

How to be faithful to the input in a situation of language contact*

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1. Introduction

As children acquire a language, they accomplish at least two tasks: they construct a grammar from the input they receive and they also learn the ways in which the community uses this system socially. These two tasks are independent, but we have plenty of evidence that typically developing children accomplish both of them early and efficiently. Children quickly discover the underlying rules of their language, and from a very early age they also match the frequency distributions of their speech communities and its different registers (Smith, Durham and Fortune 2009; Nardy et al. 2013).

Most work on the acquisition of grammar assumes an idealized scenario in which there is only negligible variability in the speech community. Under this scenario, children successfully acquire the grammar of their parents, predicting that languages should not undergo change (Keenan 2002).

But the fact is that languages do change. Somehow children end up internalizing a different system than their parents. Assuming that the human capacity to acquire language remains constant across generations, it must be that what changes is the input. To examine the role that children play in language change, we need to relax the methodological assumption of the homogeneous, stable speech community and delve into more realistic environments.

One common source of linguistic instability is population migration, which brings different languages dialects into contact. This produces a clear rupture between what the migrant adults were exposed to and what their children are exposed to. In such cases, careful comparison of children's speech with that of their parents and that of the host culture can reveal the extent to which children's grammar "drifts" in one direction or the other. The particularities of this mismatch may even tell us something about how properties of the input determine the grammar that the child builds.

Since we have no reason to believe that the language acquisition mechanism is any different whether it finds itself in a contact environment or not, we have to assume that the child will always attempt to construct the grammar(s) to best fit the input that surrounds him or her. In doing so, the child must navigate the tension between remaining faithful to the input and making generalizations about it, a tension that is heightened in situations of contact, where the input is composed of utterances from more than one underlying grammar. In this paper, we explore the idea that this tension is resolved by making generalizations in a modular fashion.

We focus on Paraguayan children living in Villa 21, an immigrant neighborhood of Buenos Aires, Argentina. These children are exposed to two mutually intelligible varieties of Spanish: the host variety (Rioplatense Spanish, henceforth RpS), and their parents' variety (Paraguayan Spanish, henceforth PS), either learned as a first or a second language. They are also exposed to varying amounts of L1 and L2 Guaraní, which is Paraguay's second official language. The two dialects of Spanish are mutually intelligible and make use of the same lexicon and morphology but have underlying grammars that assign the morphological pieces slightly different interpretations and distributions. We take advantage of this situation to observe how

children navigate the tension between these different grammars.

2. The linguistic background

2.1. Agreement

In RpS, agreement is categorically marked. Determiners, adjectives and nouns agree in number and gender, and verbs agree in person and number with their subject, as illustrated in (1). In PS, on the other hand, agreement is subject to sociolinguistic variation, as well as variation due to individual speakers' proficiency in Spanish (Granda 1988; Krivoshein & Corvalán 1987; Dietrich 1995; Penner et al. 2012). Examples (2) and (3) are taken from our corpus. PS subject verb agreement is not always marked (2). Nominal number agreement is often marked only once in the noun phrase, typically only when it adds semantic information. The presence of across-the-board lenition of syllable final /-s/ (3) contributes to the general tendency against overt realization of agreement.

- (1) a. Las casas lindas están limpias.
The.F.PL house-F.PL pretty-F.PL be-3PL clean-F.PL
'The pretty houses are clean.'
- b. Nosotros hablamos español.
we speak-1PL Spanish
'We speak Spanish.'

- (2) a. **Está** todo(s) lo(s) dibujo(s).
be-3SG all-PL DEF-M-PL drawing-PL
'All the drawings are here.'

- (3) a. Hay **mucho** animales en la casa.
have **many-SG** animal-PL in DEF.F.SG house.
'There are many animals in the house.'
- b. Eso son lo(s) **zapato**.
this are DEF-M-PL **shoe.M-SG**
'These are the shoes.'

Agreement in PS is an ill-studied phenomenon and it is not clear what its linguistic representation is, but for our purposes it suffices that agreement is obligatorily marked in RpS but not in PS.

