

ANAPHORA RESOLUTION IN L2 HUNGARIAN

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Abstract: The paper tests the antecedent preferences for the null pronoun, the personal pronoun and the demonstrative subject in L2 and 2L1 Hungarian (with Romanian as the other language), by means of an offline picture selection task. In the null subject condition, both groups show subject bias, confirming previous hypotheses and research. An evident object bias is observable with the demonstrative, again confirming the low accessibility status of demonstratives. The results differ in the case of the overt personal pronoun subject. While it can have both topic shift and topic continuity interpretation in both languages, previous research suggests that in Romanian the former is favoured over the latter, whereas the reverse is true for Hungarian. Whereas the L2 group shows no bias in the personal pronoun condition, thus possibly showing transfer from L1, the 2L1 group shows a strong subject bias, placing the personal pronoun on equal footing with the null pronoun.

Keywords: anaphora resolution, null pronominal subject, personal pronoun, demonstrative, L2 and 2L1 Hungarian

1. Introduction

The paper discusses antecedent preferences for null and overt pronominal subjects (personal pronouns and demonstratives) in L2 and 2L1 Hungarian (with L1 Romanian) on the basis of an offline picture selection task, in sentences of the type illustrated in (1), with a time clause following a main clause including a subject and a direct object of equal pragmatic plausibility as antecedents. It has been tested whether second language learners of Hungarian have antecedent preferences that match the expectations for Hungarian as described in previous studies (Pléh & Radics 1976, Pléh 1982, Kocsány 1995, 2016, Tolcsvai 2000, see Section 3).

- (1) Anna látta Máriát mikor *pro/ő/az* iskolába ment.
Anna saw Maria-ACC when *pro/PRON/DEM* school-to went
'Anna saw Maria when she was going to school.'

In Hungarian, null subjects are preferentially interpreted as coindexed with the subject of the previous clause, as is the case in null subject languages in general. Less clear-cut is the case of the overt personal pronoun, which has been found to have variable behaviour. Thus, in the Hungarian example in (1), the null pronoun will usually be interpreted as referring back to the subject of the previous clause (*Anna*), unless other contextual clues contradict this, but the overt personal pronoun *ő* can refer to either the subject *Anna* or the direct object *Maria*. Furthermore, the interpretation of overt pronouns is subject to pragmatic rules and therefore might be vulnerable in L2 acquisition as a phenomenon at the syntax/discourse interface (Sorace & Filiaci 2006, Sorace 2011,

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White 2011). As for demonstratives, they are preferred as anaphors of the closest antecedent, in this case the direct object (*Maria*).

The paper is organized as follows. Section 2 presents some brief remarks on antecedent preferences in null subject languages, section 3 gives an overview of antecedent preferences in Hungarian and Romanian for the three pronouns in question, section 4 contains the study proper, and the final section contains the conclusions of the study.

2. Antecedent preferences in null subject languages

Carminati's (2002) Position Antecedent Hypothesis posits that in the case of two potential antecedents, both of which are equally plausible pragmatically, it is the syntactically most prominent antecedent which will preferentially be associated with the null pronoun subject, whereas overt pronouns, which are more informative, are preferred as anaphora for the syntactically less prominent constituent. This is illustrated in the Italian example (2) below, from Carminati (2002: 196). The null pronoun in the temporal subordinate will most likely be interpreted as coindexed with the syntactic subject of the main clause (*Maria*), which occupies a higher position in the syntactic hierarchy of the sentence, whereas the personal pronoun subject (*lei*) will be associated with the direct object (*Piera*).

- (2) *Maria_i scriveva spesso a Piera_j quando pro_i/lei_j era negli Stati Uniti.*
'Maria often wrote to Piera when she was in the United States.'

