

Comments on the acquisition of complementation in Portuguese

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The four acquisition papers in this volume deal with different facets of complementation in the L1 and L2 development of Portuguese. The backdrop for two of these papers is an earlier study by Santos, Gonçalves & Hyams (2016) that looked broadly at the question of which complement types are acquired earliest by European Portuguese-speaking (EP) children and why.

Recognizing that a verb may select for a variety of complement types (and Portuguese is especially rich in this regard), Santos et al. wanted to see which complements children would use when given a choice in a sentence completion task. The children were told a story accompanied by pictures and then asked to complete a lead-in sentence with the complement of their choosing. The verbs in the lead-in allowed for various complement types including finite indicative, subjunctive, inflected infinitive, Raising to Object (RtO), among others. The guiding assumption was that the complement types that children used most often were easier for them and hence mastered earlier than those which occurred less frequently in their answers.

In the current volume, Agostinho, Santos & Duarte investigate children's comprehension of control in European Portuguese (EP), complementing the production study just described. Gonçalves, Santos, Duarte and Justino replicate a portion of the Santos et al. production study in children acquiring Mozambican Portuguese, (MozP). Silva's contribution looks at a different aspect of complementation, how children interpret null and overt subject pronouns in indicative and subjunctive complements. Finally, Madeira's study investigates the acquisition of inflected infinitives by Spanish and Chinese L2 learners of EP, evaluating competing hypotheses concerning the degree to which adult L2 learners can successfully acquire structures not available in their L1.

Collectively, these papers represent a substantial contribution to the literature on children's development of complementation, and they considerably broaden the empirical base

of research into Portuguese L1 and L2 acquisition, specifically. As would be expected, some of the findings and claims raise additional questions, especially as regards the status of principles like the Single Argument Selection Hypothesis (SASH) and the Complete Functional Complement Hypothesis (CFC) (Santos et al. 2015), discussed below, and the possible influence of extra-grammatical factors such as frequency, as well as processing and pragmatic effects in the acquisition of complementation. In what follows I offer some brief remarks on these issues. My comments are intended to open up areas for discussion in the hope of pushing forward this ambitious research program on the acquisition of complements in Portuguese and also possibly extending it to other languages.

Universal biases: SASH and the CFC in European and Mozambican Portuguese

A central finding of Santos et al. (2015) was that EP children (ages 3-5) showed a preference to produce finite complements and inflected infinitives over other complement types. EP-speaking children used inflected infinitives both in target and non-target environments, a somewhat surprising result given the typologically marked nature of this construction. These preferences showed up alongside a general avoidance of both raising-to-object (ECM) and object control complements. These results led Santos et al. to formulate two hypotheses concerning children's biases in representing complement structure. The first – the *Single Argument Selection Hypothesis* (SASH) – pertains to argument structure and says that a verb selects only one internal (propositional) argument. The second – the *Complete Functional Complement Hypothesis* (CFC) – applies to syntactic structure and proposes that children's propositional complements are 'complete functional complements', defined as complement clauses whose subject values its structural Case feature through agreement with a probe inside the clause. SASH and the CFC provide an account of why children eschew complement structures with more than one internal argument, for example, object control structures as in (1a), in favor of the structure in (1b) with the object DP *os patinhos* (the ducklings) reanalyzed as the subject of an inflected infinitive clause (a single argument and a complete functional complement). [Note that the preposition *de* which marks the onset of an embedded clause occurs before the DP the

ducklings in (1b), in contrast to the adult target in (1a)]. Sometimes the children mistakenly marked the embedded DP with nominative case, as in (1c).

- (1) a. A mãe pata proibiu [os patinhos] [de ___ ir(em) ao pé do crocodile]. (target)
the mother duck forbade the ducklings PREP go-INF(.3P) close to+the crocodile
- b. A mãe pata proibiu [de os patinhos irem ao pé do crocodile]. (age 5;01)
the mother duck forbade PREP the ducklings go-INF.3P close to+the crocodile
'The mother duck forbade the ducklings to go close to the crocodile'
- c. O pai proibiu eles irem para o lago.
The father forbade they go-INF.3PL to the lake
'The father forbade them to go to the lake.'
(target: O pai proibiu-os de irem para o lago)

Similarly, the CFC leads them to generally avoid raising-to-object (RtO) complements under causative (and perception) verbs as in (2a), in contrast to adults, and to produce inflected infinitive complements (also possible in the adult language) as in (2b):

- (2) a. A mãe deixou {os/os miúdos} comer os bolos.
the mother let-CL.Acc/ the kids eat-INF cakes
'The mother let them/the kids eat cakes.'
- b. A mãe deixou {eles/os miúdos} comer(em) os bolos.
the mother let they.NOM/ the kids eat-INF.3PL cakes
'The mother let them/the kids eat cakes.'

