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The Pronoun Interpretation Problem in Hungarian*

An overview of current directions in first language acquisition research

Abstract

This paper provides an overview of the state of the art in research into the so-called *Pronoun Interpretation Problem* in first language acquisition, and it discusses the relevance of this problem in the acquisition of Hungarian. It is well-known that children face problems in judgement tasks concerning the acceptability of locally coreferential personal pronouns, whereas they can handle locally bound reflexive anaphors relatively well. Preliminary evidence suggesting the presence of the *Problem* in the first language acquisition of Hungarian is available, but research into this domain of Hungarian is still in its infancy. This paper aims at setting up the outlines of a research agenda for the study of the core issues in the acquisition of the Hungarian pronominal system.

Keywords: personal pronoun, reflexive anaphor, coreference, binding, first language acquisition

1 Introduction

The acquisition of pronominal elements is perhaps one of the most studied areas in first language acquisition research. Cross-linguistically, empirical investigations revealed that children acquiring Germanic languages, such as English and Dutch, often have problems when trying to interpret personal pronouns, while no comparable problems arise in the case of reflexives and referential expressions (proper names or definite descriptions). In particular, the problem arises when children are faced with sentences where a potential local antecedent is available for the personal pronoun. Consider the following sentences for illustration:

- (1) a. *John saw himself in the mirror.*
 b. *John saw him in the mirror.* (John ≠ him)
 c. **John saw him in the mirror.* (John = him)

By and large, English children use and understand the constructions in (1a) and (1b) in an adult-like manner, i.e., they seem to be aware that reflexive anaphors require a local

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antecedent (1a), and they have no problems with personal pronouns that do not have a local antecedent (1b). Where they do have problems is when the pronoun has a local antecedent (1c). Such sentences are ungrammatical in adult English in neutral contexts, but English children younger than 6 often accept the construction as an appropriate description of single-participant situations. This phenomenon has been recently described as the *Pronoun Interpretation Problem*, or *PIP* for short.¹ The problem relates to fundamental issues in the grammatical coding of local referential dependencies, and as such, it represents a central concern for linguistic theory.

Our aims in this article are twofold. In Section 2, we provide a historical overview of this problem and give a summary of the state of the art on the PIP in current research on language acquisition. In Section 3, we give a critical summary of the few existing psycholinguistic investigations on the coding of local referential dependencies in Hungarian. It has been pointed out in the pertinent literature that the PIP itself is not a universal phenomenon. Children acquiring a Romance language (for instance, Italian) seem to be able to interpret both pronouns and reflexives correctly, i.e. they do not show the PIP. The preliminary results reported in Czingráber (1999) suggest that the Pronoun Interpretation Problem is present in the first language acquisition of Hungarian; and Czingráber (1999) and Bánréti (2006) both argue that it also seems to surface to some extent in the language of patients suffering from agrammatic aphasia. We argue that the pronominal strategies for coding local referential dependencies in Hungarian differ in some important ways from the English system, and these differences have to be taken into account in developing a more adequate description of the Hungarian acquisition data. We conclude the paper in Section 4 with a summary and an outline of the research agenda that we aim to execute to gain a better understanding of how exactly and to what extent the Pronoun Interpretation Problem applies to the acquisition of Hungarian.

2 The problem

2.1 *The classical Binding Theory*

The classical reference point in acquisition studies targeting pronominal data is the Binding Theory of Chomsky (1981). The proposal is built on the assumption that there exist two basic types of pronominals and they show a complementary distribution: reflexive anaphors need a local antecedent (see (1a) repeated below), whereas true pronouns cannot have a local antecedent (1b & 1c). Principle A and Principle B of the Binding Theory respectively govern the licensing of these two types of pronominals:

- (1) a. *John saw himself in the mirror.*
 b. *John saw him in the mirror.* (John ≠ him)
 c. **John saw him in the mirror.* (John = him)
- (2) a. Principle A: A reflexive must be bound in its governing category.
 b. Principle B: A pronoun may not be bound in its governing category.

¹ This term has replaced the earlier term “Delay of Principle B Effect” for principled reasons. We discuss the details in Section 2.

Principle A requires the reflexive *himself* in (1a) to find a proper c-commanding antecedent in its governing category. In the particular case of (1a), it must be coreferent with the subject of the sentence, *John*. Principle B expresses a negative constraint on the licensing of pronouns: the pronoun *him* in (1b & 1c) may not be bound in its governing category, namely, it cannot corefer with the subject of the sentence, but must find a suitable discourse referent in the context.

Subsequent research in theoretical linguistics has identified a number of important factors that enrich this basic picture in significant ways. We mention two such factors here, since both of these are relevant in the explication of the Pronoun Interpretation Problem and in the discussion of the Hungarian data.

