

THE SYNTAX OF NULL SUBJECTS IN L2 SPANISH: COMPARING TWO L2 POPULATIONS UNDER DIFFERENT EXPOSURE

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ABSTRACT. *The purpose of this article is two-fold. First, via a critical review of available studies on the adult L2 resetting of the Null-Subject Parameter (NSP) and in light of a typologically wide sampling of languages, we conclude that the NSP cluster is much narrower in scope than is reflected in the design and discussion of most L2 studies. Secondly, we present original research on the L2 resetting of the NSP by two groups of adult English intermediate learners of L2 Spanish: a study-abroad group and a class-room only group. We seek to quantify the extent to which study-abroad experience, that is, increased exposure to native input, is beneficial specifically as it relates to the acquisition of new functional features needed for parameter re-setting (cf. Isabelli 2004). Despite the observable and clandestine linguistic benefits to study-abroad, our data suggest that for the resetting of the NSP, at least, such exposure to native input is not particularly gainful.*

KEYWORDS. *Null-Subject Parameter, Overt Pronoun Constraint, second language acquisition, naturalistic input, Universal Grammar.*

RESUMEN. *Este artículo trata de dos temas interrelacionados. Primero, hace un recuento crítico de los estudios disponibles que han investigado la posibilidad de reconfigurar el Parámetro de Sujeto-Nulo (NSP) por parte de los adultos. Al considerar información tipológica de una variedad de lenguas, concluimos que el grupo de propiedades sintácticas del NSP consiste de menos propiedades que se reflejan en el diseño y discusión de la mayoría de estudios de L2. En segundo lugar, presentamos datos originales de la reconfiguración L2 de dos grupos de estudiantes angloparlantes de español como segunda lengua: uno que ha estudiado en el extranjero y otro que solo ha recibido instrucción en los EEUU. Pretendemos cuantificar el grado hasta el cual la experiencia de estudiar fuera de los Estados Unidos, es decir, estar más expuestos al input nativo, es específicamente beneficioso para adquirir rasgos funcionales necesarios para reconfigurar parámetros (cf. Isabelli 2004). A pesar de las ventajas lingüísticas tanto observables como ocultas relacionadas con el estudio en el extranjero, los datos sugieren que para la reconfiguración de NSP, por lo menos, tal exposición al input nativo no es particularmente beneficiosa.*

PALABRAS CLAVE. *Parámetro de Sujeto-Nulo, Restricción de Pronombre Overt, la adquisición de segunda lengua, input nativo, la Gramática Universal.*

1. INTRODUCTION

This article has two primary goals. First, we couple a review of previous L2 studies on the adult resetting of the Null-Subject Parameter (NSP) with a discussion of properties from a typologically wide range of languages in an effort to see what this tells us about the NSP cluster of properties. With others, we take the position that the NSP cluster is more limited than originally proposed (see also Rothman and Iverson 2007a, 2007b). It almost goes without saying that determining which properties comprise the NSP is of no small consequence to language acquisition studies that investigate the acquisition of this parameter. After all, the extent to which the theoretical proposals of any empirical methodology are flawed questions the reliability of the results themselves and by extension the validity of any claim made based on them. In the present case, if it is reasonable to argue, as we will, that the licensing of null subjects, correlating to the so-called positive setting of the Null-Subject Parameter (NSP), clusters only with null expletives and restrictions on semantic interpretations in line with the Overt Pronoun Constraint (OPC) then we need not deal directly with L1/L2 Spanish differences in the domains of subject/verb inversion and *that*-trace violations, as others do. This is not, however, an uncontroversial position to take and thus must be justified on theoretical and empirical grounds, which we do throughout the article.

Secondly, this study is motivated by the intuitive notion that study-abroad is particularly beneficial for parameter resetting in light of increased exposure to native input. Since exposure to input is needed for grammatical restructuring insofar as input is the primary data from which the target functional lexicon is acquired, it is logical to assume that increased exposure to naturalistic input for adults conveys beneficial returns at the level of grammatical system competence (i.e., at the level of underlying syntax; see Isabelli 2002, 2004). However reasonable the previous claim seems, such a notion must not be taken for granted for several reasons, not least of which is the fact that it has wide implications for language acquisition theorizing and adult language learning as well as the fact that it makes predictions that can, and should, be straightforwardly tested. One of these predictions is that L2 learners at similar levels of proficiency and with similar linguistic backgrounds, save for the fact that one group has lived abroad while the other has not, should yield differences at the level of syntactic and related semantic knowledge. We assume that if increased exposure to naturalistic input via studying abroad were to provide gainful benefits at the level of grammatical competence, such gains would confer quantifiable results under experimental investigation when comparing L2 learners who have and have not spent a significant time studying abroad in a target language environment. Building on our previous work (Rothman and Iverson 2007a, 2007b), this is precisely what we test in the present study.