This theory has been tested with varying results in other null subject languages. The behaviour of the null pronoun seems to be consistent cross-linguistically, but microvariations in the pro-drop parameter may lead to differences in the interpretation of the overt pronoun. For Italian, Carminati (2002) found an unmistakable object bias for the overt pronoun. But her hypothesis does not seem to hold for example for Spanish (Filiaci et al. 2014, Bruscatto & Baptista 2021, Alonso-Ovalle et al. 2002).

As regards bilingual speakers, the use and interpretation of overt pronominal subjects has been found to be a vulnerable issue, since it is dependent on discourse rules and it is not a structure that results strictly from syntactic operations. Violations of the Position Antecedent Hypothesis do not lead to ungrammaticality, merely to infelicitousness or misunderstanding (Sorace & Filiaci 2002). According to the Interface Hypothesis, structures at the interface between syntax and other cognitive domains present protracted indeterminacy in bilingual and L2 acquisition, especially elements at the syntax/pragmatics interface (Sorace & Filiaci 2006, Sorace 2011, White 2011). Thus, bilinguals or L2 speakers seem to not always conform to the same antecedent preferences as monolinguals or L1 speakers.

The influence of L1 has been found to carry some weight, whether it is a non-null subject language like English and German (Sorace & Filiaci 2006, Lobo et al. 2017) or a null subject language like Chinese (Zheng et al. 2018).

Native speakers of non-null subject languages often struggle with learning the discourse rules governing the use of overt pronominal subjects in null subject languages.

Sorace & Filiaci (2006) found that near-native L2 Italian speakers with L1 English were more likely to choose the subject in the previous clause as antecedent for the overt pronoun subject. Lobo et al. (2017) also argued that L1 might also be an important factor, based on the results of a study of Italian and German learners of European Portuguese. The bias for preferring the subject as antecedent for overt pronouns was more pronounced for native speakers of German, a non-null subject language.

Zheng et al. (2018) found the influence of L1 Chinese to be visible in a study on L2 European Portuguese. Both Chinese and European Portuguese are null subject languages but they differ in certain respects. Unlike Portuguese, in Chinese overt pronominal subjects are actually preferred as anaphors for the subject rather than the object of the previous clause. The authors found that Chinese learners of European Portuguese extended this preference to their target language as well.

Even when both languages are null subject languages with similar anaphora resolution preferences, L2 learners may still struggle with the interpretation of overt pronouns in their target language. Margaza & Bel (2006) found that Greek learners of Spanish had problems interpreting the overt pronoun subject. Similar results have been reported in Lozano (2018) for the same pair of languages. In fact, L2 learners generally tend to interpret the overt pronoun as referring to the subject rather than the object of the matrix (Belletti et al. 2007, Sorace & Filiaci, 2006, Cunnings et al. 2017, Margaza & Bel 2006, Lozano 2018). Both bilinguals and second language learners have also been reported to overuse overt pronominal subjects (Margaza & Bel 2006, Rodríguez-Ordóñez & Sainzmaza-Lecanda 2017, etc.). There is a noticeable preference to avoid ambiguity and assign default subject interpretation to any anaphor, whether overt or null. Redundancy seems to be preferred over ambiguity (Sorace & Filiaci 2006, Keating et al. 2011).

Vulnerability in second language learning is also linked to processing costs. Judy (2015, in Lozano 2018), in a study with L1 Farsi – L2 Spanish, reports that respondents performed better in an offline than in an online task, because the latter being executed in real time necessitated a higher processing effort. Kras (2008 in Lozano 2018) also found that Croatian learners of Italian had native-like performance in an offline task.

But other task effects have also been observed. Chamorro (2018) found object bias with overt pronoun subjects in Spanish in an offline reading task and no bias with null pronouns. The explanation proposed was that respondents simply settled on the closest antecedent irrespective of the nature of the anaphor.