First, it was pointed out quite early on that proper binding and coreference must be distinguished as two different modes of coding referential dependencies (see Bach & Partee 1980, Reinhart 1983, and subsequent literature). Consider the following two sentences:

- | | | | |
|-----|----------------------------------|--------------|-------------|
| (3) | a. <i>Only John saw himself.</i> | | binding |
| | b. <i>Only John saw him.</i> | (John = him) | coreference |

The reflexive anaphor in (3a) is licensed as a bound variable. This sentence is true in a situation in which nobody else saw the self, except for John. The pronoun in (3b) can *corefer* with the subject noun phrase *John* given the presence of certain facilitating discourse factors, but it cannot be bound by it (see Principle B in (2b) above). As a result, (3b) is true if the only person who saw John was he himself. Note that despite the appearances, the complementary distribution of bound anaphors and pronouns is maintained in local contexts, since the pronoun is not bound technically in (3b). It only corefers with the subject noun phrase. Since data of this sort are relatively frequent in adult English, local coreference is an issue that English children may confront at a relatively early age.

Second, a lot of effort was made in the 1980s already to properly identify the local domain (or the *governing category*) that is relevant for the operation of the binding principles. The emerging consensus was that possessive noun phrases and referential PPs may form distinct binding domains of their own. Therefore, if a reflexive is licensed in these domains with a clause-mate antecedent, then the dependency between the two is not local and the construction is not constrained by Principle A of the Binding Theory (see, especially, Reinhart & Reuland 1993 and Pollard & Sag 1992). The two examples in (4) illustrate the PP-construction (a.k.a. *snake sentences*):

- | | | | |
|-----|--------------------------------------------|--------------|----------|
| (4) | a. <i>John saw a snake beside him.</i> | | pronoun |
| | b. <i>John saw a snake beside himself.</i> | (John = him) | logophor |

(4a) with the personal pronoun is the unmarked variety, whereas (4b) requires special discourse support.² Reinhart & Reuland (1993) argue that the reflexive in (4b) is *logophoric*

² In Hungarian, the reflexive strategy (4b) is the standard, and the acceptability of the pronominal strategy in snake sentences (4a) is subject to variation across speakers. Rákosi (2012) reports the results of a questionnaire study of Hungarian snake-sentences, and provides an overview of the constraints that govern the use of the pronominal strategy in this construction.

The anonymous reviewer of this paper notes that the Hungarian equivalent of (3b) is not well-formed. We agree with this judgement: locally coreferent pronouns do not seem to be grammatical in transitive

in nature, that is, it is licensed as a discourse-bound element and not as a locally bound anaphor. The proper identification of what counts as a local domain for the purposes of Binding Theory is therefore another non-trivial task that English children need to cope with.

2.2 *The Pronoun Interpretation Problem*

After Chomsky's Binding Theory (1981), numerous studies explored children's acquisition of pronominal elements in English (see, for instance, Wexler & Chien (1985), Crain & McKee (1985)). These experiments revealed an unexpected asymmetry between the acquisition of reflexives and pronouns in English, as already pointed out in Section 1. The application of Principle A and Principle B presupposes the same syntactic background knowledge, observing c-command relations and locality constraints. Hence, it was quite unexpected that while children correctly interpret reflexives (according to Principle A) already at a young age (90% correct answers compared to adult performance at the age of 4;6 – 5;6 depending on the experimental method used), they interpret pronouns at a chance level, i.e. they are guessing (and thus seem to violate Principle B) until the age of 6;6 (Chien & Wexler 1990). This delay between the adult-like interpretation of reflexives and the non-adult-like interpretation of pronouns, i.e. the difficulty of applying Principle B, was labelled in the relevant literature as the "Delay of Principle B Effect".

Chien & Wexler (1990) offer an interesting solution to the problem outlined above, and argue that this delay is in fact not a delay in acquiring syntactic principles, but rather a problem rooted in lacking certain pragmatic principles. Adopting Reinhart's view (Reinhart 1983, 1986) Chien & Wexler point out that in some cases the context may overwrite Principle B's negative constraint on the licensing of pronouns. Consider the examples below:³

- (5) a. **He_i looks like him_i.*
 b. *He_i looks like him_j.* (Chien & Wexler 1990: 257)

Here co-indexing in (5a) is ruled out by Principle B, and since there are no restrictions on the referents of contraindexed terms, the two pronouns in (5b) usually refer to two different individuals in the relevant contextual setting. However, it is possible to embed (5b) in a context where this is not the case.