2.2. Object realization

In both RpS and PS, direct objects are realized with the same forms, but these forms are distributed differently over the semantic space. In RpS, object realization is sensitive to case, number, gender, animacy, and referential status. Referential direct objects may be realized as either (4a) full DPs (accompanied by the differential object marker *a* when animate), (4b) accusative clitic pronouns, which inflect for gender and number, or (4c) both a clitic and a DP, if the referent is animate (only animates are true clitic-doubling structures in RpS according to Di

Tullio, Saab & Zdrojewski in press). Null objects are also attested, but they are largely restricted to non-referential uses, such as when the referent is an indefinite non-specific (5), in contrast to cases like (6), where the referent is definite and specific. (However, in certain highly specified contexts such as (7), null objects with specific referents are permitted; see Masullo 2003.)

- (4) a. Vi a Juan/la película b. Lo vi/ la vi c. Lo vi a Juan
 (I) saw a Juan/the movie. I saw him/ her. I him saw a Juan

- (5) Vi bananas y compré.
 'I saw bananas and bought (them).'

- (6) a. ¿Trajiste el libro?
 'Did you bring the book?'
 b. Sí, lo traje.
 'Yes, I brought it.'
 c. *Sí, traje.
 'Yes, I brought (it).'
- (from Choi 2000:534)

- (7) Apaga Ø [i.e. la luz, la televisión, etc.] (Masullo 2003)
 ??Turn off Ø (cf. Turn it off/Turn off the light/the TV)
 [Two persons leaving a room, one says to the other]

In Paraguayan Spanish, the picture is quite different. First, null objects are permitted in definite specific contexts like (6), and the examples in (8) from our corpus show that they are also permitted in anaphoric contexts. According to Choi (2000), null objects account for over 90% of anaphoric objects in the speech of both monolingual and bilingual Paraguayan speakers. Second, PS exhibits *leísmo*. *Leísmo* is the substitution of masculine and accusative clitics by the dative clitic *le*, which erodes the accusative-dative distinction, as well as gender distinctions, since *le* inflects only for number—and even that is inconsistent, given widespread lenition of syllable-final /s/.

While in RpS *leísmo* is dispreferred and socially marked (Ordoñez 2012; Kany 1969), in PS it is a common feature of all social classes and is consistently used for animate referents. Third, according to the literature, accusative clitics are nearly absent, being reserved for inanimate direct object referents (Choi 1998, 2000; Schwenter 2006; Usher de Herreros 1976; Palacios Alcaine 2000). Thus, the distribution of (non-DP) direct objects in PS appears to be sensitive only to animacy, with *le(s)* reserved for animate referents and either null objects or the (fairly rare) accusative clitics for inanimate referents.

- (8) a. El mozo agarró la rana y está llevando __ para afuera.
 The waiter grabbed the frog and was taking (it) outside. [it = the frog]
 b. Yo no trabajo por el momento porque no tengo adonde dejar a mi hijo, no quiero dejar __ con e(x)traño.
 I am not working at the moment because I don't have where to leave my son, I don't want to leave (him) with strangers. [him = my son]

- (9) Yo no le conozco a lo(s) animale(s).
 I not LE know to DEF-M-PL animal.M-PL
 ‘I don’t know the animals.’

These differences are summarized in Table 2.1.

Table 2.1. Properties of Rioplatense and Paraguayan Spanish

Grammatical property	Rioplatense	Paraguayan
obligatory subject verb agreement marking	categorical	non-categorical
definite referential null objects	restricted	widespread
accusative clitics with gender and number	yes	rare
use of <i>le</i> for direct objects	no	yes
clitic doubling with accusative	yes	no

3. Hypotheses and predictions

The hypotheses outlined in this section rest on the assumption that learners are equipped with both (i) a linguistically restricted hypothesis space and (ii) the ability to track statistical patterns in the input, which they use to calculate the probability of each hypothesis being true, along the lines proposed in Yang (2002). We also assume with Yang (2016) that the impulse to generalize is subject to economy principles. That is, children make hypotheses about how their input was produced only if making such a generalization is more efficient than simply memorizing the data it was meant to capture. With these assumptions in mind, we make the following hypotheses about how language acquisition will proceed when contact between dialects produces noisy or contradictory statistical patterns in the input.