It is important to keep in mind that the theory of Universal Grammar (UG) is one of linguistic triggering as opposed to learning alone. Although it is not clear how much triggering data (or what type, i.e., naturalistic vs. classroom input) is needed to re-set parameters for adults (if at all possible; see Tsimpli and Roussou 1991; Miesel 1997;

Hawkins and Chan 1997; Beck 1998; Hawkins 2005), it is practical to speculate that, for certain properties, large amounts of triggering data from naturalistic input are not required, a point upon which we elaborate in following sections (see Rothman and Iverson 2007b). Nevertheless, it is reasonable to think that study-abroad programs benefit L2 learners linguistically in a broad sense. However, it is not immediately clear, beyond observable effects on conversational competence and gains in socio-cultural pragmatic knowledge, the degree to which this type of exposure is necessary or particularly profitable with respect to the acquisition of new L2 features and thus if it positively affects underlying syntactic competence.

We provide data from two experimental groups whose L1 is English and whose L2 is Spanish. The groups' overall linguistic profiles are similar except that one group was tested in Spain after 5 months of living there and the second group was tested after an equally long semester of university major-level Spanish courses in the United States. The data suggest that parameter resetting is possible in adult L2 acquisition; however, our data do not indicate any specific advantage for study-abroad exposure in terms of morphosyntactic parameter resetting, at least for the Null-Subject Parameter (NSP). As such, our data come to bear on two issues in current SLA theorizing: (1) the role of UG and the ability to reset parameters after the critical period and (2) the extent to which input type matters in the acquisition of particular syntactic properties.

This article is set up in the following manner. The next section presents background literature, inclusive of the NSP and its so-called cluster of properties. The section that follows this examines the status of the NSP properties via their instantiation in a wide sampling of languages as well as a discussion of the findings of previous NSP L2 studies. Finally, the empirical study, which tests for the effects, if any, of study-abroad on the resetting of NSP, is presented.

2. BACKGROUND LITERATURE

2.1. *Theory: The Logical Problem of Language Acquisition*

Over the past 50 years or so, generative linguistics has called attention to the gap between primary linguistic input and the ultimate grammars children predictably attain. Chomsky (1965, 1986, 1995) and others have referred to this as the *logical problem of language acquisition*. Determining how children come to acquire their native grammar so completely and effortlessly in spite of exposure to incomplete and inconsistent input is the principal question of modern linguistics. Grammatical knowledge that obtains despite the fact that evidence for it is largely unavailable from the input (and is not transferable from the L1 or explicitly taught to L2 learners in the case of adults) is known as *poverty-of-the-stimulus* (POS). Standard generative linguistic assumptions consider POS knowledge to be incontrovertible evidence in support of linguistic nativism. Under a biological theory of grammar, POS effects are reasonably explained by assuming

children do not learn all aspects of their language, but that they are born with much of the underlying structure of language. Accordingly, humans are presumed to be genetically endowed with a highly differentiated mental sub-system specific to language. This system provides the structure of natural language, constraining in a maximal and minimal manner the forms natural languages can take. In this sense, the biological linguistic system economizes the process of language learning by *a priori* delimiting, streamlining and guaranteeing the acquisition of however many languages one has sufficient exposure to as a child (see Hyams 1986; Guasti 2002; Lust 2006). Universal Grammar (UG) is this biological linguistic endowment that genetically provides principles and parameters of grammar, the former being universal constraints and the latter being principles of grammar that allow limited options in terms of how they can manifest in particular grammars. In a modern sense, language-to-language differences or different parameter values obtain from how particular grammars differ at the level of functional categories and their related features (Chomsky 1995). Consequently, language acquisition is considered to be a coupling of innate knowledge that is in part triggered by the acquisition of features and their values encoded in the functional lexicon of the ambient language.