- (6) a. *That_i must be John_j. *At least he_i looks like him_i.*
 b. *That_i must be John_j. At least he_i looks like him_j.* (Chien and Wexler 1990: 256)

(6a) is not correct intuitively and it is ruled out by Principle B, since *he* c-commands *him*. So (6b) must be correct in terms of indexation, but due to the context *he* and *him* are co-

constructions in Hungarian. This, however, does not necessarily induce acquisition differences between English and Hungarian if the relevant constraints are inborn (see 2.2. and 2.3.). Or at least this is our null hypothesis. If the Hungarian experimental data turn out to differ significantly from the corresponding English experimental data in our planned child language experiments, we will return to the issue of this difference between adult English and Hungarian.

³ In the presentation of their data, we adopt the index-based notation of Chien & Wexler (1990) to mark (purported) bound variable readings as well as coreference. We make, nevertheless, no special commitment to the use of indices in the theory of grammar.

referential, even though they are conraindexed. This is what we have labelled coreference in Subsection 2.1. Adopting the descriptive language of Chien & Wexler (1990) to the discussion of the data we quote from them, co-indexed terms are always coreferential; but while conraindexed terms usually refer to different entities/individuals, they may also refer to the same real-world entities (this is governed by some pragmatic or perhaps semantic principle, labelled as principle P, stating that conraindexed terms are non-coreferential unless the context reinforces coreference). Chien & Wexler (1990) do not provide a more precise formulation of Principle P, but sum up these findings as: “even though the child knows Principle B, it has always been possible for the child to appear to violate Principle B by interpreting noncoindexed NPs as coreferential, in violation of Principle P, though not of Principle B. In short, knowledge of Principle B has been confounded with knowledge of Principle P” (Chien & Wexler 1990: 258).

To prove that children in fact know and apply Principle B correctly, Chien & Wexler (1990) designed and conducted an experiment. They used bound variables in quantified sentences such as (7),

(7) [Every man thinks]_i that justice is due to him_i. (Chien & Wexler 1990: 258)

where the pragmatic principle (applying to conraindexed terms only) cannot be exploited. More specifically, in a Truth Value Judgement Task children were presented with a picture and they were asked to answer *yes* or *no* to a given question related to the picture. For instance, in the case of a picture showing Goldilocks and three bears (Figure 1, Chien & Wexler 1990: 263), where the bears are touching themselves, kids older than 5 correctly answered *no* to the following question:

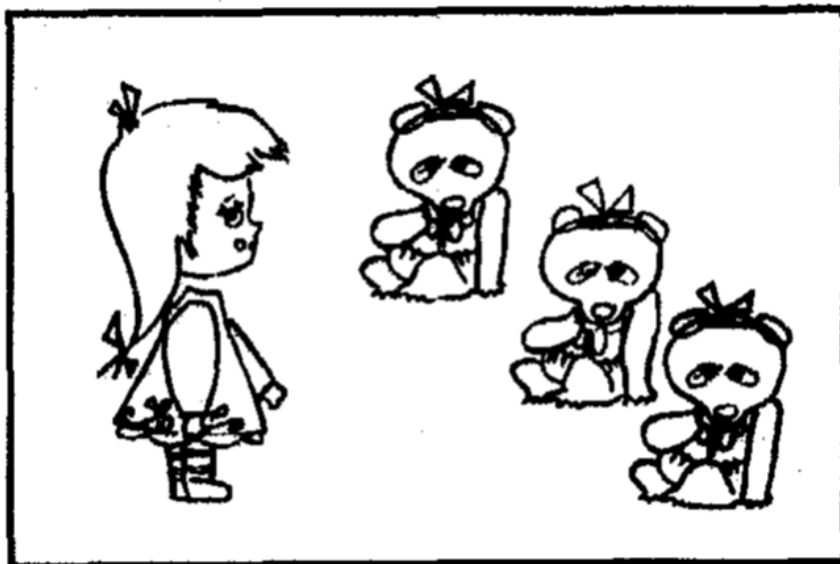


Figure 1: A picture used in Chien & Wexler's (1990) experiment

(8) *These are the bears; this is Goldilocks. Is every bear touching her?*
 (Chien & Wexler 1990: 263)

Hence, Chien & Wexler (1990) found that children correctly applied Principle B to bound variables, where accidental coreference is not possible. They explained their results by claiming that while children have a knowledge of syntactic principles (Principle A and B), they lack certain pragmatic principles, namely they do not know that a pronoun is in most cases disallowed to corefer with its c-commanding antecedent and in such cases they incorrectly opt for optional coreference (for instance in the case of (1c)). For that reason, and since it has recently been shown by De Villiers et al. (2006) and by Spenader et al. (2009) that there is an asymmetry between production and interpretation of pronouns when acquiring English and Dutch, respectively, the term “Delay of Principle B Effect” has been replaced by the term “Pronoun Interpretation Problem”.