In other instances children produced uninflected infinitive complements that lacked an overt causee (e.g. *(O pai) mandou ___ empurrar o carro* - the father let.3S ___ push-INF the cart), grammatical, but pragmatically odd in the context of the test. Santos et al. analyze these as clausal complements containing a PRO_{arb} in embedded subject position, a structure also consistent with SASH and the CFC.

Gonçalves et al. (this volume) carry out the same sentence completion task with children acquiring Mozambican Portuguese, though they limit their attention in this paper to complements under causative verbs. MozP is close to EP in relevant respects, allowing inflected infinitives and RtO under causatives, as well as an innovative structure (not previously documented and not possible in EP) that Gonçalves et al. analyze as a pseudo-relative. Similar to the EP results in Santos et al, Mozambican 3-5 year olds conform to the predictions of SASH and the CFC. They overwhelmingly prefer inflected infinitives (59% of responses) (and uninflected infinitives without overt cause – 26% of responses) over RtO (6% for 3&4 year olds and 11% for 5 year olds).

Gonçalves et al. suggest that principles like SASH and the CFC have potential implications for the direction of language change. MozP is a variety of Portuguese spoken as an L1 by a minority of the population in Mozambique and as an L2 by a part of the population that has a Bantu L1. The authors note that if SASH and the CFC are universal biases in acquisition then we expect structures conforming to these principles to be preserved under language change and those that don't to be under less pressure to persevere. And indeed, as we have seen, inflected infinitives are robustly present in this new variety of Portuguese while RtO, though still preserved, seems to be strongly dispreferred in complements to causatives.

An interesting question concerns the behavior of the adult controls in this study. As Gonçalves et al. describe them, the 18 adults participants were university students “having Portuguese as their L1 or L2, but who were in any case highly instructed in Portuguese.” (p. 10) The adult results were also largely in line with SASH and the CFC; adults most often produced finite subjunctive complements under causatives (47.5% of responses), followed by the inflected infinitive (25.6%), and substantially fewer RtOs (5.6%). It would be instructive to know whether the response rates differed among the adults who acquired MozP as an L1 and those who acquired it as an L2, either as children or as adults. The results of such an analysis would speak to the issue of whether the same biases that are found in L1 acquisition also operate in L2 acquisition (e.g. White 1996), and also whether there are age effects in L2 acquisition (child vs. adult L2ers) with respect to these principles (e.g. Schwartz 2003). Though there are

probably too few adults in this study to get a significant result, future studies might investigate this question.

What about frequency?

Despite the converging results from two varieties of Portuguese in support of SASH and the CFC, many questions remain. For example, do children differ from adults with regard to their complement preferences? We just noted that the adult MozP speakers showed the same preference for inflected infinitives over RtO as children. We might therefore infer that inflected infinitives are also more robust in the input to children and thus that the MozP (and EP) complement preferences are an effect of input frequency rather than innate structural biases. However, such an explanation would not get very far. For one thing, it would fail to explain why the by-far most frequent structure chosen by adults (close to 50%) – the finite subjunctive – was virtually never (re)produced by the children. Subjunctive complements were totally lacking in children below age 5 and reached 6.3% in 5 year olds. The converse is also true – children produced a high rate (>30%) of infinitives with no overt causee, which was exceedingly rare among the adult responses. Similar observations hold for the EP results in Santos et al., who also provide many examples of structures that are nowhere to be found in the input, for example, the sentence in (1b).

It is a commonplace observation that input frequency/matching accounts fail to explain children's innovations. It has also often been noted that when children "match" adults in terms of frequency, this relationship need not be causal. Rather, both children and adults might be constrained by similar factors. However, equally problematic for frequency accounts are cases in which children fail to produce structures that are highly frequent in adult language. This is especially difficult to explain when – as in this case – the subjunctive structure children avoid occurs in the same syntactic environment as the inflected infinitive structure they embrace. The MozP (and EP) results on children's complement selection clearly show that input frequency is not determinative of acquisition order or ease, and that such frequency effects that may exist are clearly mediated by the child's analytic biases. In other words, children may be sensitive to frequency but only for those structures that are grammatically accessible to them.