As evidenced by a comparison of normal first language (L1) and typical adult second language (L2) acquisition, the outcomes and process of the latter are unmistakably different. Whereas L1 acquisition is characterized by uniform success across individuals, L2 acquisition is typified by variation/optionality. It is not clear, however, what underlies these important differences. On the one hand, it has been argued that L2 variability obtains as a result of inevitable differences in L2 narrow syntax, as claimed by theories of adult L2 global and local impairment alike (Bley-Vroman 1990; Clahsen and Hong 1995; Hawkins and Chan 1997; Meisel 1997; Beck 1998; Tsimpli 2003; Hawkins 2005; Hawkins and Hattori 2006; Tsimpli and Dimitrakopoulou 2007). On the other hand, hypotheses that assume full access to UG maintain that L2 variability represents problems at the level of processing in a broad sense. In any case, the argument is that L2 variability obtains outside the narrow syntax. Strong support for this latter position is the fact that the *logical problem of language acquisition* is extensible to adult L2 acquisition as well (see Gregg 1996; White 2003). For example, contemporary research has demonstrated knowledge of POS semantic entailments at various levels of adult L2 proficiency (e.g. Pérez-Leroux and Glass 1999; Dekydtspotter and Sprouse 2001; Montrul and Slabakova 2003; Dekydtspotter et al. 2004). Standard assumptions within generative acquisition maintain that knowledge of new POS properties entails that the L2 learner has restructured his/her underlying grammatical system, re-setting the parameter to which the POS property is related. Following the ascribed logic, POS effects in L2 acquisition provide strong evidence for UG involvement in adult L2 acquisition (cf. Schwartz and Sprouse 2000; Schwartz 2003). Accordingly, much contemporary research has shifted its attention to L2 variability in an effort to isolate the variables involved that result in inconsistent levels of success in adult L2 acquisition despite full accessibility to UG. Much of this research is concerned with examining the hypothesis that interfaces (e.g. syntax/morphology, syntax/semantics and

syntax/pragmatics), which are simply more complex given the necessary integration of information from distinct linguistic modules, are vulnerable in adult acquisition and account for much of the characterizing adult L2 variability (e.g. Lardiere 1998, 2006; Prévost and White 1999, 2000; Papp 2000; Sorace 2000, 2003, 2005; Unsworth 2004, 2005; Goad and White 2006; Sorace and Filiaci 2006; Rothman 2007).

Assuming that adults continue to access UG in its entirety, it is reasonable to presume that L2 acquisition has at least three components, two of which are internal and the third external. The internal components include access to UG and the transferred L1 grammar (but see Epstein et al. 1996, 1998). The external component is the available target L2 input, which includes explicit positive and negative evidence in the case of a tutored learner. The Full Access/Full Transfer model proposes that the transferred L1 grammar provides all initial hypotheses for the developing L2 grammar (Schwartz and Sprouse 1994, 1996; White 1989). Through the course of inter-language development the L2 target input is parsed against the transferred L1 system. When a parsing failure occurs –when the L1 system cannot account for particular data provided by the L2 input– grammatical restructuring is motivated via an accessible UG inventory. Therefore, access to the target language input, which provides the learner exposure to the L2 functional lexicon, is crucial insofar as it provides the features necessary for grammatical restructuring. Seen this way, the only reasonable explanation of the logical problem of L2 acquisition is simultaneously the strongest evidence in favor of full adult-UG continuity. That is, knowledge of L2 POS properties, which, like in L1 acquisition, cannot be explained as a surface phenomenon nor can they be accounted for by frequency or statistical learning, provides unambiguous evidence that parameter resetting is possible after the critical period, which in turn must mean that L2 functional features remain accessible past the Critical Period.

2.2. *The Null-Subject Parameter*

The notion of parameterization has been influential since its genesis (Chomsky 1981) for several reasons. Most significantly, in accounting for the association of seemingly unrelated structures it explains how children acquire languages with such relative ease and rapidity, overcome the *poverty-of-the-stimulus* (POS) as well as the existence of cross-linguistic similarities with respect to clusters of properties of otherwise typologically unrelated languages.

The Null Subject Parameter (NSP) (Chomsky 1981; Jaeggli 1982; Rizzi 1982, 1986) and its so-called cluster of properties have been studied extensively over the past three decades. Essentially, the NSP divides languages into two types: pro-drop languages ([+ null-subject]) are those like Spanish which allow for subject pronouns to either be pronounced or not in discourse whereas non-pro-drop languages, such as English, require subject pronouns to always be phonetically articulated. It has been argued that the Spanish-type value of the NSP comprises a well-known cluster of derived properties, as in (1) with corresponding examples in (2).