Hypothesis 1: Faith in the input We hypothesize that children will treat the input they receive as informative. Since the learner does not know a priori that her linguistic environment contains patterns generated by different language systems, she will attempt to make the best generalizations she can to efficiently and faithfully reproduce these patterns. She will not, for example, attempt to simplify the rules of subject-verb agreement or discard forms or morphological features of vocabulary items in direct object position, provided there is enough evidence for these rules or features in one or the other dialect.

Hypothesis 2: Generalizations are modular We hypothesize that children construct the best fit for the data they are exposed to given the property being acquired. The learner does not attempt to make a wholesale choice about which dialect is a better match. Instead, she attempts to make generalizations by considering one subset of the input at a time. Convergence towards one dialect in the realm of subject-verb agreement, for example, does not imply convergence towards that dialect in the realm of object realization.

We will spell-out more specific predictions in the next section where we examine children’s production of subject-verb agreement and direct objects. In general terms, however, we predict no simplification and no adherence to one or the other dialect.

4. Corpus data and results

4.1 Subjects and data

We report production data from a small corpus (approximately 47,000 words) of three mother-child (MOT-CHI) dyads: (i) SF, a Paraguayan child who receives L2 PS input from her mother and RpS input at school, (ii) ML, a Paraguayan child who receives L1 PS input from her mother and RpS input at school, and (iii) TH, a native-born Argentinian child of comparable age and socioeconomic status, residing in the same neighborhood, who serves as a control. Subjects were recorded with their mothers and with an investigator narrating a picture book (*Frog Goes to Dinner*, Mayer 1974) and playing with toys (dolls, a kitchen set). The data presented here is part of a much larger, ongoing study of the acquisition of Spanish by Paraguayan immigrants in Buenos Aires. As such, the results reported here should be considered preliminary.

Table 4.1. Corpus size and speaker characteristics

CHI	Age	MLU	# Words	Input from MOT	MOT	# Words	MOT L1	# years in Buenos Aires
SF	4;7	3.2	6,494	PS (L2)	MG	15,126	Guaraní	15
ML	4;10	2.5	2,522	PS (L1)	RT	9,859	PS	8
TH	4;7	4.5	5,348	RpS	AN	7,426	RpS	lifetime

4.2. Agreement

Faced with a mixture of obligatory (RpS) and optional (PS) agreement, the learner can do one of the following:

- (i) simplify the input: end optionality by generalizing to a default form (e.g. 3sg);
- (ii) regularize the input: end optionality by generalizing to categorical agreement;
- (iii) match input frequencies: mimic the frequency at which agreement is produced, using a grammar that allows variability.

The first option would reduce both the set of agreement forms and the set of features that determine their distribution. The second option would amount to using all the features and forms in the input. The third option would amount to a variable rule for the realization of agreement identical to the adults.

Transcripts were reviewed by hand and any subject-verb agreement errors were noted, including cases where a null subject was used but its person and number features were obvious from context (30 tokens total). Error types reported in Table 4.2 are organized by the person and number features of the subject and the verb. The RpS dyad did not produce any errors.

Table 4.2. Distribution of agreement errors

Subject	Verb	MG (L2 PS)	SF	RT (L1 PS)	ML
1SG	3SG	8	0	0	0
1PL	1SG	1	0	0	0
2SG	3SG	16	0	1	0
3SG	1SG	1	1	2	0
	2SG	3			
	3PL	2	3		
3PL	3SG	15	5	15	2
Total # of errors		46	9	18	2
# Finite verbs produced		2965	1364	1965	389
# of errors /100 finite verbs		1.55	.66	.92	.51

Perhaps unsurprisingly, the L2 mother is responsible for most of the errors. Her errors consist mostly of using a 3rd singular form when agreeing with different kinds of subjects, consistent with the use of the unmarked zero form. The two children produced fewer errors per 100 finite verbs than their mothers. These consist mostly of substituting 3rd plural for 3rd singular (5 out of 11 errors, see example 10a) or 3rd singular for 3rd plural (5 out of 11 errors, see example 10b). The latter type may simply be due to lenition of plural /s/ the subject.