Having said that it should be noted that children's late development of subjunctive complements is not accounted for by SASH or the CFC. The finite subjunctive is a complete functional complement in the sense defined above. We'll return to the subjunctive below.

SASH and a verb-centric parser

Much previous research on children's parsing strategies, as measured in eye-tracking experiments, has shown that children rely very heavily on the selectional properties of verbs to resolve structural ambiguities. Trueswell et al. (1999) have demonstrated that given a temporary attachment ambiguity in sentences like *Put the frog on the napkin in the box*, children have a strong preference to interpret the prepositional phrase *on the napkin* as the goal of *put*, even when the accompanying scene (viz. two frogs one on a napkin) supported the alternative, modifier interpretation. This bias is so strong that even when the ambiguity is resolved, upon presentation of *in the box*, children's eye movements and actions show that they are unable to revise their initial parse. In some instances the children moved the frog to the napkin and then hop it to the box. Studies of this sort show that for children verb-specific lexical properties, especially complement selection, take precedence over other, more top-down types of parsing considerations that operate in adult parsing (see Trueswell & Gleitman 2004 for review of relevant studies). Moreover, children are known to track and use syntactic frame information to help them learn the meanings of verbs, so-called 'syntactic bootstrapping' (e.g. Gleitman 1990).

The hypothesis that children assign a single internal argument to verbs which in the target language select two internal arguments (SASH) would seem to run counter to all the evidence that 5-year olds rely almost exclusively on verb argument structure to inform their parsing decisions. If children are closely tracking verb information, why would they systematically ignore the evidence in the input telling them that object control verbs, for example, select more than one argument (cf. (2))? On the other hand, the results from MozP and EP point squarely in the direction of an initial predisposition to assume a single (clausal) complement. Is there a way to reconcile these conflicting findings? Gonçalves et al. suggest, roughly following ideas of

Kirby (2011), that adhering to SASH lessens the number of theta roles to be assigned (fewer internal arguments) which, according to Kirby, is a cognitively costly operation. Thus, a reduction in cognitive load might trump the verb-centric parsing strategies. However, this explanation does not jibe with the findings concerning ditransitive verbs like *put* which also assign multiple theta roles. Perhaps clausal arguments have a different status, something that might be explored in an eye-tracking experiment of the sort that has been carried out with ditransitive verbs like *put*. It would be interesting to see if on-line results mirror the behavioral data in EP and MozP.

Control in EP: Intervention vs. SASH

In their elicited production study, Santos et al. (2015) found that children produced few object control complements, strongly preferring inflected infinitives instead. This is in accordance with SASH (and the CFC, as inflected infinitives are complete functional complements) (cf. 1a,b)). We might therefore expect children to have problems in their comprehension of object control as well.

Agostinho, Santos and Duarte (this volume) tested 3 to 5-year olds on their interpretation of subject and object control, the first study of its kind in European Portuguese. They tested the predictions of SASH and the CFC. They also tested intervention-type accounts (e.g. Orfitelli 2012), which under a movement theory of control (MTC) (Hornstein 1999) predict that children will do fine with object control verbs like *proibir* ‘forbid’ (no intervener to cross over) (3a), but will have difficulty with subject control verbs like *prometer* ‘promise’, which select an (intervening) object in addition to a sentential argument, as in (3b).

- (3) a. A pato proibiu o esquilo ___ de saltar.
 The duck forbade-IND.PST to.the squirrels for jump-INF.
 ‘The duck forbade the squirrels to jump.’
- b. O galo promete ao coelho ___ cozinhar o jantar.
 The rooster promises-IND.PRES to.the rabbit cook-INF the dinner
 ‘The rooster promises the rabbit to cook dinner.’

Poor performance with *promise*-type verbs is also predicted by SASH. More specifically, the principle leads us to expect that children will reanalyze the object of *promise* (i.e. *o coelho* in (3b)) as the subject of the embedded clause, giving rise to an “apparent” object control reading. On the other hand, we expect that children will do well on *forbid*-type verbs, under a similar object-to-subject reanalysis, but which in this case has no effect on interpretation. So children should get control with *forbid*-type verbs right but for the wrong reason.