- (1) a. the co-occurrence of null and overt subject pronouns in tensed clauses
 b. obligatory null expletive subjects
 c. free subject-verb inversion
 d. no *that*-trace effects
 e. the instantiation of the Overt Pronoun Constraint (Montalbetti 1984)
- (2) a. *Yo hablo francés. pro hablo francés.*
 b. *pro hace mucho viento. *Ello hace mucho viento.*
 c. *Ellas se fueron. Se fueron ellas.*
 d. *¿Quién crees que no sabe bailar? *¿Quién crees ___ no sabe bailar?*
 e. *¿Quién_i dice que él_{*ij} tiene mucho dinero? vs. ¿Quién_i dice que pro_{ij} tiene mucho dinero?*

Properties (1a) – (1d) are exemplified to a greater or lesser degree directly in the input. However, property (1e), the Overt Pronoun Constraint (Montalbetti 1984), is not readily inducted from the input. The OPC is a universal principle of grammar instantiated in null-subject grammars only and thus is clearly an NSP clustered property. In [+ null-subject] grammars, the OPC blocks sentence internal co-reference interpretations (a bound variable interpretation) between overt embedded subjects and matrix clausal subjects that are variable expressions, that is, quantified determiner phrases (QDPs) or *wh*-phrases (as opposed to non-quantified DPs and NPs). However, if the embedded subject is overt but the matrix subject is a simple DP, there is no restriction on co-reference. Moreover, if the matrix subject is a QDP or *wh*-element, but the embedded subject is null there is no blocking of the BV interpretation. In other words, embedded null subject pronouns can be co-referential with any c-commanding subject in a higher clause while embedded overt subjects can only be co-referential with a c-commanding DP/NP subjects that have a fixed referent. The OPC restriction can clearly be seen in (3).

- (3) a. **Every student_i** knows that **he_{ij}** must study hard to pass the exam.
 b. **John_i** knows that **he_{ij}** must study hard to pass the exam.
 c. *Cada estudiante_i sabe que él_{*ij} debe estudiar mucho para pasar el examen.*
 d. *Cada estudiante_i sabe que pro_{ij} debe estudiar mucho para pasar el examen.*
 e. *Juan_i sabe que él_{ij} debe estudiar mucho para pasar el examen.*
 f. *Juan_i sabe que pro_{ij} debe estudiar mucho para pasar el examen.*

As per the OPC, (3c) is the only sentence in which co-reference between the matrix clause subject and the embedded subject is grammatically blocked. Since English is a [-null-subject] language there is no such semantic restriction as can be appreciated by the equal ambiguity of embedded subject co-reference for sentences (3a and b). Children and adults alike receive no negative evidence in regards to [**QDP/wh_i...* [overt pronoun_i]] sentences from natural Spanish input nor do adult learners receive relevant explicit teaching in regards to this highly specific restriction (cf. Kanno 1998; Pérez-Leroux and Glass 1997, 1999). As a result, the instantiation of the OPC in Spanish

grammars, whether native or non-native, embodies clear POS knowledge as its instantiation is dependent on its relationship to the positive value of the NSP.

If the version of the NSP represented in (1) is correct, pro-drop languages by definition should allow for both overt and null referential subjects in all clauses (although their distributions are regulated pragmatically), null expletives obligatorily, free subject-verb inversion, no *that*-trace restrictions and be subject to appropriate semantic restrictions in OPC environments. Conversely, the opposite should be true for non pro-drop languages. As we will see in the next section, while this is true for most Romance languages, such is not the case universally, which has resulted in the long-standing debate with respect to the status of the so-called derived properties of the [+null-subject] value.

Assuming, only for the moment, that (1) accurately represents the NSP cluster, the general idea is as follows. Children only need to realize that their languages syntactically licenses null-subjects to converge on all other properties. How does this occur? Most proposals have called attention to the rich inflectional affixes of Spanish verbal morphology as being directly related to the licensing of null subjects. In contemporary linguistic terms, this means that Spanish verbal inflectional morphology has the same nominal features ([+ interpretable set of ϕ -features]) as English pronouns, which means that the Extended Projection Principle (EPP), a universal principle of grammar that requires all verbs have an interpretable associated subject is satisfied via verb raising alone (V-to-T) without the presence of an overt nominal subject (e.g. Alexiadou and Agnostopoulou 1998).¹

In the next section, we join others in arguing that the NSP as represented in (1) is not accurate. We support this argumentation via a survey of several conflicting particular grammar properties as well as a review of previous L2 research on the resetting of the NSP.