2.3 Other approaches to explaining the PIP

There are several explanations for the PIP which can be labelled as more pragmatic in nature, taking *pragmatic* in a somewhat loose sense to cover approaches that relegate the issue to non-syntactic modules of language or to a post-syntactic interface level. One such theory was outlined above when discussing Chien & Wexler’s (1990) experiment. Grodzinsky & Reinhart (1993) is another influential proposal, which builds on Reinhart’s (1983) previous work substantiating the theoretical distinction between proper binding and coreference. In Reinhart’s approach, Principle B only applies to pronouns interpreted as bound variables (e.g. in (1a) above), and not to cases of accidental coreference. Coreference is negatively constrained by a different rule of grammar that they call Rule 1 (see (9)). This rule disallows coreference only in constructions in which the bound variable reading and the coreference reading are not different truth-conditionally (Grodzinsky & Reinhart 1993: 79). In other words, coreference is not allowed when it produces the same semantic structure as the corresponding bound-variable reading would do. We repeat (3) as (10) as an illustration for a context where coreference and binding result in two, truth-conditionally different structures:

(9) Rule 1: Intrasentential Coreference

NP A cannot corefer with NP B if replacing A with C, C a variable A-bound by B, yields an indistinguishable interpretation.

- | | | |
|------|-------------------------------------------|-------------|
| (10) | a. <i>Only John saw himself.</i> | binding |
| | b. <i>Only John saw him.</i> (John = him) | coreference |

Rule 1 has an economy flavour: since a binding dependency is established directly in syntax, it requires less effort to build than a coreference-based referential dependency. Hence coreference is licit only if binding is ruled out by independent factors *or* if it is truth-conditionally different from an otherwise also available binding construal. Grodzinsky & Reinhart (1993) argue that Chien & Wexler’s (1990) experimental results support their modified view of binding and coreference.

Elbourne (2005) disagrees with this conclusion and states that Chien & Wexler’s (1990) investigation and its replications, which show that referential and quantified antecedents behave in a different way in English (Avrutin & Thornton 1994, Thornton & Wexler 1999), suffer from a methodological flaw. Therefore Elbourne (2005) calls for a reinterpretation of conclusions derived from earlier experiments. For instance, consider the picture in Figure 1.

Elbourne (2005) suggests that the basic problem with Chien & Wexler's (1990) experiment is that Goldilocks is much more prominent (three times bigger) than any of the bears, moreover, the sex of the bears, marked only by a small ribbon, is quite difficult to decipher. These methodological problems may influence the results of the experiment, since it is possible that children opt for the most prominent character, Goldilocks, who is obviously a female, when trying to determine the referent of *her* in (8). In other words, Elbourne (2005) questions the claim that children know Principle B and have problems with applying certain pragmatic principles and assumes that there is indeed a delay in children's acquisition of pronouns and the syntactic Principle B.

A different explanation is provided by Reinhart (2006), who claims that children know principle B and Rule 1 (both are inborn), however, they face a serious difficulty when trying to interpret sentences like (1b & 1c), which results in chance performance. Reinhart (2006) argues that children have a problem with the capacity of their working memory, i.e. computing two different interpretations and then comparing those exceed their capabilities. Crucially, Rule 1 requires them to compare two distinct representations at the same time to check if local coreference is allowed. Once their cognitive development allows them to do the necessary computations, their performance becomes similar to adult performance. A piece of evidence in favour of this processing account of the PIP is the fact that patients with agrammatic aphasia show a similar behaviour to that of children's regarding pronoun interpretation. However, other studies on scalar implicatures (for instance Papafragou 2002) have shown that in some cases children at the age of 5;3 can compare two interpretations successfully and perform above chance level. This result suggests that children may have the required working memory capacity for a synchronic parsing of multiple representations, which seems to refute the argumentation that Reinhart's proposal is based on.

An alternative approach is developed in an Optimality Theory framework by Hendriks et al. (2007). In OT, the basic assumption is that languages share a universal set of constraints, but differ in the ranking of these constraints. In language acquisition this means that when children acquire a language they have to acquire the correct ranking of the universal set of constraints in their own languages. Since the same set of constraints determines both the production and comprehension of pronouns and reflexives (for details see Hendriks et al. 2007), once a child has acquired the constraints and their correct ranking, adult performance is expected. To explain the well-known asymmetries between the acquisition of pronouns and reflexives and between comprehension and production, Hendriks et al. (2007) claim that children can use the grammar in one direction only, which is modelled as unidirectional optimization from meaning to form (production) or from form to meaning (comprehension). Adult speakers are also capable of bidirectional optimization, which means that they can take into account the opposite perspective in communication. Unidirectional and bidirectional optimization yield the same results in production, hence, no acquisition delay arises in production. However, since children cannot use the grammar bidirectionally, i.e. they cannot adopt the speaker's perspective as a hearer, they face problems when trying to interpret pronouns, so the PIP surfaces. The main advantage of this analysis is that it is compatible with experimental data concerning not only the interpretation, but also the production of pronouns⁴, and it can also predict cross-linguistic variation regarding the presence or absence