Agostinho et al. claim that the two approaches (intervention vs. SASH) make different predictions with respect to how well findings will generalize across verbs. Intervention is a structural constraint so it predicts that children will be uniformly biased towards object control. Under SASH children’s responses might be more variable because argument structure has to be learned on a verb-by-verb basis. Indeed, Agostinho et al. found that children do show different success rates with different verbs, and also that “verb” is a factor in the GLMM model they produced. Their results also show children incorrectly chose the subject as controller for object control verbs 20-30% of the time (depending on age)(cf. (3a)), which, they maintain, is also not predicted by a structural intervention-type account. To explain the high rate of subject control Agostinho et al. appeal to two factors: (i) Children must learn the control properties of individual verbs, whether subject or object control, and (ii) there may be a processing advantage to subject control over object control (Boland et al. 1990). However, it seems to me that both these factors are independent of SASH and intervention, and might be at play under either scenario.

Thus, it is not immediately obvious what the 20-30% subject control with object control verbs mean. On its face SASH does not directly predict subject control responses to *forbid*-type verbs, as Agostinho et al. also point out. In fact, subject control in this case should be impossible; if SASH coerces the direct object of *forbid* into an embedded subject (cf. 1), there is no PRO for the matrix subject to control. So what exactly is the source of the subject “control” interpretation?

Let me offer a speculation. As Agostinho et al. note, under the object-to-subject conversion induced by SASH, object control readings are only apparent; children derive the adult interpretation but by different rules. But suppose that SASH can be satisfied in more than

one way. One option is the object-to-subject conversion already discussed, leaving only a clausal argument. A second option is for children to keep the DP argument and get rid of the clausal complement. For example, they might reanalyze the complement as an adjunct. The high attachment of a VP adjunct makes the matrix subject the only possible controller for PRO, hence the subject control error. This suggestion harkens back to the various high attachment hypotheses proposed, for example, by Solan & Roeper's (1978) 'highest S hypothesis, Tavakolian's (1977) 'conjoined clause analysis' (see also Goodluck & Tavakolian 1982, and more recently, Trueswell et al. 2011). The idea behind these hypotheses is that flatter structures are easier for children to process, lending conceptual support to Agostinho et al.'s suggestion that children's subject control responses are due to a processing bias (cf. Boland et al. 1990).

It's also interesting to observe that whatever option is chosen to satisfy SASH any potential intervention problem for *promise*-type verbs disappears. Either the object is analyzed as an embedded subject, resulting in an apparent object control reading, or the clausal argument becomes an adjunct resulting in a subject control reading, but different from the adult's. We might therefore think of SASH not as a mechanism for reducing cognitive load (Gonçalves et al.) or even as universal bias in the sense intended by Santos et al., but rather as a heuristic for circumventing intervention (on the assumption that intervention plays a role in control (Hornstein 1999; see also Mateu 2016).

Left unexplained by this proposal is the apparent cross-linguistic difference in children's performance in this area. Years of research into English-speaking children's comprehension of control (through act out and judgment tasks) have shown that object control is acquired very early and with few errors (e.g. McDaniel, Cairns & Hsu 1991; Cairns, McDaniel, Hsu & Rapp 1994; Cohen Sherman & Lust 1992). More recently, Mateu (2016) found that both English- and Spanish-speaking 4-6 year olds children are nearly target-like on control with *tell/ordenar* 'order' in a truth value judgment task (TVJT). If SASH is a universal bias and if high S attachment is a mechanism to satisfy SASH (or avoid intervention), why do we see subject control responses in EP but not in English or Spanish object control sentences? One possibility is that there is some sort of interference from inflected infinitives, which are also selected by verbs like *prohibir* 'forbid', and which are also object control complements. Control of the subject of the

inflected infinitive in this case is exceptional; in other structures, the subject of an inflected infinitive has free reference (4b) (example from Madeira, this volume).

- (4) a. O pato proibiu [os esquilos [para _ saltarem].
The duck forbade-IND.PST the squirrels of jump-INF.3PL
'The duck told the squirrels to jump.'
- b. O Pedro lamenta [__ terem mentido].
the Pedro regret-PRST.IND-3SG have-INF.3PL lied
'Pedro is sorry that they lied.'