3. THE NSP REVISITED

In this section, we provide evidence from particular grammars and L2 acquisition studies to support the notion that the NSP consists only of two (minimally) or three (maximally) properties: i) the licensing of null-subjects, ii) instantiation of the OPC, and iii) obligatorily null expletive subjects.² As we will discuss, there is good evidence suggesting that properties (i) and (ii) are related and despite some cross-linguistic evidence to the contrary, we will remain somewhat neutral on whether or not property (iii) is related to null referential subject licensing.

3.1. *Cross-linguistic Evidence*

The original conception of the so-called NSP cluster of properties, as in (1), was conceived of primarily with languages such as Italian and Spanish in mind (Rizzi 1982; Jaeggli 1982). Thus, it is not surprising that in most null-subject Romance languages the co-occurrence of all the NSP properties described in (1) holds. However, it is not terribly

difficult to find counter-evidence to the universality of the original NSP cluster once a typologically broader cross-section of null-subject languages is examined. As is cursorily exemplified in this section via evidence from several languages, there is strong cross-linguistic evidence suggesting many, if not most, of the properties in (1) that observably co-occur in Spanish do not all derive from the setting of one parameter, the NSP. Keeping in mind the theoretically explanatory value of parameters and their clusters of properties in that they help explain how children overcome the task of linguistic learning in light of impoverished and ambiguous input, the cross-linguistic evidence presented herein is of no small consequence. That is, a parametric cluster is only a proper cluster if, within reason, all languages that share the same value of any given parameter exemplify the cluster of properties argued to derive from that parameter setting. If properties can be bundled together under one parameter setting and this is *a priori* determined by UG, then failure of a particular grammar to instantiate one or some of the so-called clustered properties can only mean one of two things: (a) that the grammar is not a natural UG-sanctioned grammar or (b) the cluster of properties needs to be redefined. In the case of L2 grammars, it is easy to conceive of (a) as a possibility and argue based on lack of clustering that L2 grammars are not UG-governed. But such a position is only theoretically tenable insofar as the cluster of properties is uncontroversially defined. Conversely, a similar argument could not be made of an entire language, and so if natural grammars present reliable counter-evidence to claims with respect to properties of clusters than the cluster in question needs to be re-worked.

Such is the case for the NSP cluster in (1). For example, it is not true to claim that all pro-drop languages disallow overt expletive subjects. European Portuguese, Galician and Old French allow(ed) for the possibility of overt expletive subjects (Arteaga 1994; Raposo and Uriagereka 1990). In fact, even some dialects of Spanish, like Dominican Spanish, allow for the overt pronoun *ello* as the subject of verbs that take expletive subjects like *llover* (Toribio 2000), as in (4).

(4) *Ayer, ello llovió mucho en el campo.*

Additionally, the converse is also not accurate, which is to say, there are non-pro-drop languages which employ null expletive subjects such as German and Swedish in first position (Safir 1985), but do not allow for null referential subjects, at least when they are not in specific environments (i.e., topic-drop position).

Furthermore, earlier work by Auwera (1984) on subject and non-subject asymmetries in the relativization of embedded NPs indicated that the relation between extraction of subjects and phonetically empty subjects has to be re-defined. In the same vein, it has been demonstrated that there are languages with empty subjects in finite clauses which do not allow subject placement at the right edge of the clause (Grewendorf 1986; Adams 1987), while, conversely, there are languages that allow subjects at the right edge of the clause, but disallow null subjects (Müller and Rohrbacher 1989). While it may be the case that the absence of *that*-trace effects pertains to null-subject languages

in general, its connection to null-subject licensing has been questioned as well (Safir 1985; Jaeggli and Hyams 1988; Jaeggli and Safir 1989) under the observation that pro-drop languages are not the only languages from which *that*-trace effects are absent. As can be seen in (5), some non pro-drop languages, such as Dutch, allow for subject extraction over the complementizer *that*/*dat* whereas others, like English, do not.

