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NUEVAS TENDENCIAS EN LA INVESTIGACIÓN LINGÜÍSTICA

Luque Durán, Juan de Dios Pamies Bertrán, Antonio Manjón Pozas, Francisco José (editores)

Granada Lingüistica
SERIE COLLECTAE
DIRECTORES DE LA COLECCIÓN: Juan de Dios Luque Durán y Antonio Pamies Bertrán

J.D. Luque Durán, A. Pamies Bertrán, F.J. Manjón Pozas (eds.): *Nuevas tendencias en la investigación lingüística.*

Edición técnica: JOSÉ MANUEL PAZOS BRETAÑA, MARÍA DEL CARMEN LÓPEZ CARA

Dep Legal: GR-132-2002

Publicado por Granada Lingüística
Distribuye: Método Ediciones
Calle Rector López Argüeta, 21
18001 GRANADA
www.metodoediciones.com

Impreso en Gráficas Fernado
Polígono Juncaril, c/Montefrio, P. 114k
18220 Albolute

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Primera edición 2002

Con la colaboración del Ministerio de Educación y Cultura
PRONOMINAL MENTAL REPRESENTATIONS IN ADVANCED L2 AND L3 LEARNERS OF SPANISH

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1. Introduction

Current approaches to post-childhood SLR are faced with three well-attested problems (Hawkins, 2001a):

(i) Why is knowledge of language underdetermined by the input? That is, why do learners seem to be sensitive to constructions they have never encountered in the input?

(ii) Why is not some input properly represented? That is, why do learners seem not to be sensitive to constructions they have abundantly been exposed to?

(iii) Why does the L1 influence the L2 in some cases but not others? That is, what linguistic areas are more vulnerable to L1 influence in second language acquisition (SLA)?

Two intriguing (and somewhat contradictory) findings pertain recent SLR. Some studies report that at advanced levels of proficiency post-childhood learners can achieve native-like competence, showing similar mental representations to adult native speakers (observation i above). However, other studies show that learners only achieve near-native competence despite long immersion in the target language (observation ii) due to L1-L2 differences (observation iii).

The first observation (native-like representations) concerns constructions that are claimed to be part of Universal Grammar (UG) and that are typical poverty-of-the-stimulus cases (i.e., they are not present in the input the learners are exposed to). Such constructions are universal invariants and learners show sensitivity to them, even though they may not necessarily be instantiated in their L1. This is the case of pronominal constructions in L1 English – L2 Japanese (Kano, 1997; 1998; Marsden, 1998) and L1 English – L2 Spanish (Pérez-Leroux & Glass, 1997; 1999).

The second observation (near-native representations) comes from a series of studies claiming that adult language learners will show persistent difficulty with L2 functional features that are not instantiated in their L1. This is the case even after long immersion/exposure to the L2 (Franceschina, 2001; Hawkins, 2000; Hawkins & Chan, 1997). The L1 is claimed to be responsible for such L2 representational deficits, causing learners to show divergent representations from native speakers (Sorace, 1993) and leading to persistent selective fossilization (Hawkins, 2000).

* An earlier version of this paper was presented at the Second Language Acquisition Discussion Group (University of Essex, November 2001) and at the Congreso internacional sobre nuevas tendencias de la lingüística (Universidad de Granada, November 2001). I am grateful to colleagues there for their comments. This research is funded by the ESRC, award no. R00429934281.
This study deals with how the presence of overt and null pronoun subjects in Spanish is determined by (i) universal constraints and (ii) language-specific/discursive constraints governed by functional features. An experiment was conducted to test advanced adult learners sensitivity to the two constraints. Results support the findings of a number of previous (and somewhat unrelated) studies—learners show native-like mental representations when universal constraints are involved, whereas they show native-like mental representations with discursive constraints.

2. Distribution of overt and null pronouns in native Spanish

It is well known that in null-subject languages like Spanish and Greek, overt pronounal subjects (e.g., él ‘he’, ella ‘she’; αφοσ ‘he’, αφί ‘she’) can be phonetically either overt, (1a) and (2a), or null, (1b) and (2b) in finite clauses. However, non null-subject languages permit only overt pronouns (3a).

(1) a. Él/ella tiene poco dinero (Spanish)
   b. pro tiene poco dinero
(2) a. Aftos/afti chei liga lefta (Greek)
   b. pro chei liga lefta
(3) a. He/she has little money (English)
   b. * pro has little money

Rizzi (1997:273) argues that the licensing of pro occur under agreement or government1. Consider (4), where pro occupies [Spec, TP], which is governed by the head T. The [+D] and [+AGR] features of the functional head T licence the null pronoun2.