3. Hungarian and Romanian antecedent preferences

3.1 Hungarian

Hungarian is a null subject language which allows the subject to occur either pre- or post-verbally (3 a, b) (É. Kiss 2004). The subject can be distinguished from the direct object in (3) by the presence of the accusative suffix *-t* on the latter. The leftmost and structurally highest position in the sentence is occupied by the topic, which – if present – may be any constituent including the syntactic subject: in (3a) and (c) the topic is *a lány*

‘the girl’, whereas in (b) it is the direct object *a fiút* ‘the boy’. Focused constituents must necessarily move to the Specifier position of the Focus Phrase whose head hosts the verb, therefore c-commanding every other constituent except for the topic (c). In a SVO sentence the subject is structurally more prominent than the object, which remains in situ in the VP.

- (3) a. A lány meglátta a fiút.
 the girl saw the boy-ACC
 ‘The girl saw the boy.’
 b. A fiút meglátta a lány.
 the boy-ACC saw the girl
 ‘The girl saw the boy.’
 c. A lány A FIÚT látta meg
 the girl the boy-ACC saw
 ‘It was the boy that the girl saw.’

As regards antecedent preferences, the null subject will preferentially be coindexed with the syntactically most prominent antecedent, unless contextual factors point to another referent (Pléh & Radics 1976, Tolcsvai 2000, Pléh 1982, Kocsány 2016).

The demonstrative seems to be the preferred choice to indicate topic shift in Hungarian (Tolcsvai 2000, Kocsány 2016). Demonstratives have a preference for the closest antecedent, which becomes evident by a reversal in word order, as shown below (Pléh 1982, Tolcsvai 2000). In (4a) the preferred antecedent is the object. If the first clause exhibits OVS order (4b), the antecedent of the demonstrative can be either of the two nouns (note that the object is overtly marked for the accusative). But word order changes seem to have little effect on the interpretation of the null pronoun, which consistently prefers the syntactic subject as antecedent (4c, d).

- (4) a. A lány meglátta a fiút. Az odament hozzá.
 the girl saw the boy-ACC DEM went to her/him
 ‘The girl saw the boy. He went to her.’
 b. A fiút meglátta a lány. Az odament hozzá.
 the boy-ACC saw the girl DEM went to her/him
 ‘The girl saw the boy. He/She went to him.’
 c. A lány meglátta a fiút. Odament hozzá.
 the girl saw the boy-ACC went to her/him
 ‘The girl saw the boy. She went to him.’
 d. A fiút meglátta a lány. Odament hozzá.
 the boy-ACC saw the girl went to her/him
 ‘The girl saw the boy. She went to him.’

The case of the personal pronoun is rather more complicated. It is usually +animate and its presence in non-animate contexts is rare, although not non-existent, see for example (5):

- (5) A névmás az ige előtti pozíciót foglalja el, de **nem ő** hordozza az új információt.
 ‘The pronoun occupies the preverbal position, but it is **not it** that carries the new information.’
 (Kocsány 2016: 139)

Hungarian as a pro-drop language forbids the use of overt personal pronouns unless their presence is expressly required in the discourse in order to contrast two or more individuals or uniquely identify an individual, such as when it is contrastive topic (7) or focus (6) (Kocsány 2016). In (7) there is an opposition implied between Márton and another person who it is surmised could not have crossed the street. Sentences such as (8) represent a subcase of information focus – or “hocus”, as dubbed by Kálmán (2001 in Kocsány 2016); the overt personal pronoun is required to avoid infelicitousness, since in Hungarian the present tense third person copula is null.

- (6) Kiderült, hogy a pisztolyt **ő** vásárolta a feketepiacon.
 ‘It turned out that **it was he** who bought the gun on the black market’
 (Kocsány 2016: 135)
- (7) Márton ott ácsorgott a bódé mellett. **Ő** átmehetett az úton, és odaadhatta neki a pisztolyt.
 ‘Márton lounged near the booth. He could have crossed the street and handed him the gun.’
 (Kocsány 2016: 135)
- (8) Egy férfi fehér pólóban vizes palackokat oszt szét. **Ő** a segélyszervezet vezetője.
 ‘A man in a white shirt is handing out bottled water. **He** is the head of the aid organization.’