- (5) a. *Who did you think [_{CP} t' [_C **that** [_{IP} t would win]]]
 b. *Wie denk je* [_{CP} t' [_C **dat** [_{IP} t *gewonnen heeft*]]]

However, we do know that the OPC restriction in (3) does not obtain in any non-null subject languages and that all null-subject languages, that is, not just Romance ones, have the semantic restriction detailed in (3). As a result, it is reasonable to claim that the OPC is directly associated to null-subject licensing and that true null-subject grammars must conform to OPC restrictions on BV interpretations in relevant contexts.

3.2. Previous L2 Research

Sustained in large part by its purported cluster of derived properties, the surfacing of which was thought to be able to provide clear evidence in favor or *in contra* adult parameter resetting, there has been no shortage of studies on the L2 acquisition of NSP properties (e.g. White 1985, 1986; Hilles 1986, 1991; Phinney 1987; Licerias 1989; Miesel 1991; Tsimpli and Roussou 1991; Clahsen and Hong 1995; Davies 1996; Vainikka and Young-Scholten 1996; Al-Kasey and Pérez-Leroux 1998; Licerias and Díaz 1999; Isabelli 2004; Montrul and Rodríguez-Louro 2006). Despite the fact that they adopt different versions of the NSP and/or investigate different properties, they report relatively similar findings from which generalizations can be made. For example, some studies pay particular attention to the emergence/use of Rizzi's (1982) cluster of properties (White 1985, 1986; Phinney 1987; Licerias 1989, Tsimpli and Roussou 1991; Isabelli 2004) as compared to others that investigate the tenability of the Morphological Uniformity Principle (Hilles 1991; Davies 1996). Still others focus in on the acquisition/use of null versus overt subject pronouns (Licerias and Díaz 1999; Montrul and Rodríguez-Louro 2004; Rothman 2007) while others, under the assumption that morphology drives syntax, explore the developmental relationship of null-subjects to the acquisition of subject-verb agreement morphology (Meisel 1991; Clahsen and Hong 1995). As a whole, previous research does not provide unequivocal evidence in favor of clustered transfer—initial transfer of all the so-called NSP clustered properties of the L1 applied to the L2—nor does it provide clear evidence of clustered acquisition—the surfacing of all the clustered properties at the same time.

Since proof of the mere existence of the NSP as well as the possibility of its resetting is crucially conditioned on the emergence of its clustered properties, the latter observation has spawned debate as it relates to the interpretation of the significance of available data. The fact that the so-called clustered properties do not all seem to emerge at the same time, if at all, in L2 acquisition might suggest that UG is inaccessible to adult

learners; however, learners do acquire null-subjects and use them in environments that are ungrammatical in their L1. This provides evidence that they acquire the syntactic features that enable the licensing of *pro*, which should be impossible if UG in its entirety or simply its features not selected by the L1 are inaccessible (but see Tsimpli and Roussou 1991; Licerias and Díaz 1999). Some have argued that the clustering of properties does not hold in L2 acquisition despite UG-continuity whereby the NSP properties must be learned on a one-to-one basis (e.g. Ayoon 1999; Isabelli 2004). Another possibility to consider is that some, maybe most of the purported properties do not actually derive from the setting of the NSP to the Spanish value, but are merely co-occurring properties in Spanish. With others, it is our contention that this is the most explanatory option.

Assuming full transfer of the L1 system, the observation that there is not always clear evidence for clustered transfer supports the notion that the NSP cluster of properties is narrower in scope than some contend. Furthermore, arguing that clustering does not take place in L2 acquisition is an *ad hoc* response to data, obliged by the assumption that the cluster includes all of the properties in (1). That is, if reasonable evidence exists to suggest that while all these properties co-exist in Spanish, they do not all derive from the licensing of *pro*, the fact that some emerge later than null-subjects in L2 Spanish grammars tells us nothing about the status of the NSP itself.

