15. Mladić pridržava starijeg gospodina koji gubi ravnotežu.
16. Baka pokazuje fotografiju unuci koja doručkuje.
17. Dječak prati čovjeka s brkovima koji gura kolica.
18. Djevojčica promatra crvenokosu gospođu koja čita časopis.
19. Dok nosi vazru djevojčica daje cvijet majci.
20. Dok čita knjigu djed nešto govori unuku.
21. Dok čita bajku dadilja miluje djevojčicu.
22. Dok izlazi na ulicu delinkvent napada starijeg gospodina.
23. Dok gleda na sat starica se približava čistačici.
24. Dok zijeva kondukter uzima kartu od putnika.
25. Vozeći auto sin dodaje naočale ocu.

26. Razgovarajući telefonom majka češlja kćer.
27. Čekajući autobus svećenik se obraća turistu.
28. Svirajući violinu nastavnica se smiješi djevojčici svijetle kose.
29. Silazeći niz stube novinar fotografira predsjednika.
30. Radeći za računalom šefica ispravlja tajnicu.
31. Dok ona pere suđe majka kori kćer.
32. Dok on ulazi u sudnicu svjedok pokazuje na optuženog.
33. Dok ona gasi svijetlo majka pokriva djevojčicu.
34. Dok on zatvara torbu dostavljač daje novac blagajniku.
35. Dok ona pije kavu crnokosta gospođa sluša prijateljicu.
36. Dok on skreće iza ugla dječak se sudara s gospodinom.
37. Dok mladić otvara vrata portir pozdravlja poštaru.
38. Dok kućna pomoćnica pegla majka nadgleda kćer.
39. Dok se plavi dječak igra loptom crnokosi dječak pogađa mladića.
40. Dok baka gleda televiziju kći zove mamu.
41. Dok dječak poništava kartu lopov potkrada putnika.
42. Dok tamnokosa djevojka broji novac blagajnica nešto govori gospođi svijetle kose.
43. Majka grdi djevojčicu dok pere pod.
44. Dječak zviždi čistaču dok šalje pismo.
45. Dadilja oblači djevojčicu dok drži kišobran.
46. Pijanac provocira gospodina dok prolazi ulicom.
47. Plavokosa gospođa daje dokumente službenici dok ulazi u ured.
48. Otac čestita rođendan sinu dok reže tortu.

#### Presentation list C

1. Otac pozdravlja sina dok ona vozi bicikl.
2. Majka grli djevojčicu dok ona jede sladoled.
3. Glumac odgovara novinaru dok on ulijeva vodu u čašu.
4. Tetka dodaje šalicu nečakinji dok ona poslužuje čaj.
5. Odvjetnik pomaže klijentu dok on potpisuje dokument.
6. Bolničarka gura čistačicu dok ona izlazi iz lifta.
7. Majka uspavljuje djevojčicu koja drži plišanog medvjedića.
8. Čuvar ugleda beskućnika koji hoda parkom.
9. Starija gospođa pozdravlja djevojku koja prelazi ulicu.
10. Profesor razgovara s domarom koji puši lulu.
11. Kći masira majku koja sluša glazbu.
12. Gospodin u odijelu prijeti mladiću koji zatvara prozor.
13. Dok nosi torbe taksist razgovara s klijentom
14. Dok oblači kaput majka ljubi kćer.
15. Dok gubi ravnotežu mladić pridržava starijeg gospodina.
16. Dok doručkuje baka pokazuje fotografiju unuci.
17. Dok gura kolica dječak prati čovjeka s brkovima.
18. Dok čita časopis djevojčica promatra crvenokosu djevojčicu.