Additionally, the personal pronoun may have topic continuity interpretation (exclusively with +animate value). In (9), where there is no other intervening +human antecedent, the personal pronoun is optional.

- (9) Karácsony előtt rendbe tette szépen a házat, befűtött, ágyneműt cserélt, majd amikor elmúlt az ünnep, és **ő** hiába nézelődött fel és alá ...
 ‘Before Christmas he tidied his house, made the fire, changed the sheets, and when the holiday was over and he had watched in vain...’
 (Kocsány 2016: 141)

But in (10) the pronoun has topic shift value: its presence is necessary to signal that it is not Ákos who left for Budapest. Note that Hungarian has no grammatical gender, therefore this information is not available to help disambiguate.

- (10) Vilma_i a karácsonyt szerette a nővéré_inél tölteni. Az ünnep előtt egy nappal megjött Ákos a gyerekekkel, és **ő_i** felutazott Pestre.
 ‘Vilma_i liked to spend Christmas with her sister. One day before the holiday Ákos came with the children and she_i left for Budapest.’
 (Kocsány 2016: 141)

Importantly, Kocsány (1995, 2016) notices that the stress of the anaphor might contribute to bias: the overt personal pronoun will signal topic shift if unstressed and topic continuity if stressed. In (11) the personal pronoun *ő* will refer to the subject (the girl) if stressed, with contrastive topic value, or to the object (the boy) if unstressed. Crucially, the two potential antecedents are pragmatically equally plausible, and Hungarian has no grammatical gender, therefore the pronominal subject may freely be interpreted as coindexed with either noun in the previous clause.

- (11) A lány meglátta a fiút. *Ő* odament hozzá.
 ‘The girl saw the boy. He/She went to her/him.’

Tolcsvai (2000) on the other hand, following a semantic analysis based on the thematic roles of the potential antecedents (Pléh & Radics 1976, Pléh 1982), also concludes that the opposition topic continuity – topic shift is realized by means of null subject vs. demonstrative. However, Tolcsvai (2000) concludes that the topic continuity interpretation of the personal pronoun is somewhat more frequent than its topic shift value, although this preference is much less marked than in the case of the null pronoun.

3.2 Romanian

Romanian is a null subject language in which the verb moves to Inflection (Dobrovie-Sorin 1994, Alboiu 2002). The preverbal subject moves to Spec IP (Alboiu 2002, Dobrovie-Sorin 1994) and is thus structurally more prominent than the object.

Null subjects will prototypically be coindexed with the subject of the preceding clause (Zafiu 2005). Previous experimental studies have confirmed Carminati’s (2002) hypothesis in the case of the null pronoun (Pagurschi 2010, Teodorescu 2017), but mixed results have been reported in the case of the overt personal pronoun. While Pagurschi (2010) found a preference for the object antecedent in a replica of Carminati’s (2002) study, in Teodorescu’s (2017) study the respondents did not show any bias in the case of the overt pronoun: it was found to be equally acceptable with topic shift or topic continuity value. Zafiu (2005) suggests that the likelihood of coindexing the personal pronoun with the subject of the preceding clause, while not ruled out, is diminished in comparison with the null subject. In (12) the personal pronoun *el* can refer indeed to Dan, but also, equally plausibly, to someone else.

- (12) Dan_i a plecat. El_{i/j} avea dreptate.
 ‘Dan_i left. He_{i/j} was right.’

(Zafiu 2005: 667)

Romanian being a pro-drop language, the use of the overt pronoun is greatly dependent on discourse factors (Zafiu 2005). The personal pronoun can be used to emphasise a referent or contrast it with another, see for example the focused pronoun in (13a). Further, since Romanian has grammatical gender, it can be used to disambiguate between two potential antecedents (13b).