- (10) a. lo(s) elefante(s) y lo(s) monito(s) se quenía [: querían] ir con la nena, con la
 nenita. (SF, 4;7.13)
 b. Y esto cómo se llamaban (.) xxx? (SF, 4;7.13)

In sum, the children appear to be using agreement quite consistently. While their mothers display a small amount of optionality, the children display even less, with errors that are both fewer in number and unlikely to be the result of some default rule. While they do not remain completely faithful to their input, they nevertheless choose to generalize in the direction that allows them to be *more* faithful. This result also resonates with the well-known sociolinguistic fact that use of agreement primes agreement (Scherre & Naro 1991, 2013): as children are exposed to more agreement, they tend to use more agreement as well.

4.3. Object realization: overall distribution of verbal complements

In the realm of direct object realization, children are faced with conflicting messages about the features responsible for the distribution of forms, in particular, pronominal forms (accusative clitics, dative clitics, and null objects). On the one hand, the PS grammar is approaching a system in which animate referents are realized with numberless, genderless, and caseless *le*, and inanimates are realized with the similarly undifferentiated null object. On the other hand, the

RpS grammar presents a system of consistently number-, gender-, and case-marked accusative clitics, using alternate means to mark animacy (doubling, differential object marker *a*) and severely restricting the use of the null object. Faced with a mix of these distributions, children can choose to do one of three things:

- (i) Simplify the input: The child can “finish” the work started by the PS grammar and create a strictly binary opposition between animate *le* and inanimate null objects.
- (ii) Regularize the input: The child can converge toward the RpS grammar, ignoring or reinterpreting input from referential null objects as well as from direct-object uses of the dative *le*.
- (iii) Reorganize the input: The child can preserve all the forms and features for which the RpS input provides evidence but reorganize the distribution to more closely match the mixed input.

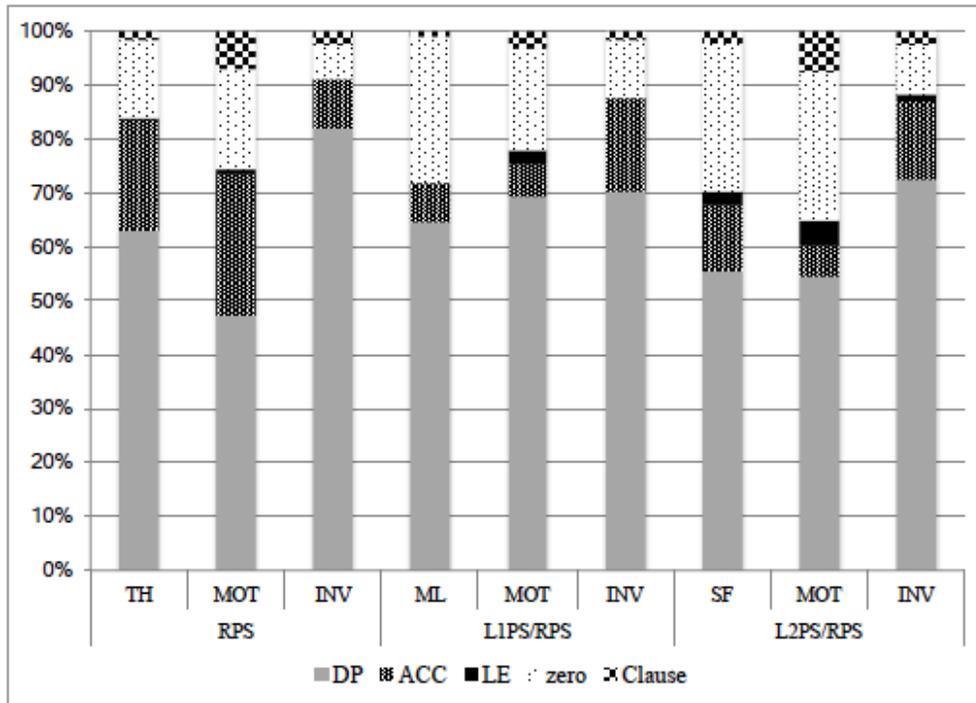
The first option would require a massive break with the input, discarding not only all accusative clitics but also the need for underlying case, number, and gender distinctions. The second option is what we would predict if we take children’s behavior with agreement to be indicative of their “preferred dialect.” However, as mentioned before it is not likely that children are aware of the need for such a choice given that they cannot possibly know a priori that their input is heterogeneous. The last possibility is more open ended, and here we suggest that such reorganization takes place in a modular fashion. That is, we suggest that children’s use of some forms may converge to one dialect but their use of others may converge to the other dialect.