(4)  

Spec  
TP  
  
pro  
  T  
  VP  
  tiene  
  poco dinero

Whether a head can license pro is a language-specific property (i.e., amenable to parameterisation). In Spanish and Greek, T is a proper licensor, whereas in English is not.

Overt/null pronominal alternations, however, are not in free alternation in native Spanish. There are at least two constraints regulating their co-occurrence, namely, the overt pronoun constraint (OPC) and the null pronoun constraint (NPC).

2.1 The overt pronoun constraint (OPC)

In null subject languages, an embedded overt pronoun in subject position cannot be bound by a quantified expression (Montalbetti, 1984, 1986). Consider (5a) and (5b) in isolation, where the overt pronoun él/afos ‘he’ and the null pronoun pro can be in free alternation. However, the preceding context disallows él/afos to take the bound variable reading, i.e., the overt pronoun cannot be bound by a quantified determiner phrase (QDP) cada estudiante/o kathe mathitis ‘each student’. Only pro can act as a bound variable here. Note that in the English equivalent (5c) the QDP each student can indeed bind the overt pronoun he as there is no overt/null alternation in English (i.e., pro is not allowed in English).

(5) a. cada estudiante, dice que {*él/pro}, tiene poco dinero. (Spanish)
   b. o kathe mathitis, lei {*afos/pro} chi liga lefta. (Greek)
   c. each student, says that {he/*pro} has little money. (English)

The OPC phenomenon is well attested not only in Spanish (e.g., Luján (1999), Montalbetti (1984, 1986)), but also in typologically-related languages, such as Portuguese, Italian and Greek (Montalbetti, 1984), Catalan (Picollo, 1994) and in typologically-unrelated languages like Chinese (Xu, 1986), Korean (Kanno, 1997, 1998), Arabic-Tariff (Ouhalla, 1988). For exposiory purposes, we will not present evidence from these languages. These studies argue (and some only suggest) that the OPC is an invariant principle of UG3.

Further evidence for the claimed universality of the OPC comes from learnability theory. OPC constructions show a very low frequency in the input4. They represent a typical case of a ‘poverty of the stimulus’ phenomenon, since the ungrammatical construction [QDP, ... *overt,] is not present in the Spanish input. It is widely acknowledged that input in the form of positive evidence alone does not contain ungrammatical expressions. Therefore, OPC knowledge must be part of UG principles (see Pérez-Leroux & Glass (1997) and Schwartz (2000) for discussion).

The universality of the OPC is therefore a testing-ground in non-native language acquisition for the claim that UG constrains adult L2 grammatical mental representations.

2.2 The null pronoun constraint (NPC)

In contrast to (5), the context in (6) biases for an interpretation where the overt pronoun él/afos ‘he’ is coreferential with one of the previous discourse antecedents (Mr López), and not with the QDP cada estudiante/o kathe mathitis.

(6) Context: Mr López and Ms Garcia work at the university and at a famous publishers. However...
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To summarise our discussion so far, OPC contexts disallow an overt pronoun (8a) but allow a null pronoun (8b), whereas the opposite holds true for NPC contexts (9a,b).

(8) OPC contexts:  
   a. [QDP, ... *overt]  
   b. [QDP, ... null]

(9) NPC contexts:  
   a. [QDP, ... overt]  
   b. [QDP, ... *null]

3. Research questions

As pointed earlier, there are two expected outcomes with respect to the OPC and NPC.

(i) Research question 1: where universal principles like the OPC are involved, learners are expected to show native-like knowledge by behaving similarly to natives. This is irrespective of the learners’ L1, as knowledge of universal principles is claimed to be constrained by UG (Montalbetti, 1984, 1986; Marsden, 1998; Pérez-Leroux & Glass, 1997, 1999). If this is the case, L1 transfer can be discarded as the possible source of OPC knowledge.

(ii) Research question 2: where language-specific constrains like the NPC are involved, learners are expected to show sensitivity to them providing there is no parametric differences between the learner’s L1 and L2 with respect to the functional features under investigation. If the L1-L2 pairing does not match, we expect learners to show representational deficits (i.e., to diverge from natives’ knowledge and show near-native mental representations. If this is the case, L1 can be regarded as the possible source of L1 transfer.

Hawkins (2000) argues that representational deficits (i.e., native-like representations) in end-states appear whenever these three conditions are met simultaneously:

1. if the L1 does not instantiate the uninterpretable functional feature present in the L2;
2. if the learner has been exposed to the L2 after puberty;
3. if the learner has received abundant input in the form positive evidence regarding the construction under investigation.

To test the predictions (i and ii) under Hawkins (2000) conditions (1 to 3), we conducted an experimental study involving three groups of subjects.

4. Subjects

The first group (control group) consisted of 11 Spanish native speakers. The second group (experimental group) consisted of 20 English natives learning Spanish.