In EP, but not in English or Spanish, both PRO and *pro* are subject to obligatory control (albeit the latter in only complements to object control verbs). In addition, EP verbs like *prohibit* 'forbid' also select for finite indicative and subjunctive complements with different grammatical and pragmatic constraints operating on the embedded *pro* subject in each case, as discussed below (cf. 10, 11). Sorting out the properties of the different empty categories might contribute to the protracted development of object control in EP. Santos et al. (2015) refer to this as the 'multiple frames problem.'

The CFC hypothesis and raising

Let me now discuss the complete functional complement hypothesis (CFC) in more detail. An important finding in both MozP (Gonçalves et al.) and EP (Santos et al. 2015) is that children strongly disprefer RtO responses (cf. 1a), producing inflected infinitives (1b) instead, though both are possible in the respective adult targets. The CFC is intended to account for this finding, viz. children want the subject of the complement clause to value its structural Case feature though agreement with a probe inside the clause. The Portuguese results seems to run counter to Kirby (2011), who argues that English-speaking children have no difficulty with RtO (and in fact misanalyze object control verbs as RtO verbs). It is important to bear in mind, however, that Kirby's study tested comprehension while the Portuguese studies involve elicited

production. It is therefore fully possible that children understand RtO, though avoid it if given a chance.

Having said that, the CFC leads us to expect that children will also avoid raising to subject (RtS) – at least in production. Orfitelli (2012) shows that as far as comprehension is concerned English-speaking children (ages 4 to 6) have no difficulty with RtS with predicates like *about to*, *going to*, and *tend*, performing well above chance at all ages. These predicates, in contrast to *seem*, do not select an intervening experiencer object (cf. 5a,b).

- (5) a. Cookie Monster seems to Ernie to love cookies.
- b. Cookie Monster is about/going/tends (*to Ernie) to eat cookies

Thus, while children show a delay in adultlike understanding of raised sentences with *seem* (Hirsch, Orfitelli & Wexler 2007; Orfitelli 2012, 2016), Orfitelli shows that what separates good and poor performance in RtS by children under 6 years old is the presence vs. absence of an intervening argument predicted by her Argument Intervention Hypothesis (AIH), which says ‘children are delayed in acquiring those structures which require A-movement across a structurally intervening argument’. There is no general constraint against RtS in comprehension.

Orfitelli also conducted a CHILDES study of children’s (and adult interlocutors’) spontaneous production of RtS (McWhinney & Snow 1985), both with *seem* and the other raising predicates mentioned above that do not select an experiencer argument. Her results showed that adults tend to raise subjects; 76% of their 260 *seem/appear* sentences had a raised subject. Children showed the opposite pattern; of their 33 *seem* sentences 65% were unraised (6a), 35% raised (6b) (examples from Orfitelli 2012).

- (6) a. It seems that there should be a line that goes up in the mountains.
- b. This doesn't seem to go anywhere in the puzzle

This result is consistent with the CFC insofar as children tend to favor unraised *seem* sentences, contrary to what they hear in the input, viz. children prefer a structure in which the

embedded subject values its structural Case feature through agreement with a probe inside the (lower) clause. This result is also consistent with the AIH proposed by Orfitelli.¹

Mateu (2016), however, found a different result in Spanish RtS constructions with *parecer* ‘seem’, one of whose variants does not take an experiencer argument – which she refers to as ‘bare’ *parecer*. In this case no intervention effects are expected (see Mateu for discussion). In a TVJT task the children aged 4 to 6 performed at nearly adult rates (around 89%) with bare *parecer* with a raised subject. Similarly, in production (CHILDES) 78% of their bare *parecer* sentences had a raised subject, as in (7a), even though the unraised (7b) is fully grammatical (see note 1).

(7) a.

Thus, spontaneous production data (as well as judgment data) from RtS in both English and Spanish suggest that children are willing to violate the CFC. On the other hand, an intervention account along the lines proposed by Orfitelli (2012), and also assumed by Mateu (2016), will not explain the tendency of Portuguese-speaking children to avoid RtO, where there is obviously no intervener (cf. (2a)).