19. Noseći vazu djevojčica daje cvijet majci.
20. Čitajući knjigu djed nešto govori unuku.
21. Čitajući bajku dadilja miluje djevojčicu.
22. Izlazeći na ulicu delinkvent napada starijeg gospodina.
23. Gledajući na sat starica se približava čistačici.
24. Zijeajući kondukter uzima kartu od putnika.
25. Dok on vozi auto sin dodaje naočale ocu.
26. Dok ona razgovara telefonom majka češlja kćer.
27. Dok on čeka autobus svećenik se obraća turistu.
28. Dok ona svira violinu nastavnica se smiješi djevojčici svijetle kose.
29. Dok on silazi niz stube novinar fotografira predsjednika.
30. Dok ona radi za računalom šefica ispravlja tajnicu.
31. Dok kućna pomoćnica pere suđe majka kori kćer.
32. Dok sudac ulazi u sudnicu svjedok pokazuje na optuženog.
33. Dok dadilja gasi svijetlo majka pokriva djevojčicu.
34. Dok ćelavi gospodin zatvara torbu dostavljač daje novac blagajniku.
35. Dok starija žena pije kavu crnokosa gospođa sluša prijateljicu.
36. Dok poštar skreće iza ugla dječak se sudara s gospodinom.
37. Portir pozdravlja poštara dok otvara vrata.
38. Majka nadgleda kćer dok pegla.
39. Crnokosi dječak pogađa mladića dok se igra loptom.
40. Kći zove mamu dok gleda televiziju.
41. Lopov potkrada putnika dok poništava kartu.
42. Blagajnica nešto govori gospođi svijetle kose dok broji novac.
43. Majka grdi djevojčicu perući pod.
44. Dječak zviždi čistaču šaljući pismo.
45. Dadilja oblači djevojčicu držeći kišobran.
46. Pijanac provocira gospodina prolazeći ulicom.
47. Plavokosa gospođa daje dokumente službenici ulazeći u ured.
48. Otac čestita rođendan sinu režući tortu.

#### Presentation list D

1. Otac pozdravlja sina koji vozi bicikl.
2. Majka grli djevojčicu koja jede sladoled.
3. Glumac odgovara novinaru koji ulijeva vodu u čašu.
4. Tetka dodaje šalicu nećakinji koja poslužuje čaj.
5. Odvjetnik pomaže klijentu koji potpisuje dokument.
6. Bolničarka gura čistačicu koja izlazi iz lifta.
7. Dok drži plišanog medvjedića majka uspavljuje djevojčicu.
8. Dok hoda parkom čuvar ugleda beskućnika.
9. Dok prelazi ulicu starija gospođa pozdravlja djevojku.
10. Dok puši lulu profesor razgovara s domarom.
11. Dok sluša glazbu kći masira majku.

12. Dok zatvara prozor gospodin u odijelu prijete mladiću.
13. Noseći torbe taksist razgovara s klijentom.
14. Oblačeći kaput majka ljubi kćer.
15. Gubeći ravnotežu mladić pridržava mlađeg gospodina.
16. Doručujući majka pokazuje fotografiju unuci.
17. Gurajući kolica dječak prati čovjeka s brkovima.
18. Čitajući časopis djevojčica promatra crvenokosu gospođu.
19. Dok ona nosi vazu djevojčica daje cvijet majci.
20. Dok on čita knjigu djed nešto govori unuku.
21. Dok ona čita bajku dadilja miluje djevojčicu.
22. Dok on izlazi na ulicu delinkvent napada starijeg gospodina.
23. dok ona gleda na sat starica se približava čistačici.
24. Dok on zijeva kondukter uzima kartu od putnika.
25. Dok takstist vozi auto sin dodaje naočale ocu.
26. Dok baka razgovara telefonom majka češlja kćer.
27. Dok gospodin s torbom čeka autobus svećenik se obraća turistu.
28. Dok tamnokosa djevojčica svira violinu nastavnica se smiješi djevojčici svijetle kose.
29. Dok tjelohranitelj silazi niz stube novinar fotografira predsjednika.
30. Dok plavokosa službenica radi za računalom šefica ispravlja tajnicu.
31. Majka kori kćer dok pere suđe.
32. Svjedok pokazuje na optuženog dok ulazi u sudnicu.
33. Majka pokriva djevojčicu dok gasi svjetlo.
34. Dostavljač daje novac blagajniku dok zatvara torbu.
35. Crnokosa gospođa sluša prijateljicu dok pije kavu.
36. Dječak se sudara s gospodinom dok skreće iza ugla.
37. Portir pozdravlja poštara otvarajući vrata.
38. Majka nadgleda kćer peglajući.
39. Crnokosi dječak pogađa mladića igrajući se loptom.
40. Kći zove mamu gledajući televiziju.
41. Lopov potkrada putnika poništavajući kartu.
42. Blagajnica nešto govori gospođi svijetle kose brojeći novac.
43. Majka grdi djevojčicu dok ona pere pod.
44. Dječak zviždi čistaču dok on šalje pismo.
45. Dadilja oblači djevojčicu dok ona drži kišobran.
46. Pijanac provocira gospodina dok on prolazi ulicom.
47. Plavokosa gospođa daje dokumente službenici dok ona ulazi u ured.
48. Otac čestita rođendan sinu dok on reže tortu.