The linguistic literature does not report NPC cases as being part of a universally invariant principle, in contrast to OPC cases. The use of an overt (vs. null) pronoun in contrastive environments is (i) language-specific and amenable to parameterisation (different languages parameterise this contrast with different mechanisms (Pérez-Leroux & Glass, 1997, 1999; Luján, 1987) and (ii) discourse-dependent, as its appearance depends on the status of the discourse referents.
as an L2. The third group were 20 Greek natives learning Spanish as an L3 (they had previously learnt English as an L2).

Subjects were administered a proficiency test. Only learners with a proficiency level of 80% (advanced) were included in the study.

5. Method

An acceptability judgement test (AJT) was used. Subjects had to judge whether a given sentence was more or less acceptable (as opposed to grammatical). Each stimulus consisted of a contextualising sentence (10) and two target sentences, (10a) and (10b). Each target sentence was accompanied by a 5-point Likert rating scale. Value +2 corresponded to completely acceptable and value -2 completely unacceptable.

(10) El señor López y la señora García trabajan en la universidad y en una famosa editorial. No obstante...
   (a) cada estudiante dice que él tiene poco dinero. -2 -1 0 +1 +2
   (b) cada estudiante dice que tiene poco dinero. -2 -1 0 +1 +2

The test also controlled for other unwanted variables.

The completed and usable tests were finally coded in the statistical package Excel (version 97) and analysed in SPSS (version 9.0).

6. Results

The one-sample Kolmogorov-Smirnov test revealed that each group is normally distributed (p>0.05 for each group in each condition). Inferential test were subsequently applied (multiple analysis of variance with post-hoc LSD tests).

6.1 OPC results

The bar chart in Figure 1 shows the acceptance rates on the Likert scale (y axis) of the three groups (x axis) for the grammatical condition (light bars) and ungrammatical condition (dark bars).

Within-group analyses reveal that each group clearly distinguishes between the grammatical condition [QDPi ... null], which is highly accepted, and the ungrammatical condition [QDPi ... overt], which is rejected. A manova with post-hoc LSD confirms this, given that each pairing (grammatical vs. ungrammatical) is statistically significant for each group (p<0.01). This suggests that Spanish natives as well as learners discriminate between the grammatical and the ungrammatical constructions, since all groups disfavour an overt pronoun interpretation (hence the negative values) and prefer a null pronoun interpretation (positive values), as Figure 1 shows. This is what the OPC theory predicts.

In the between-group comparisons, each group of learners was compared against the Spanish native performance. Results revealed the following:

(i) For the grammatical construction (null pronoun), there are no significant differences between each group of learners and the Spanish natives (p>0.05 for all comparisons).

(ii) For the ungrammatical construction (overt pronoun), there are no significant differences between each group of learners and the Spanish natives:
   English = Spanish  (p=0.738)
   Greek = Spanish    (p=0.847)
These between-group comparisons indicate that neither the English speakers nor the Greek speakers statistically differ from Spanish natives. This suggests that all learners are sensitive to the OPC, whatever their L1.

6.2 CFC results

In the NSC bar chart (Figure 2), the dark bars now represent the grammatical condition with the overt pronoun, whereas the light bars represent the ungrammatical null pronoun.

![Judgement scale: mean acceptance rate](image)

A within-group analysis reveals that each group distinguishes the grammatical vs. ungrammatical condition, following the Spanish pattern (manova with post-hoc Tukey, p<0.01 for each comparison).

Between-group comparisons were performed. Each group of learners was compared against the Spanish natives’ performance. Comparisons revealed the following:

(i) In the grammatical construction, (overt pronoun), there were no significant differences between groups (p>0.05 for all comparisons).

(ii) In the ungrammatical construction, (null pronoun), there was a significant difference between English-Spanish but no significant difference between Greek-Spanish:

- English = Spanish (p=0.01)  
- Greek = Spanish (p=0.844)

7. Discussion

The OPC results show that both Greek and English advanced learners of Spanish are sensitive to the OPC to the same statistical extent as Spanish native are. Learners correctly reject as ungrammatical the use of an overt pronoun as a bound variable, [QDP, ... *él]] and they correctly accept the grammatical null counterpart [QDP, ... pro]]. The source of knowledge to this phenomenon could derive from:

(i) L1 transfer in the case of the Greek speakers, as Spanish and Greek do not differ parametrically with respect to instantiations of the OPC. But, crucially, this explanation is untenable in the case of the English speakers as OPC phenomena are not instantiated in native English (Kanno, 1997, 1998; Marsden, 2001; Pérez-Leroux & Glass, 1997, 1999).

(ii) positive evidence in the input. However, as we argued above, this is not the case as ungrammatical constructions [QDP, ... *él]] are not present in the input the learners are exposed to (Schwartz, 2000).