As a first-pass analysis of the children’s object realization, we will look at the distribution of verbal complements. Identifying null objects can be tricky, as it is not necessarily clear how to separate examples where a null object is intended from those in which the speaker intends an intransitive use of the verb—if indeed they even should be analyzed differently (see Pérez-Leroux et al. 2016)—and while it may be ideal to focus exclusively on obligatorily transitive verbs, there are in practice too few of these to produce enough data. Even more difficult is the task of separating the different interpretations that speakers assign to null objects. However, so long as the *overall* occurrence of verbs and semantic contexts is roughly similar across speakers, we would expect PS speakers to produce a significantly greater number of verbs lacking an overt complement. We refer to these as “zero” complements in the results below.

From the Spanish MCDI MacArthur-Bates Communicative Development Inventories (Jackson-Maldonado et al. 2003) we identified all verbs that (i) accept direct objects and (ii) are known by at least half of typically developing children by the age of 2;6. We included both obligatorily and optionally transitive verbs, and we did not attempt to distinguish between transitive and intransitive uses of these verbs. Instead, we coded each verb token as having either (i) no overt direct object (“zero”, which subsumes both null objects and absence of an object), or (ii) having a DP, clitic, or clausal complement. We excluded reflexives, auxiliary uses, frozen expressions (e.g. *dale* ‘ok,’ *ya ves* ‘you see,’ etc.), and idiomatic uses (e.g. *a ver* ‘let’s see...,’ *tomar frío* ‘to catch a cold,’ etc.).

The overall distribution of complement types is shown in the graph below for each mother and child, as well as for the RpS-speaking investigators appearing in the same recordings (aggregated across investigators). Clitics are divided between accusative (*lo, la, los, las*) and dative (*le, les*) forms. Clitic doubling structures are classified with DP complements for the moment.

Figure 4.1. Distribution of verbal complement types for the children, their mothers, and the investigators.



For both Paraguayan children, the overall distribution of DP, clitic, zero, and clausal complements is significantly different from the distribution of the investigators, (Sf: $\chi(3, N = 503) = 20.40, p < 0.0002$, MI: $\chi(3, N = 168) = 8.16, p = 0.043$), who produce fewer zero complements, and not significantly different from their mothers (Sf: $\chi(3, N = 664) = 6.69, p = 0.08$, MI: $\chi(3, N = 388) = 4.30, p = 0.23$). Within the clitic category, however, the children match the investigators, producing either no *leísmo* (MI) or much less than their mothers (Sf: $(1, N = 89) = 4.6, p = 0.032$).

In sum, the first-pass analysis suggests that children are converging on the PS dialect with respect to null objects and the RpS dialect with respect to the almost absence of *leísmo*. In the sections that follow, we provide a more fine-grained analysis of the distribution of first *leísmo* and then of null objects in children's speech.

4.4. A closer look at *leísmo*

To increase the amount of clitic data, we used CLAN's Kwal command (MacWhinney 2000) to extract *all* tokens of accusative clitics (*la, lo, las, los*), as well as dative clitics in direct object position (*le, les*), coding for animacy and the presence/absence of a doubled DP.

In Table 4.3, we see that, consistent with the linguistic descriptions, the Argentinian mother produces almost no *leísmo* (4 tokens out of 86 direct object clitics), while the Paraguayan mothers produce plenty; in fact the majority of their direct object clitics are examples of *leísmo*. Turning to the children, Th produces a surprising amount of *leísmo*, but further inspection reveals that 6 out of the 9 are tokens of the same verb *llamar* ('to call/name') and may simply be

a case of fossilization. MI produces almost no *leísmo*, similar to the RpS-speaking investigators ($\chi(1, N = 50) = 1.06, p = 0.30$) and significantly different from her mother ($\chi(1, N = 72) = 23.93, p < 0.001$). Sf is the only child to produce a fair amount of *leísmo*, but she too produces significantly less than her mother ($\chi(1, N = 78) = 8.95, p < 0.003$).