#### Presentation list E

1. Dok vozi bicikl otac pozdravlja sina.
2. Dok jede sladoled majka grli djevojčicu.
3. Dok lijeva vodu u čašu glumac odgovara novinaru
4. Dok poslužuje čaj tetka dodaje šalicu nećakinji

5. Dok potpisuje dokument odvjetnik pomaže klijentu.
6. Dok izlazi iz lifta bolničarka gura čistačicu.
7. Držeći plišanog medvjedića majka uspavljuje djevojčicu.
8. Hodajući parkom čuvar ugleda bekućnika.
9. Prelazeći ulicu starija gospođa pozdravlja djevojku.
10. Pušeci lulu profesor razgovara s domarom.
11. Slušajući glazbu kći masira majku.
12. Zatvarajući prozor gospodin u odijelu prijete mladiću.
13. Dok on nosi torbe taksist razgovara s klijentom.
14. Dok ona oblači kaput majka ljubi kćer.
15. Dok on gubi ravnotežu mladić pridržava starijeg gospodina
16. Dok ona doručkuje baka pokazuje fotografiju unuci.
17. Dok on gura kolica dječak prati čovjeka s brkovima.
18. Dok ona čita časopis djevojčica promatra crvenokosu gospođu.
19. Dok kućna pomoćnica nosi vazu djevojčica daje cvijet majci.
20. Dok otac čita knjigu djed nešto govori unuku.
21. Dok majka čita bajku dadilja miluje djevojčicu.
22. Dok policajac izlazi na ulicu delinkvent napada starijeg gospodina.
23. Dok plavokosa gospođa gleda na sat starica se približava čistačici.
24. Dok gospodin u crnoj košulji zijeva kondukter uzima kartu od putnika.
25. Sin dodaje naočale ocu dok vozi auto.
26. Majka češlja kćer dok razgovara telefonom
27. Svećenik se obraća turistu dok čeka autobus.
28. Nastavnica se smiješi djevojčici svijetle kose dok svira violinu.
29. Novinar fotografira predsjednika dok silazi niz stube.
30. Šefica ispravlja tajnicu dok radi za računalom.
31. Majka kori kćer perući suđe.
32. Svjedok pokazuje na optuženog ulazeći u sudnicu.
33. Majka pokriva djevojčicu gaseći svijetlo.
34. Dostavljač daje novac blagajniku zatvarajući torbu.
35. Crnokosa gospođa sluša prijateljicu pijući kavu.
36. Dječak se sudara s gospodinom skrećući iza ugla.
37. Portir pozdravlja poštara dok on otvara vrata.
38. Majka nadgleda kćer dok ona pegla .
39. Crnokosi dječak pogađa mladića dok se on igra loptom.
40. Kći zove mamu dok ona gleda televiziju.
41. Lopov potkrada putnika dok on poništava kartu.
42. Blagajnica nešto govori gospođi svijetle kose dok ona broji novac.
43. Majka grdi djevojčicu koja pere pod.
44. Dječak zviždi čistaču koji šalje pismo.
45. Dadilja oblači djevojčicu koja drži kišobran.
46. Pijanac provocira gospodina koji prolazi ulicom.
47. Plavokosa gospođa daje dokumente službenici koja ulazi u ured.
48. Otac čestita rođendan sinu koji reže torbu.