(iii) classroom instruction. However, OPC constructions are neither explained in the classroom nor explained in textbooks (Marsden, 1998; Kanno, 1997, 1998).

It seems plausible to propose that the source of knowledge in cases where universal principles are involved stems from UG. This finding answers question i posed in the introduction: learners are sensitive to universal constructions like the OPC, even though they are absent in the input and (sometimes) not instantiated in their L1. Other studies also support this proposal (e.g., Kanno, 1997, 1998; Marsden, 1998; Pérez-Leroux & Glass, 1997; 1999).

The NPC results indicate that both Greek and English speakers behave similarly to Spanish natives. Learners are sensitive to the grammaticality of an overt pronoun bound by an antecedent in the previous discourse, thus accepting [QDP, ... *él]] and rejecting [QDP, ... *pro]]. But, crucially, English natives statistically differ from Spanish natives in the ungrammatical condition, i.e., some English speakers accept a null pronoun in contrastively focused environments. This interpretation, [QDP, ... *pro]], is infelicitous in native Spanish, as explained earlier.

NPC contexts are cases where an overt pronoun is needed for contrastive focus purposes. An overt pronoun like *él can be licensed in a focus phrase [FP] above TP as it is specified for [+focus]. However, a null pronoun cannot be in a focus phrase [FP] as it is specified for [-focus]. (11) schematises the discussion so far.
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Chomsky (1995:277f) distinguishes between interpretable features (readable by the conceptual-intentional component) from uninterpretable features (unreadable by the conceptual-intentional component). The [-focus] feature of the overt pronoun él is [interpretable] since it affects the interpretation speakers give to the pronoun (it contrasts Mr López vs. Ms García). The [+focus] feature of T is, however, [-interpretable] since it does not affect interpretation (it is there so that él can move to the TP configuration for checking purposes).

The Spanish placement test used was the University of Wisconsin Placement Test, Form 90M (University of Wisconsin, 1998). An extra placement test in English, the Oxford Placement test (Allan, 1992), was administered to Greek natives. The threshold was 80.

Note that if the contextualising sentence is not provided, both target sentences (a and b) are grammatical in adult Spanish. Therefore, in order to bias to one interpretation (overt or null pronoun in the embedded clause), a context is needed.

The AIT test consisted of twelve target stimuli (6 OPC, 6 NPC) and twelve distractors. Two training stimuli were placed at the beginning of the test plus two stimuli at the end were used to control for tiredness effects on learners. Target stimuli were constructed following a factorial design to ensure that subjects were not reacting to OPC or NPC constructions randomly. While an overt pronoun is grammatical in OPC cases, it is grammatical in NPC cases. In this way, it was ensured that subjects were not randomly rejecting overt pronouns in all contexts.

Table: Test design (target stimuli)

<table>
<thead>
<tr>
<th>Indices</th>
<th>Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>(joint=OPC/disjoint=NPC)</td>
<td>(overt/null)</td>
</tr>
<tr>
<td>QDPi...OVERTj</td>
<td>QDPi...OVERTj</td>
</tr>
<tr>
<td>QDPi...NULLj</td>
<td>QDPi...NULLj</td>
</tr>
</tbody>
</table>

The type of pronominal subject in the embedded clause was either an overt third person pronoun (50% of the time él ‘he’ and 50% ella ‘she’), or a null pronoun pro. The type of binding between the matrix QDP and the subordinate overt/null pronominal subject was of two types: joint coreference (OPC constructions) and disjoint coreference (CFC constructions). Three universal quantifiers were used for each condition, namely, todo el mundo ‘everybody’, cada X ‘each X’ and ningun X ‘no X’. Each of these appeared twice in each condition.

In order to avoid extraneous variables, several measures were taken. Presentational effects were avoided by using (i) overt pronouns 50% of the time in the a sentence, and 50% of the time in the b sentence and (ii) two versions of the test with the same sentences but different sequential order. Sentences were also randomised in each version of the test, following Cowart’s (1997) ‘blocking’ procedure. Vocabulary was also controlled, including beginners’ vocabulary only (González et al., 1995) so that learners could clearly understand the sentences. The target sentence length was also controlled. It never exceeded nine words.

Optionality is a well attested phenomenon in the grammars of advanced learners (Parodi, 2001). An alternative explanation concerning the acceptability of null pronouns in NPC contexts is offered in Lozano (forthcoming, 2002b).

8. Conclusion

This study has examined a pronominal construction in post-childhood Spanish acquisition by English and Greek natives. The first construction (OPC) is constrained by universal principles and the second construction (NPC) is constrained by discursive, language-specific constraints. Learners’ mental representations are identical to Spanish natives’ with respect to universal properties, but differ when L1-L2 functional features mismatch.

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