Inflected infinitives in L2 acquisition

Although inflected infinitives are typologically marked, occurring in only a very few languages (e.g. Portuguese, Galician, Sardinian), they have been shown to be a default complement type for children, due to pressure from SASH and the CFC, by hypothesis. It would therefore be interesting to know whether inflected infinitives are an early development in adult L2 learners

¹ Orfitelli’s CHILDES results for other raising predicates – those that do not take an experiencer, including, *be about*, *be used*, *tend*, *be likely*, went in the opposite direction. Both children (and adults) overwhelmingly produced raised subjects, as in (i) (from Orfitelli 2012). This is as predicted by intervention accounts. And it is also consistent with the CFC insofar as most of these predicates do not have an alternative conforming to the CFC (*be likely* is an exception) (cf. ii).

(i) He used to be in Mommy’s school.

(cf. * It used to that he was in Mommy’s school.)

(ii) Ernie is likely to visit Bert.

(cf. It is likely that Ernie will visit Bert.)

Thanks to Ana Santos for bring this to my attention.

acquiring EP. We would expect this to be the case if the biases shown by children still operate in adulthood, all else being equal.

Madeira tested Spanish- and Chinese-speaking L2 learners on their knowledge of the (morpho-)syntax and interpretive properties of inflected infinitives in EP. In a morphological recognition task subjects were tested on the agreement paradigm, and whether they would accept inflected infinitives with nominative subjects (grammatical) and in finite contexts (ungrammatical). In a second 'context task' Madeira tested subjects on their recognition of verbs that select inflected infinitives vs. those that don't. Finally, the interpretation task looked at L2ers' antecedent preferences for pronouns and null subjects (*pro*) of inflected infinitives. Though all antecedents are possible, native speaker controls prefer a local subject antecedent for *pro* (*my parents* in (8)) and a discourse antecedent for overt pronouns (*some friends* in (8)). This is also the pattern for finite complements. The following example is from Madeira.

- (8) Ontem o meus pais foram jantar com uns amigos. Os meus pais ficaram aliviados
'Yesterday my parents went out to dinner with friends. My parents were relieved
por *pro*/eles chegarem a horas ao restaurante. (*pro*= meus pais; eles=uns amigos)
for *pro*/they-NOM arrive-INF.3PL at hours at.the restaurant
'because they arrived at the restaurant on time.' (*pro*=my parents; eles = some friends)

Madeira's results showed that advanced L2 learners did well on the first two tests and beginning learners much less well. Because L2ers were able to learn the essential (morpho-)syntactic properties of inflected infinitives, she concludes that 'deficit' models of L2 acquisition (e.g. Tsimpli & Mastropavlou 2007) are wrong and that the results support full access (to UG) models (e.g. Schwartz and Sprouse 1996).

The subjects were less target-like with respect to interpretation. Simplifying somewhat, the results showed that (in examples like (8)) the Chinese L2ers showed no preference for local vs. discourse antecedents for the null subject of the inflected infinitive, and both L2 groups showed no strong preference for local vs. discourse antecedent for overt pronouns. Madeira concludes that L2ers have a harder time acquiring interpretive properties than (morpho-)syntax, and takes this as support for the Interface Hypothesis (Sorace 2011), which says 'discourse-related

interpretive properties will be acquired (by L2 learners and bilinguals) later than narrow syntactic properties.

It seems clear that the Chinese- and Spanish-speaking L2 learners in this study acquired the inflected infinitive, arguing against deficit models. But the results do not necessarily support full access models. The strongest argument for UG access is based on the ‘poverty of the stimulus’ (e.g. Schwartz & Sprouse 2013), that is, evidence that the L2 learner has acquired something that cannot be learned from the input. The (morpho-) syntax of the inflected infinitive and the contexts in which it is selected are mostly learnable on the basis of input/positive evidence. And the gradualness of the acquisition, viz. the difference in performance between beginning and advanced L2ers, is consistent with learning (though this in itself is not an argument against access). The results of the interpretation task provide a somewhat better argument for access insofar as knowing when to avoid an overt pronoun might require negative evidence. However, the pragmatic conditions under which *pro* vs. overt pronouns are felicitous in EP are more or less the same as in finite indicative clauses in Romance in general. Hence, for the Spanish speakers at least these results might provide a better argument for the transfer part of Full Transfer-Full Access (Schwartz & Sprouse 1996).