Table 4.3. Frequency of direct object dative (*le*) and accusative (*lo/la*) clitics

	TH-MOT-INV (MOT L1 RpS)			ML-MOT-INV (MOT L1 PS)			SF-MOT-INV (MOT L2 PS)		
	lo/la	le	% <i>leísmo</i>	lo/la	le	% <i>leísmo</i>	lo/la	le	% <i>leísmo</i>
CHI	69	9	11.5%	18	2	10.0%	27	10	27.0%
MOT	82	4	4.7%	12	40	76.9%	15	26	63.4%
INV	30	0	0.0%	30	0	0.0%	27	1	3.6%

Table 4.4. Animacy and doubling of *leísmo* and accusative clitic tokens

	TH (Mot L1 RpS)		ML (Mot L1 PS)		SF (Mot L2 PS)	
	CHI	MOT	CHI	MOT	CHI	MOT
LE for animate, doubled	3	0	0	18	10	5
LE animate, non-doubled	5	4	2	19	0	21
LE inanimate, doubled	0	0	0	1	0	0
LE inanimate, non-doubled	1	0	0	2	0	0
ACC animate, doubled	1	5	5	0	3	1
ACC animate, non-doubled	0	10	5	3	0	5
ACC inanimate, doubled	0	3	1	0	1	2
ACC inanimate, non-doubled	68	64	7	9	23	7

Next, we turn to the distribution of these clitics with respect to animacy and doubling (Table 4.4). For the Paraguayan mothers, *leísmo* is nearly exclusively reserved for animate referents, consistent with descriptions in the literature, and the few accusative clitics that they produce are mainly (though not exclusively) inanimate. Sf is the only Paraguayan child who produces a fair amount of *leísmo*, and she initially also appears to reserve *leísmo* for animate referents and accusative clitics for inanimate referents—until we realize that she also uses doubling to achieve the same distinction. For Sf, animates are exclusively doubled (13 out of 13 dative and accusative tokens) and inanimates are non-doubled (23 out of 24 tokens).

In sum, neither Paraguayan child is converging toward the simplified system in which accusatives disappear and *le* becomes an animacy marker. Both children produce plenty of accusative clitics, and even the child who displays some *leísmo* appears to be using it differently than her mother. While the numbers are small, her concurrent use of doubling and *leísmo* for animate referents appears to be an intriguing mix of the PS and RpS systems.

4.5. A closer look at null objects

In this section we apply two different techniques to get a more fine-grained look at how

children use null objects. One, as mentioned before, is to look at their distribution of “zero” complements of obligatorily transitive verbs, where we can be fairly certain that a “zero” complement constitutes a null object. Of course, the intended interpretation of these null objects (generic, anaphoric, etc.) may or may not be discernible from context. A second technique is to focus exclusively on the distribution of “zero” complements in the preterite, which encourages referential interpretations. Here, we can be fairly certain that a number of these “zero” complements will be anaphoric, and therefore ungrammatical in RpS. The rate at which children produce such complements will then hopefully tell us the extent to which they are entertaining the PS grammar.

For the first analysis, we look at the two most frequently occurring obligatorily transitive verbs from our first-pass analysis: *poner* (‘to put’) and *agarrar* (‘to grab’) (Fig. 2). Only Sf and the Argentinian child produced enough tokens to analyze. For both verbs, the Paraguayan child aligns with her mother rather than the investigators, producing approximately 30% zero complements.

For the second analysis, we used CLAN’s Combo function to extract all verbs in the preterite not immediately followed by an overt complement. These were then categorized by hand to extract all instances where a null object was used to refer to an object (rather than a proposition). Of these totals, reported in Table 4.5 below, the first and second authors identified those tokens that were ungrammatical according to their own native RpS intuitions. While the native-born dyad did produce some null complements, they were all deemed grammatical in RpS. In contrast, nearly all of the null complements produced by the Paraguayan dyads were deemed ungrammatical in RpS.

These more fine-grained analyses support the suggestion from our initial analysis that the Paraguayan children permit a wider distribution of null objects than would be allowed in RpS. They produce null objects at a greater rate than the RpS-speaking investigators and in contexts deemed by native RpS speakers to be ungrammatical, in contrast to the Argentinian child, whose use of null objects is limited but grammatical. Experimental methods (see Perez-Leroux et al. 2016) will be necessary to distinguish the full range of semantic contexts in which children produce null objects.