⁴ For instance, spontaneous data from CHILDES (production of *me* and *myself* when acquiring English) indicate that children consistently use both reflexives and pronouns by the age of three (for details see Bloom et al. 1994). However, this study concentrated on first person forms only, while third person forms and

of PIP in English, Dutch, German and Italian in particular syntactic environments (simple transitive sentences, locational PPs and embedded clauses). However, as Hamann (2011) notes “this account remains speculative as to why children cannot do bidirectional ranking” (Hamann 2011: 250).

A quite recent contribution is Spenader et al.’s (2009) experiment. Like Elbourne (2005), Spenader et al. (2009) also claim that previous experiments can be criticised from a methodological point of view. For instance Chien & Wexler (1990) sometimes may have used contexts, such as (11) below, that are artificial in terms of pronominalization.⁵

(11) *This is Goldilocks; this is Mamma Bear. Is Mamma Bear touching her?*

Adopting Centering Theory (see Grosz et al. 1995), Spenader et al. (2009) claim that in (11) Mamma Bear is the most prominent referent and it is also the topic of the last sentence, so it is the most likely antecedent of the pronoun *her*, and accordingly, an incorrect interpretation of the pronoun may arise. Hence, Spenader et al. (2009) focused on the role of contextual factors – such as discourse coherence and topic constraints – in their experimental design. In accordance with the Centering Theory only one introductory sentence was used with a potential topic for the second target sentence, as in (12):

(12) *This is Goldilocks. Is Mamma Bear washing her?* (Spenader et al. (2009): 37)

They expected that children’s performance in interpreting pronouns will improve if the stimulus is presented in this type of discourse context. They examined the production and interpretation of Dutch pronouns and reflexives, and showed that though there is an asymmetry between production and interpretation of pronouns, the PIP disappears when there is a natural single topic introduced as an available antecedent.⁶

So, as Hamann (2011) states it is still an open question whether the PIP exists in different languages and further experiments are needed to explore this phenomenon at the syntax/pragmatics interface.

3 Hungarian data: an overview

3.1 Czingráber (1999) and Bánréti (2006)

The primary strategies for coding local referential dependencies in Hungarian are *prima facie* similar to the English pronominal strategies. Reflexive anaphors and personal pronouns have distinct paradigms, respectively subject to Principle A and Principle B of the Binding Theory. It is to be expected therefore that Hungarian children also show the Pronoun Interpretation Problem, and, likewise, that the PIP is observable in the linguistic behaviour of patients

potential referential ambiguities have been in the focus of experimental research. Another production study was carried out by De Villiers et al. (2006) with children acquiring English in an experimental framework. They found that production was significantly better than interpretation.

⁵ Chien & Wexler’s (1990) experimental stimuli do not seem to be consequent in terms of the order of sentences that introduce the possible antecedents of the pronominal element. According to Spenader et al.’s (2009) this fact may have influenced their results.

⁶ The interpretation of reflexives was found to be independent from discourse coherence and topicality.

suffering from agrammatic aphasia. These expectations receive initial support from the experiments reported in Czingráber (1999) and Bánréti (2006). In this subsection, we provide an overview of the experimental design and the major results reported in these two studies.⁷

Both studies focus on testing the same set of five constructions, the first three of which are illustrated below in (13):

- (13) a. *A férfi megborotválja magát-t/ő-t.*
 the man shaves himself-ACC/he-ACC
 ‘The man shaves himself/him.’
- b. *Peti egyedül köti be a(z) maga /ő cipő-jé-t.*
 Pete alone ties PARTICLE the himself/he shoe-POSS.3SG-ACC
 ‘Pete ties his own/his shoe alone.’
- c. *A törpé-nek tetszik az óriás önmagá-nak/ neki kötött pulóver-e.*
 the dwarf-DAT appeals the giant himself-DAT/DAT.3SG knitted pullover-POSS.3SG
 ‘The dwarf likes the giant’s pullover knitted to himself/him.’

The first construction is a core transitive structure, with a pronoun/reflexive in the object position (13a). The second construction (13b) contains a possessive argument with a reflexive/pronoun possessor, and a potential antecedent in the matrix clause. The pronominal possessor is in the unmarked nominative case in the Hungarian possessive noun phrase, and it agrees with the head (the possessum) in person and number. The third construction in (13c) involves a complex possessive noun phrase which contains a potential local antecedent for the reflexive/pronoun within the possessive noun phrase itself. Czingráber (1999) and Bánréti (2006) also tested biclausal control and raising constructions in which there is a potential antecedent in the matrix clause, and the pronoun/reflexive is in the subordinate infinitival clause. We do not discuss these two constructions here, but focus on the ones illustrated in (13) because they sufficiently represent the problems that we investigate.