## Presentation list F

1. Vozeći bicikl otac pozdravlja sina.
2. Jedući sladoled majka grli djevojčicu.
3. Ulijevajući vodu u čašu glumac odgovara novinaru.
4. Poslužujući čaj tetka dodaje šalicu nećakinji.
5. Potpisujući dokument odvjetnik pomaže klijentu.
6. Izlazeći iz lifta bolničarka gura čistačicu.
7. Dok ona drži plišanog medvedića majka uspavljuje djevojčicu.
8. Dok on hoda parkom čuvar ugleda beskućnika.
9. Dok ona prelazi ulicu starija gospođa pozdravlja djevojku.
10. Dok on puši lulu profesor razgovara s domarom.
11. Dok ona sluša glazbu kći masira majku.
12. Dok on zatvara prozor gospodin u odijelu prijeti mladiću.
13. Dok mladić nosi torbe taksist razgovara sa klijentom.
14. Dok plavokosa gospođa oblači kaput majka ljubi kćer.
15. Dok doktor gubi ravnotežu mladić pridržava starijeg gospodina.
16. Dok majka doručkuje baka pokazuje fotografije unuci.
17. Dok radnik gura kolica dječak prati čovjeka s brkovima.
18. Dok crnokosa čita časopis djevojčica promatra crvenokosu djevojčicu.
19. Djevojčica daje cvijet majci dok nosi vazu.
20. Djed nešto govori unuku dok čita knjigu.
21. Dadilja miluje djevojčicu dok čita bajku.
22. Delinkvent napada starijeg gospodina dok izlazi na ulicu.
23. Starica se približava čistačici dok gleda na sat.
24. Kondukter uzima kartu od putnika dok zijeva.
25. Sin dodaje naočale ocu vozeći auto.
26. Majka češlja kćer razgovarajući telefonom.
27. Svećenik se obraća turistu čekajući autobus.
28. Nastavnica se smiješi djevojčici svijetle kose svirajući violinu.
29. Novinar fotografira predsjednika silazeći niz stube.
30. Šefica ispravlja tajnicu radeći za računalom.
31. Majka kori kćer dok ona pere suđe.
32. Svjedok pokazuje na optuženog dok on ulazi u sudnicu.
33. Majka pokriva djevojčicu dok ona gasi svijetlo.
34. Dostavljač daje novac blagajniku dok on zatvara torbu.
35. Crnokosa gospođa sluša prijateljicu dok ona pije kavu.
36. Dječak se sudara s gospodinom dok on skreće iza ugla.
37. Portir pozdravlja poštara koji otvara vrata.
38. Majka nadgleda kćer koja pegla.
39. Crnokosi dječak pogađa mladića koji se igra loptom.
40. Kći zove mamu koja gleda televiziju.
41. Lopov potkrada putnika koji poništava kavu.



42. Blagajnica nešto govori gospođi koja broji novce.
43. Dok pere pod majka grdi djevojčicu.
44. Dok šalje pismo dječak zviždi čistaču.
45. Dok drži kišobran dadilja oblači djevojčicu.
46. Dok prolazi ulicom pijanac provocira gospodina.
47. Dok ulazi u ured plavokosa gospođa daje dokumente službenici.
48. Dok reže tortu otac čestita rođendan sinu.

#### Presentation list G

1. Dok on vozi bicikl otac pozdravlja sina.
2. Dok ona jede sladoled majka grli djevojčicu.
3. Dok on ulijeva vodu u čašu glumac odgovara novinaru.
4. Dok ona poslužuje čaj tetka dodaje šalicu nećakinji.
5. Dok on potpisuje dokument odvjetnik pomaže klijentu.
6. Dok ona izlazi iz lifta bolničarka gura čistačicu.
7. Dok kći drži plišanog medvjedića majka uspavljuje djevojčicu.
8. Dok čovjek s brkovima hoda parkom čuvar ugleda beskućnika.
9. Dok plavokosa žena prelazi ulicu starija gospođa pozdravlja djevojku.
10. Dok rektor puši lulu profesor razgovara s domarom.
11. Dok djevojčica sluša glazbu kći masira majku.
12. Dok dječak zatvara prozor gospodin u odijelu prijete mladiću.
13. Taksist razgovara s klijentom dok nosi torbe.
14. Majka ljubi kćer dok oblači kaput.
15. Mladić pridržava starijeg gospodina dok gubi ravnotežu.
16. Baka pokazuje fotografiju unuci dok doručkuje.
17. Dječak prati čovjeka s brkovima dok gura kolica.
18. Djevojčica promatra crvenokosu djevojčicu dok čita časopis.
19. Djevojčica daje cvijet majci noseći vazu.
20. Djed govori nešto unuku čitajući knjigu.
21. Dadilja miluje djevojčicu čitajući bajku.
22. Delinkvent napada starijeg gospodina izlazeći na ulicu.
23. Starica se približava čistačici gledajući na sat.
24. Kondukter uzima kartu od putnika zjevajući.
25. Sin dodaje naočale ocu dok on vozi auto.
26. Majka češlja kćer dok ona razgovara telefonom.
27. Svećenik se obraća turistu dok on čeka autobus.
28. Nastavnica se smiješi djevojčici svijetle kose dok ona svira violinu.
29. Novinar fotografira predsjednika dok on silazi niz stube.
30. Šefica ispravlja tajnicu dok ona radi za računalom.
31. Majka kori kćer koja pere suđe.
32. Svjedok pokazuje na optuženog koji ulazi u sudnicu.
33. Majka pokriva djevojčicu koja gasi svjetlo.
34. Dostavljač daje novac blagajniku koji zatvara torbu.