- (13) a. Numai el a venit.
 only he has come
 ‘He is the only one who came.’
 b. Fata l- a văzut pe băiat. El a izbucnit în râs.
 girl-the him has seen PE boy he has burst in laugh
 ‘The girl saw the boy. He laughed.’

The personal pronoun can also be used to disambiguate between a human and a non-human antecedent: (14a), with a personal pronoun subject (*el*) indicates a +human referent (the writer) whose identity is relevant in the context; in (b) the identity of the writer is backgrounded – the absence of a pronominal subject yields an impersonal reading, best translated in English with the passive.

- (14) a. Probabil că trebuia să relatez cât mai exact ce scria **el** acolo.
 ‘I probably had to report what **he** had written as closely as possible.’
 (Zafiu 2005: 667)
 b. Probabil că trebuia să relatez cât mai exact ce scria acolo.
 ‘I probably had to report what was written there as closely as possible.’

But the Romanian personal pronoun is also permitted in optional contexts with topic continuity value, with both animate and non-animate referents (Zafiu 2005).

- (15) Călătoria_i în spațiu nu e o simplă translație, **ea**_i forțează în om schimbări.
 ‘The journey_i in space is not a simple change of place, **it**_i forces changes in a person.’
 (Zafiu 2005: 667)

As for the demonstrative, it appears to have very low accessibility in Romanian and is necessarily coindexed with the closest antecedent (Zafiu 2005), as has been confirmed by experimental studies (Teodorescu 2017).

- (16) Mama a văzut-o pe fetiță. Aceasta a izbucnit în râs.
 mother has seen her PE girl DEM has burst in laugh
 ‘The mother saw the girl. She (the girl) laughed.’

Note however that unlike in Hungarian the demonstrative is not the default anaphor for topic shift, it is in competition with the personal pronoun.

4. The study

4.1 Aim and predictions

The aim of our study is to test antecedent preferences with L2 speakers of Hungarian, in the case of null pronouns, overt personal pronouns and demonstratives with the syntactic function of subject.

As shown in section 3, both Hungarian and Romanian are null subject languages. In both languages, the null pronoun will have a marked subject bias, in contexts where it is not pragmatically ruled out. No vulnerabilities regarding the interpretation of the null pronoun have been found with bilingual speakers and previous studies on null subject languages have consistently found a subject bias for the null pronoun.

Demonstratives have an evident bias for the closest antecedent, which in the case of an SVO matrix is the object. This is the reason why our experiment only contains SVO matrix clauses – to avoid interference in the case of word order change with demonstratives, and also for reasons of uniformity in the case of the other two conditions.

Therefore we expect the respondents in our study to show subject bias in case of the null pronoun and object bias in the case of the demonstrative subject.

The case of the overt personal pronoun is more problematic. In Hungarian it can indeed have either topic shift or topic continuity value, although phonological stress may be a factor (Kocsány 2016), and for example Tolcsvai (2000) argues that it is more likely to have topic continuity value. Hence we may expect at least the 2L1 group to show subject bias.

In Romanian the results regarding the interpretation of the overt personal pronoun are inconclusive: while Pagurschi (2010) has found that it principally has topic shift value, in line with Carminati's (2002) results for Italian, Teodorescu (2017) has found no bias. In Zafiu (2005) it is described as having both topic shift and topic continuity value, although the latter occurs less frequently than the former. If cross-linguistic influence occurs, the L2 respondents may therefore be disinclined to interpret the personal pronoun with topic continuity value.

Additionally, the interpretation of overt pronouns, as an interface phenomenon, has been found to be a vulnerable issue with L2 learners. For example, L2 learners, irrespective of the properties of their native language, may tend to prefer to assign a default topic continuity interpretation to the overt pronominal subject to avoid ambiguity.

4.2 Method and participants

Our study consists in an offline binary picture selection task (Tomescu 2019) with 12 test sentences and 3 control sentences, with 3 conditions: (i) null subject; (ii) overt personal pronoun subject; (iii) demonstrative subject. One example is given below in (6): an SVO matrix followed by a time clause with null or overt subject. The test was administered as a google form. The participants were simultaneously presented with a sentence and two pictures (such as the pair in Fig. 1) and were asked to choose the picture which best fit the sentence.