The overall objective of this design was to test how increasing structural complexity affects the interpretation of these sentences. In the transitive construction (13a), only the reflexive can be anaphoric to the subject argument in adult Hungarian. In the possessive construction (13b), both the reflexive and the pronoun possessor can be anaphoric to the matrix subject under certain conditions in adult Hungarian. Neither Czingráber (1999), nor Bánréti (2006) discuss these conditions, but we return to this issue in 3.2. In the complex possessive construction (13c), two potential antecedents are available for the reflexive and the pronoun: the possessor noun phrase (the giant) or the subject noun phrase (the dwarf). Both studies assume that there is a complementary distribution between the reflexive and the pronoun in adult language, inasmuch as the reflexive is only grammatical with the choice of a local antecedent (the giant) whereas the pronoun can only be coreferential with the subject (the dwarf).

⁷ Pléh (1983, 1998) also discusses psycholinguistic evidence concerning the processing and the interpretation of anaphoric dependencies in Hungarian. However, the constructions that Pléh investigates all involve cross-sentential anaphora, with particular attention to the competing pronominal strategies that are available in Hungarian to code subjects that are anaphoric to another constituent in a preceding sentence. Since these all are cases of discourse anaphora, they lie outside of the concerns of this paper. The Pronoun Interpretation Problem applies to constructions wherein the pronoun/reflexive and a potential antecedent are in the same local configuration.

The subjects had to provide truth value judgements about pictures and accompanying descriptions they heard (sentences representing the constructions in 13). There were two pictures for each situation type: a character was performing a self-directed action in the reflexive condition (e.g.: self-shaving) and an other-directed action in the non-reflexive condition (e.g.: shaving somebody else). Judgements had to be made for both the pronoun and the reflexive sentence in the case of each picture. There were 22 subjects involved in Czingráber's study: 10 preschoolers between 4-6, 8 students from the first two years of primary school, and 4 aphasics (3 of whom were Broca patients and one suffering from anomic aphasia). The two subjects of Bánréti's study were both Broca patients. The results provided general support for the claim that increasing structural complexity (more complex structure with potential variation in the size and the number of available binding domains, and an increase in the number of potential antecedents) induces problems for both children and aphasics. The more specific results concerning reflexives and pronouns are as follows.

Both children and adults turned out to have a better control of reflexives in the three constructions listed in (13). The judgements concerning the reflexive in the transitive constructions were adultlike for children of all age groups and aphasics alike. This means they correctly identified the reflexive object as grammatical strategy for self-directed actions, and as an ungrammatical strategy for other-directed actions. In the reflexive possessor condition (13b), the reflexive was accepted across the board as a grammatical strategy for linking anaphorically to the subject. Only the complex possessive condition (13c) proved to be more difficult for each group. There is an observable tendency to link the reflexive to the subject of the sentence instead of the antecedent available locally in the possessive noun phrase, but this strategy is claimed to be ungrammatical in adult Hungarian both by Czingráber (1999) and Bánréti (2006).

The data are more complex when it comes to judgements on pronouns. In the transitive construction (13a), children and aphasics seemed to be less certain about their judgements concerning the possibility of coreference between the pronominal object and the subject. Preschoolers often either seemed to be guessing, or they followed a strategy of saying "yes" across the board. Aphasics also performed poorly in this condition. Primary schoolers, however, had adultlike judgements. The results were more varied for the two possessive constructions for all the subject groups. Subjects seemed to follow different strategies, such as (i) locating the antecedent outside of the sentence, (ii) picking the closest antecedent (13c), (iii) picking the subject as an antecedent, and (iv) accepting the pronoun across the board even in the ungrammatical cases.

Thus the emerging picture is that Hungarian preschoolers and aphasics seem to show the Pronoun Interpretation Problem with respect to transitive structures, and they experience problems with reflexives and pronouns alike when it comes to possessive structures, especially if the possessive structure itself contains a potential antecedent.