A much stronger case for UG access could be made by showing that the L2 learners have acquired more abstract properties of the inflected infinitive. Interestingly, Madeira discusses various properties of inflected infinitives that are not so obviously learnable from the input: (i) Raising is possible from subject position of an uninflected infinitives, but not from an inflected infinitive (9a); (ii) the null subject of an inflected infinitive does not permit a sloppy identity reading under ellipsis (9b); and (iii) inflected infinitives are incompatible with a single event reading in sentences like (9c) and must be associated with a generic reading (9d) (Iverson & Rothman 2008).²

- (9) a. As meninas parecem gostar(*em) do filme
the girls appear-PRES.IND-3PL like-INF (*3PL) of.the film
The girls appear to like the film.’ (Rothman 2009)

² Rothman (2009) tested A-movement properties of inflected infinitives in L2 learners of Brazilian Portuguese, and Iverson & Rothman looked at the genericity constraint, illustrated in (9c,d), in this same population.

b. Lamento teres reprovado no exame e a Isabel também

regret-PRST.IND.1SG that have-INF.2SG failed in.the exam and the Isabel also'

'I am sorry that you failed the exam and Isabel is too (=Isabel is sorry that you failed the exam vs. #Isabel is sorry that she failed the exam) (Pires 2006)

c. *Penso lerem o journal

think-PRST-IND.1SG read-INF.3PL the newspaper

'I think that they read the newspaper.'

d. Penso lerem jornais todos os dias.

think-PRST-IND.1SG read-INF.3PL newspapers all the days

'I think that they read newspapers every day.'

A follow up study looking at some or all of these properties in L2 learners of EP could strengthen the conclusions and support for UG access models. I will discuss the implications of the L2 findings for the Interface Hypothesis below.

Obviation effects in subjunctive complements

Silva's contribution to this volume discusses EP-speaking children's interpretation of null and overt pronoun subjects in indicative and subjunctive complements. Using a truth value judgment task (with y/n questions), she found that with indicative complements (10a) children (ages 3-6) tend to overaccept disjoint reference between the embedded *pro* subject and the matrix subject and they also overaccepted coreference between the embedded overt pronoun subject and the matrix subject. Both of these response types are dispreferred by adults, but are not ungrammatical. When an indirect object was added (10b), children happily accepted the indirect object as antecedent for *pro*, again grammatical but dispreferred by adults, and they also accepted the indirect object as antecedent to an embedded overt pronoun, in line with adult preferences.

- (10) a. O príncipe disse que *pro/ele* espirrou?³
'The prince said that *pro/he* sneezed.'
- b. O príncipe disse ao bombeiro que *pro/ele* espirrou?
'The prince said to the fireman that *pro/he* sneezed.'

On their face the results suggest that children are not all that sensitive to the discourse principles governing the choice of antecedent for null and overt subjects in indicative complements. However, they more often accepted the dispreferred reading with overt subjects than with null subjects, prompting Silva (like Madeira) to interpret the results as supporting the Interface Hypothesis (Sorace 2011). I return to this point below.

With subjunctive complements, children clearly were not sensitive to the grammatical constraint against coreference between the embedded pronoun (whether null or overt) and the matrix subject (11), so called obviation effects, and freely allowed coreference in both cases.

- (11) *O pirata_i pediu que *pro/ele_i* saltasse?
'The pirate requested that *pro/he* jumped.' (= the pirate asked to jump)

The children seemed to recognize the difference between subjunctive and indicative contexts in that they allowed coreference between the embedded null subject and the matrix subject far more readily in indicative complements (between 70-90%) than in subjunctives (20-30%). Their ability to distinguish the two complement types may be based on strictly morphosyntactic cues, for example, agreement morphology. As Silva notes, "the ability to distinguish between the indicative and subjunctive is not enough to assure full mastery of the subjunctive obviation" (p.45). What children seem not to know (assuming Raposo's 1985 analysis) is that subjunctive tense is anaphoric on the matrix tense and hence that the binding domain is extended to include the higher clause. However, this would not explain why they are much less likely to allow coreference in subjunctives than indicatives, as just noted.⁴

³ Silva was careful to provide two possible discourse antecedents (e.g. the fireman and the prince), so the matrix subject was not the only possible antecedent for *pro/overt* pronoun.

⁴ Thanks to Ana Santos for pointing this out.