- (17) A maci nézi a zsiráfot miközben pro/ő/ez hintázik.
 the teddy-bear watches the giraffe-ACC while pro/PRON/DEM swings
 'The teddy-bear watches the giraffe while pro/PRON/DEM swings.'

The participants were students of Hungarian at the University of Bucharest, intermediate proficiency level, native speakers of Romanian. The control group included native speakers of Hungarian from Braşov, who have been living in a Hungarian community, received education in Hungarian, with Hungarian spoken in the family; they are Hungarian-Romanian bilinguals, but learned Romanian as a second language in early childhood. Each group included 13 participants.



Figure 1. Sample picture.

4.3 Results

With the L2 group, in the null subject condition, a standard two-sample t-test at the alpha 0.05 level showed a subject bias (subject $M = 3$, $SD = 0.95$, object $M = 1.77$, $SD = 1.09$: $t(12) = 3.17$, $p = .00$, two-tailed), in the personal pronoun condition no bias was found (subject $M = 2.18$, $SD = 0.98$, object $M = 2.54$, $SD = 0.82$: $t(12) = 0.64$, $p = .52$, two-tailed), whereas in the demonstrative condition a marked bias in favour of the object antecedent was observable (subject $M = 1.85$, $SD = 0.89$, object $M = 3$, $SD = 1.15$: $t(12) = 4.41$, $p = .00$, two-tailed). The results can be observed in Figure 2.

In the case of the 2L1 control group, a subject bias was observable in the null subject condition (subject $M = 2.53$, $SD = 1.19$, object $M = 2.11$, $SD = 0.78$: $t(12) = 2.29$, $p = .03$, two-tailed) and in the personal pronoun condition (subject $M = 2.83$, $SD = 1.19$, object $M = 2.12$, $SD = 1.12$: $t(12) = 2.41$, $p = .02$, two-tailed), and a strong object bias in the demonstrative condition (subject $M = 1.83$, $SD = 1.16$, object $M = 3.41$, $SD = 0.79$: $t(12) = 4.84$, $p = .00$, two-tailed). The results are shown in Figure 3.

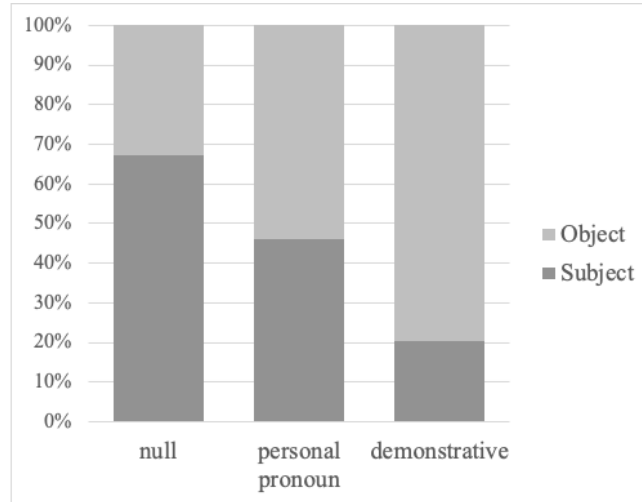


Figure 2. The L2 group. Results.