3.2 A closer look at the data and research directions

The two studies reported in the previous subsection provide promising initial evidence that the Pronoun Interpretation Problem exists in Hungarian. We believe nevertheless that further empirical evidence is needed to substantiate this conclusion firmly. This evidence must come from judgements concerning prototypical transitive constructions, because this configuration represents the undisputable case of *local* referential dependencies, the prime locus of the

Pronoun Interpretation Problem. Czingárber's (1999) study involved 10 preschooler subjects, some of whom showed idiosyncratic strategies in the experimental situation, which renders the data they provided unfit for general conclusions. Furthermore, the study contained only 5 transitive sentences (the same verbal structure with a reflexive or a pronoun). In the first phase of our research on the acquisition of the Hungarian pronominal system, we aim to test a higher number of transitive sentences with a higher number of preschooler native speakers of Hungarian. We also intend to include sentences with quantified antecedents, since previous research has shown that the PIP does not manifest itself if the antecedent is quantified (see 2.2). If Hungarian children show a differential treatment for quantified antecedents, this provides strong support for the relevance of the Pronoun Interpretation Problem in Hungarian.

We expect that our planned study will provide positive evidence for the existence of the PIP in Hungarian. In any case, this is the default assumption given the results of Czingraber's study, which we consider to be a pilot. Once more definitive conclusions can be drawn with respect to how Hungarian preschoolers interpret pronouns in core transitive constructions, the study of more complex constructions becomes viable. Research following the initial generative interest in binding phenomena raised by Chomsky (1981) has shown that referential dependencies involving more complex constructions may often be subject to constraints that are not covered by the initial formulation of Binding Theory (see 2.1). Possessive constructions provide a useful illustration for the concerns at hand. Since possessives play a prominent role in Czingraber's (1999) and Bánréti's (2006) studies, we discuss them here briefly to show what these concerns are and how they are relevant in the study of the acquisition of pronouns and reflexives.

Consider first the plain possessive construction, in which the pronominal antecedent is anaphoric to the clausal subject. We repeat (13b) as (14a) to illustrate:

- (14) a. *Peti egyedül köti be a(z) maga /ő cipő-jé-t.*
 Pete alone ties PARTICLE the himself/he shoe-POSS.3SG-ACC
 'Pete ties his own/his shoe alone.'
- b. *Peti egyedül köti be a cipő-jé-t.*
 Pete alone ties PARTICLE the shoe-POSS.3SG-ACC
 'Pete ties his shoe alone.'

By default, anaphoric possessors are *pro*-dropped in Hungarian in accordance with the *pro*-drop nature of the language (14b). It is the agreement morphology on the possessum which licenses the non-expression of the pronoun. The overt pronominal or reflexive possessor (14a) normally requires a strong contextual support, typically the existence of a contrast between two possessors (cf. *Pete only ties his own shoes, not his sister's*). It can be shown that overt pronoun possessors code coreference-based dependencies, whereas the reflexive *maga* 'himself' acts as a bound variable (see Rákosi 2014). Besides this fundamental share of labour, Rákosi (2014) discusses two further factors that license possessive reflexives. First, possessive reflexives often have a logophoric character, that is, they are licensed in a piece of discourse which represents the perspective of the antecedent. Consider the following example (Rákosi 2014: 553):

- (15) **John feels that ...** : *(15a), √(15b)
I feel that ... : √(15a), √(15b)
- a. *Ez a változás mintha a magam bense-jé-t is*
 this the change.NOM as.though the myself.NOM inside-POSS.3SG-ACC too
meg-változtatta volna.
 PRT-altered.3SG COND
 ‘As though this change had altered my own internal constitution too.’
- b. *Ez a változás mintha az én benső-m-et is*
 this the change.NOM as.though the I.NOM inside-POSS.1SG-ACC too
meg-változtatta volna.
 PRT-altered.3SG COND
 ‘As though this change had altered my internal constitution too.’

The reflexive is only licensed in (15a) if it is embedded in a piece of discourse anchored to the speakers’s perspective (notice that there is no sentence-internal antecedent for the reflexive in (15a)). If such discourse support is absent, only a pronominal possessor is grammatical (15b). Second, reflexive possessors are licensed if the extended predicate denotes an inherently reflexive relation including the possessor. (16) is quoted from Rákosi (2014: 556).

- (16) *A kormány a maga befolyása alá hajtotta a tévét.*
 the government.NOM the itself.NOM control-POSS.3SG under drove.3SG the tv-ACC
 ‘The government brought the tv under its own control.’

One can only bring someone or something under one’s own control. The reflexive possessor is a grammatical strategy that Hungarian makes use of to code such inherently reflexive relations.

Given these facts, it is not immediately obvious why both children and aphasics accepted reflexive possessors across the board. The examples Czingráber (1999) and Bánréti (2006) used did not present the reflexive possessor in a discourse contrast, and neither did they support a logophoric construal. Each sentence was presented without a discourse context in the experiments. Furthermore, the examples they used did not involve an inherent or a necessary reflexive relation either. Therefore there was no specific trigger for the use of the reflexive possessor, and in the absence of these, the examples they used in the experiments sound quite marked for adults. In other words, it is unclear whether adults would provide the same judgements for these sentences as children do. This means that children in fact may show non-adultlike behaviour with their judgements simply as a result of the fact that they may not have learnt to constrain the use of possessive reflexives in an adultlike manner.