35. Crnokosa gospođa sluša prijateljicu koja pije kavu.
36. Dječak se sudara s gospodinom koji skreće iza ugla.
37. Dok otvara vrata portir pozdravlja poštara.
38. Dok pegla majka nadgleda kćer.
39. Dok se igra loptom crnokosi dječak pogađa mladića.
40. Dok gleda televiziju kći zove mamu.
41. Dok poništava kartu lopov potkrada putnika.
42. Dok broji novac blagajnica nešto govori gospođi svijetle kose.
43. Perući pod majka grli djevojčicu.
44. Šaljući pismo dječak zviždi čistaću.
45. Držeći kišobran dadilja oblači djevojčicu.
46. Prolazeći ulicom pijanac provocira gospodina.
47. Ulazeći u ured plavokosa gospođa daje dokumente službenici.
48. Režući tortu otac čestita rođendan sinu.

#### Presentation list H

1. Dok gospodin s naočalama vozi bicikl otac pozdravlja sina.
2. Dok baka jede sladoled majka grli djevojčicu.
3. Dok konobar ulijeva vodu u čašu glumac odgovara novinaru.
4. Dok konobarica poslužuje čaj tetka dodaje šalicu nećakinji.
5. Dok sudac potpisuje dokument odvjetnik pomaže klijentu.
6. Dok žena u kaputu izlazi iz lifta bolničarka gura čistačicu.
7. Majka uspavljuje djevojčicu dok drži plišanog medvjedića.
8. Čuvar ugleda beskućnika dok hoda parkom.
9. Starija gospođa pozdravlja djevojku dok prelazi ulicu.
10. Profesor razgovara s domarom dok puši lulu.
11. Kći masira majku dok sluša glazbu.
12. Gospodin u odijelu prijeti mladiću dok zatvara prozor.
13. Taksist razgovara s klijentom noseći torbe.
14. Majka ljubi kćer oblačeći kaput.
15. Mladić pridržava starijeg gospodina gubeći ravnotežu.
16. Baka pokazuje fotografiju unuci doručkujući.
17. Dječak prati čovjeka s brkovima gurajući kolica.
18. Djevojčica promatra crvenokosu gospođu čitajući časopis.
19. Djevojčica daje cvijet majci dok ona nosi vazu.
20. Djed nešto govori unuku dok on čita knjigu.
21. Dadilja miluje djevojčicu dok ona čita bajku.
22. Delinkvent napada starijeg gospodina dok on izlazi na ulicu.
23. Starica se približava čistačici dok ona gleda na sat.
24. Kondukter uzima kartu od putnika dok on zijeve.
25. Sin dodaje naočale ocu koji vozi auto.
26. Majka češlja kćer koja razgovara telefonom.
27. Svećenik se obraća turistu koji čeka autobus.

28. Nastavnica se smiješi djevojčici svijetle kose koja svira violinu.
29. Novinar fotografira predsjednika koji silazi niz stube.
30. Šefica ispravlja tajnicu koja radi za računalom.
31. Dok pere suđe majka grdi kćer.
32. Dok ulazi u sudnicu svjedok pokazuje na optuženog.
33. Dok gasi svijetlo majka pokriva djevojčicu.
34. Dok zatvara torbu dostavljač daje novac blagajniku.
35. Dok pije kavu crnokosa gospođa sluša prijateljicu.
36. Dok skreće iza ugla dječak se sudara s gospodinom.
37. Otvarajući vrata portir pozdravlja poštaru.
38. Peglajući majka nadgleda kćer.
39. Igrajući se loptom crnokosi dječak pogađa mladića.
40. Gledajući televiziju kći zove mamu.
41. Poništavajući kartu lopov potkrada putnika.
42. Brojeći novac blagajnica nešto govori gospođi svijetle kose .
43. Dok ona pere pod majka grdi djevojčicu.
44. Dok on šalje pismo dječak zviždi čistaču.
45. Dok ona drži kišobran dadilja oblači djevojčicu.
46. Dok on prolazi ulicom pijanac provocira gospodina.
47. Dok ona ulazi u ured plavokosa gospođa daje dokumente službenici.
48. Dok on reže tortu otac čestita rođendan sinu.

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