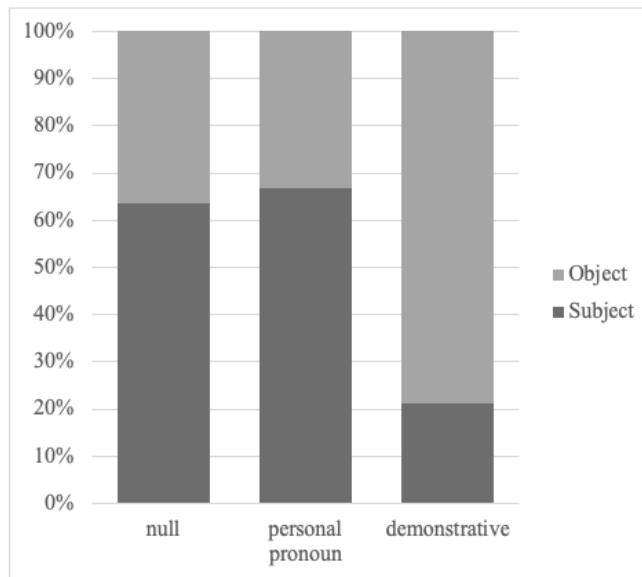


Figure 3. The 2L1 group. Results.

4.4 Discussion

The results in the null pronoun and demonstrative conditions confirmed our expectations. The second language learners exhibited an evident subject bias in the null subject condition (69%) and a marked object bias (75%) in the demonstrative condition, as is target-like for Hungarian (and Romanian). As for the control group of 2L1 Hungarian speakers, they matched the results of the L2 group in the null and demonstrative subject condition: subject bias with the former (63%) and object bias with

the latter (79%). In fact, both groups had quite similar percentages, as can be observed from the charts.

Regarding the personal pronoun condition, the L2 group showed no bias and the 2L1 group showed subject bias (67%). The bilinguals appeared to interpret the personal pronoun as similar in value to the null pronoun and in opposition to the demonstrative, rather than the null subject alternative, making the demonstrative the preferred option to refer back to the object of the previous clause. The subject bias for the overt pronoun is in line with Tolcsvai's (2000) argument.

That the L2 speakers showed no bias with the personal pronoun might therefore show that they were influenced by Romanian in this respect, where the personal pronoun is *not* the preferred anaphor for the subject of the preceding clause.

The same task was administered in Tomescu (2019) to a group of 8-9 year-old Hungarian-Romanian children. They too had the same subject bias with both null and personal pronoun anaphora: 67% and 71% respectively, compared to 63% and 67% in our study.

As already discussed in section 3, according to Kocsány (1995, 2016), the personal pronoun is preferred with a topic continuity interpretation if stressed. The subject bias in the case of the 2019 study might conceivably have been a task effect: the sentences were read aloud to the participants at the same time as they were shown the two pictures. While pains were taken not to place special phonological stress on the personal pronoun, this may not have been entirely successful and the respondents' attention could have been especially drawn to the personal pronoun. An experiment contrasting the stressed and unstressed personal pronoun subject might be of interest both to put Kocsány's (1995, 2016) theory to the test and to account for this variable in the results of the 2019 study. The experiment which is the subject of our present paper was however offline. The respondents were required to read the sentence on a screen so the possible influence of phonological stress was circumvented.

Indeed, the respondents were bilingual and not monolingual speakers of Hungarian, although both the adults in this study and the children in the 2019 study speak Hungarian from birth, (have) received education exclusively in Hungarian, and are from Hungarian-speaking families. It might be of interest to administer the task to a group of monolingual Hungarian speakers for purposes of comparison.

5. Conclusions

Our study confirmed that null subject anaphora are preferentially coindexed with the subject of the previous clause with both bilingual and second language learners of Hungarian, with Romanian as the other/the first language respectively, in contexts with SVO order in the previous clause and equal pragmatic plausibility of the two potential antecedents. Also in line with our expectations, a clear object bias was found for demonstrative pronouns.

However, with respect to personal pronoun subjects, their behaviour was not identical in the two groups. Whereas the L2 group showed no bias for the personal pronoun, the 2L1 group had a marked subject bias. In this respect, the present study

confirms previous findings with 8-9-year old 2L1 Hungarian speakers (Tomescu 2019) and also proposals in the literature regarding the default topic continuity reading of the Hungarian overt personal pronoun (Tolcsvai 2000). As for the L2 group, the results would appear to show transfer from L1.

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