The complex possessive examples Czingráber (1999) and Bánréti (2006) used in their experiments raise another issue. We repeat (13c) as (17) to illustrate.

- (17) *A törpé-nek tetszik az óriás önmagá-nak/nek kötött pulóver-e.*
 the dwarf-DAT appeals the giant himself-DAT/DAT.3SG knitted pullover-POSS.3SG
 ‘The dwarf likes the giant’s pullover knitted to himself/him.’

Here the reflexive is an argument of the participle that modifies the possessum. Both Czingráber (1999) and Bánréti (2006) assume that it must be bound locally inside the possessive phrase by the possessor. The reflexive that they use in their sentences is, however, not the basic reflexive *maga* but its morphologically more complex alternate *önmaga* ‘himself’. They tacitly assume that the two reflexives are grammatical equivalents in these contexts, but, as Rákosi (2011, 2013) argues, this is not the case. The extra morphology on *önmaga* ‘himself’ makes it possible for this reflexive item to be licensed in constructions where the primary reflexive *maga* ‘himself’ is in fact ungrammatical. *Önmaga* ‘himself’ can be a nominative subject with psych-verbs, it can be used as a predicate, and while it can be bound locally, it can also license coreference-based readings even across clausal boundaries.

While *önmaga* is frequent in adult language (see the corpus data reported in Rákosi 2013) and therefore children can possibly receive the required amount of input, it is not evident whether they have already acquired all the constraints on the use of this complex reflexive at an early age. It is also not obvious that adults uniformly reject readings in which the reflexive in (17) is bound by – or coreferential with – the matrix dative experiencer. In fact, such readings are not always out for every adult speaker, especially when the reflexive is first or second person. In other words, the assumption that the reflexive cannot take an antecedent from the matrix clause in (17) is not necessarily true of adult language. Therefore the variability of experimental judgements concerning (17) and the construction it represents may be a reflex of a variability that is possibly present in adult Hungarian, too.⁸

These considerations reinforce the need for a research agenda that focuses on core transitive constructions and co-argument anaphora in studying the Pronoun Interpretation Problem in Hungarian. Once firm experimental data is available in this domain of language, we can take one step further to experiment with constructions in which the dependency between the pronominal/reflexive is not necessarily local for the purposes of Binding Theory. Possessive constructions represent one such domain. The challenge they represent for acquisition research is twofold. First, as we have argued above, more conclusive data (experimental or corpus data) are needed on how adults judge and interpret these constructions. This is necessary to have a firm comparison background on what is adultlike in the acquisition data and what is not. Second, the factors that constrain these dependencies must be carefully identified and tested in the experiments. These factors include logophoricity, the nature of the reflexive relation coded (inherent or not), and the nature of the dependency (proper binding or coreference). Even if Hungarian children clearly show the Pronoun Interpretation Problem in a way similar to what is attested in the acquisition of English, these additional constraints more specific to Hungarian may represent extra acquisitional challenge for them that comes on top of the basic challenge posed by the PIP and that exists largely independently of the PIP.

⁸ The anonymous reviewer notes that grammatical properties of the main predicate in the construction represented by (17) may also influence acceptability judgements. (17) contains a psychological verb, but adults may have different judgements for non-psychological verbs.

4 Summary

In this paper, we have provided a thematic survey of the literature on what is known as the *Pronoun Interpretation Problem* in first language acquisition. The essence of this problem is that children at a preschool age can handle locally bound reflexives well, but they are uncertain about the interpretation of pronouns that have a potential local antecedent. The literature is divided over whether this Problem is entirely pragmatic in nature, or it derives from the fact that these dependencies are coded in grammar and then subsequently processed.

We intend to investigate this problem in our planned research on the acquisition of Hungarian. The experimental results reported in Czingráber (1999) provide positive pilot evidence for the existence of the Pronoun Interpretation Problem in Hungarian. As a first step in our research, we plan to gather more data from co-argument binding in transitive constructions, which represent the core locus for the Pronoun Interpretation Problem. To achieve this aim, we will conduct an experiment with a specific design focussing on these core data, and with the involvement of a larger amount of subjects and test sentences. Once we have these data available, we carry out further experiments on more complex constructions in which additional factors play a role in the licensing of the pronominal or reflexive dependency. Our hypothesis is that the Hungarian acquisition facts will provide further arguments for the view that the Pronoun Interpretation Problem is essentially grammatical in nature (see Grodzinsky & Reinhart 1993 and Reinhart 2006), and pragmatic factors only play a decisive role in referential dependencies that lie outside of the core realm covered by Binding Theory.

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