An alternative interpretation is that they know the extended binding domain, but freely chose an illicit antecedent for the pronoun for the same reason they do so in simple indicative clauses, viz. *Ernie washes him*: They either don't know or fail to compute Rule I – the constraint against local coreference (cf. Grodzinsky & Reinhart 1990; Avrutin & Wexler 1999/2000). Silva's finding of a roughly 30% local coreference rate in EP subjunctives is consistent with local binding rates in simple indicative clauses in English and other languages (e.g. Chien & Wexler 1990).

If children don't know the binding properties of subjunctive clauses their problem is syntactic. If they know the binding domain, but are unable to carry out the reference set computations that would block a local antecedent, then we might assume their problem is in the computing of pragmatic information (cf. Grodzinsky & Reinhart 1990). One way to tease apart these alternatives is to follow Chien & Wexler's lead (and also Avrutin and Wexler who looked at obviation in Russian) and test pronoun resolution with quantified antecedents, as in (12).

- (12) *Todos os piratas_i pediram que *pro*_i saltassem?
Every pirate requested that *pro* jumped.SUB.3PL.
(= every pirate asked to jump)

If children know the syntax of subjunctives and obviation (but have difficulty with computing coreference), then they will not allow a quantified subject as antecedent to *pro* in (12) (in contrast to their behavior with (11)). They will only allow a discourse antecedent. Importantly, however, it is necessary to first establish whether children's poor performance with *pro*/overt pronouns is purely syntactic or a function of interface computations, before the subjunctive results can be taken as support for the Interface Hypothesis.

The Interface Hypothesis: Evidence from Portuguese?

Both Silva (for L1) and Madeira (for L2) appeal to the Interface Hypothesis (IH) to explain learners' non-targetlike pronoun resolution. Silva's finding is that EP-speaking children do worse with overt pronouns than null pronouns in indicative and subjunctive complement .

Madeira shows that L2 learners do worse with both *pro* and overt pronouns in inflected infinitives than with the morphosyntactic properties and takes this as support for the IH (following Sorace & Filiaci 2006).

The canonical argument for the IH comes from precisely the null/overt asymmetry that Silva finds (e.g. Belletti, Bennati & Sorace 2007). Silva lays out the reasoning that renders such results compatible with the IH: *pro* is a weak deficient pronoun licensed in the syntax, e.g. by inflection (e.g. Cardinaletti & Starke 1999; Holmberg 2005 among others). On the other hand, the licensing of overt pronouns (and strong pronouns in general) is ‘post-syntactic’, as their interpretation is dependent on discourse context. The post-syntactic operation may involve an evaluation of alternative derivations (in the manner of Reinhart 2004) with respect to something along the lines of Chomsky’s (1982) Avoid Pronoun Principle.

However, as Silva also notes (her note 17), although the licensing of null subjects is considered to be syntactic, their interpretation is restricted by discourse. In a similar vein Madeira points out that null subjects of inflected infinitives (as is also the case for null subjects in finite clauses) favor antecedents that are highly prominent in the previous discourse, generally the local subject position. Overt pronouns (and strong pronouns, in general), by contrast, prefer less prominent antecedents, i.e. in object position or previous discourse. The notion of *prominence* is clearly a discourse construct, which makes the division of *pro* and overt pronouns into syntax and post-syntax/interface, respectively, rather suspect as an explanation for the learners non-targetlike behavior with overt pronouns.

More generally, these two very interesting papers highlight a deeper challenge facing the IH, which is that for any particular syntactic (or discourse-interpretive property) that is being evaluated, it is not clear a priori what its comparison set should be. For Silva, for example, the relevant comparison to evaluate the IH is between null and overt pronouns while for Madeira, the contrast is between pronoun interpretation (null and overt) and morphosyntax. In the case of null vs. overt pronouns, the comparison set is quite intuitive. But more broadly, if the prediction is that syntactic property x will be acquired earlier than interface property y, how are the values for x and y to be determined? As any beginning linguist has

learned, just because [h] and [ɲ] are in complementary distribution in English, it does not follow that they are allophones of the same phoneme – precisely because they are not “relevantly alike” in terms of features or whatever. But how do we determine when syntactic property x and interface property y are “relevantly alike” such that their uneven acquisition can be construed as support for the IH. To my knowledge the IH does not specify the relevant features, and hence has no predictive value.

The acquisition papers in this volume add substantially to our understanding of children’s acquisition of Portuguese, and the development of complementation more generally. It is to be hoped that similar studies of complementation patterns in early language will be carried out in other languages so that the various hypotheses presented here can be put to further empirical test.

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