Figure 4.2. Distribution of zero and overt complements for *poner*

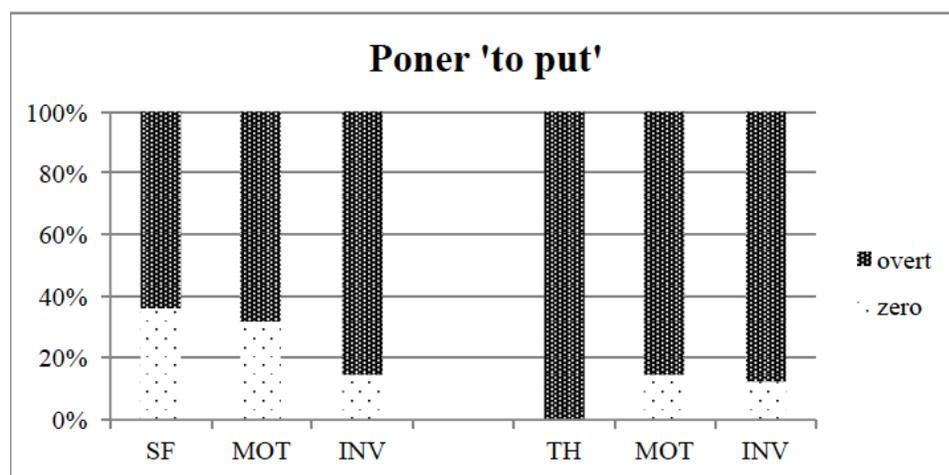


Figure 4.3. Distribution of zero and overt complements for *agarrar*

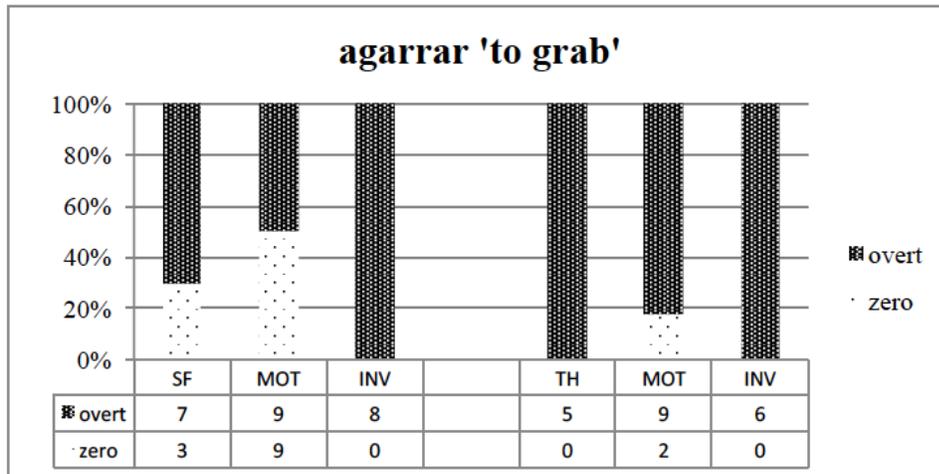


Table 4.5. Null objects produced and their acceptability in RpS

	TH	MOT	ML	MOT	SF	MOT
unacceptable zero objects in RpS	0	0	2	2	5	23
total zero objects	2	4	4	3	7	25

5. Discussion

The children exposed to mixed PS-RpS Spanish do not “choose” one dialect over the other, but instead choose a mix of dialects. We suggest that these modular decisions are what allow them to remain faithful to the input. In the realm of agreement, children converge towards RpS (not surprisingly) because of the overwhelming evidence for this rule. In the realm of clitic realization, children converge toward the RpS dialect, preserving all the case, gender, and number distinctions for which their RpS input provides evidence. And in their use of null objects, children converge toward PS, which allows them to remain faithful to the positive evidence in their input that null objects are permitted in referential contexts. If children were to choose either dialect wholesale, they would be required to discard either forms or features that appear in their input. Yet by making piecemeal decisions, they are able to remain maximally faithful.

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