In the above section, we presented evidence from a sampling of languages that question the macro-version of the NSP cluster, as in (1). In what follows we present the generalizations from the above cited studies on the L2 acquisition of Spanish by adult learners whose L1 is not a pro-drop language (e.g. English, French and German):

- I) Adult learners of L2 pro-drop languages whose L1s are non pro-drop languages produce and interpret null subjects (both referential and expletive subjects) from very early stages. Since null referential subjects and null expletive subjects emerge early in L2 grammars it is possible that they are associated with one another, which is to say the acquisition data is essentially neutral. However, one must keep in mind the fact that tutored learners are taught lexically which verbs take null expletive subjects. Furthermore, early learners, at least tutored ones, have no lexical Spanish equivalent for the English 'it'. Once they learn clitics, however, there are attempts to use clitics as expletive subjects (see Al-Kasey and Pérez-Leroux 1998).
- II) In spite of generalization (I), mastering the L2 discursive distribution of null and overt subject pronouns is much more difficult, and distributional differences seem to linger even through advanced levels of proficiency (Montrul and Rodríguez-Louro 2004; Rothman 2007). This, however, can be explained as a syntax/pragmatics interface problem and does not necessarily result from differences at the level of narrow syntax (see e.g. Rothman 2007; Sorace and Filiaci 2006).

- III) It has been demonstrated that learners use null-subjects before they accurately produce verb inflectional paradigms (e.g. Meisel 1991). At first glance, this could be taken as evidence that there is no L2 null subject/ agreement morphology relationship, meaning that L2 null-subject are represented mentally in a different manner than they are for native speakers. Such a conclusion, however, is only necessary if one assumes that morphology drives syntax. Conversely, following Lardiere (1998, 2006), Hazdenar and Schwartz (1997), Prévost and White (2000) and many others it is possible that the necessary features have been acquired without their proper mapping onto their overt morphological forms, a problem at the syntax-morpho-phonology interface. Since the acquisition of the syntactic features is what licenses null-subjects, it is not clear what the lack of accurate overt morphological production use tells us in this case.
- IV) It has been consistently demonstrated in empirical data that L2 learners of Spanish whose L1 does have *that*-trace restrictions on *wh*-subject extraction accept *that*-trace sequences at chance levels in Spanish at beginning levels—providing neutral evidence as it relates to L1 transfer—and improve slowly through advanced stages (e.g. White 1985, 1986; Liceras 1989; Isabelli 2004) well past the time that they demonstrate knowledge of null-subjects, null expletives and clear knowledge of the OPC (Rothman and Iverson 2007a, 2007b). In fact, they do not seem to improve at any significant rate in this regard even after study abroad experiences of 9 months (Isabelli 2004). This strongly suggests that *that*-trace sequences do not cluster with null-subject *pro*.
- V) L2 learners of Spanish whose L1 does not have subject-verb inversion in declaratives reject such sentences at the beginning stages, accept them slightly above chance by the intermediate stage and continue to improve gradually throughout development. Isabelli (2004) demonstrated that increased exposure to native input at the intermediate level in study-abroad contexts does result in increased acquisition of this property, however, much later than the acquisition of null-subject pronouns. Like knowledge of *that*-trace sequences, the gradual acquisition of subject-verb inversion in declaratives past the time that other properties are acquired provides evidence against the idea that this property clusters with the licensing of null subjects.
- VI) Crucially, L2 learners of Spanish show native-like knowledge of OPC restrictions on interpretation by the intermediate stages of interlanguage development, both in production and interpretation (Pérez-Leroux and Glass 1999; Rothman 2007; Rothman and Iverson 2007a, 2007b). Importantly, they show knowledge of this *poverty-of-the-stimulus* (POS) property before demonstrating determinate knowledge of the lack of *that*-trace effects and subject verb inversion despite the fact that these other properties are exemplified in the input.

Taken together, the above mentioned generalizations coupled with evidence from a wide sampling of particular grammars suggest that the NSP cluster does not include lack of *that*-trace effects and subject-verb inversion in declaratives. Crucially, cross-linguistic and acquisition evidence demonstrates that the OPC is unquestionably a property that clusters with null-subject licensing. Despite its POS status, knowledge of the OPC emerges relatively early (Pérez-Leroux and Glass 1999; Rothman and Iverson 2007a, 2007b) in L2 interlanguage confirming that clustered properties do not need to be acquired on a one-to-one basis after the Critical Period (as it is not clear how the OPC could thus ever be learned). As a result, L2 OPC knowledge provides evidence supporting the position that subject-verb inversion and the lack of *that*-trace effects are not NSP clustered properties since native-like knowledge of OPC restrictions, the only so-called clustered property that is completely unavailable from the input, surfaces before the other two. This has obvious implications for the L2 acquisition studies discussed. Immediately, one is able to dispense of the notion of gradual parameter resetting in L2 acquisition since the majority of available data demonstrate that the remaining properties are acquired at roughly the same time.

In the remainder of this article, we present the empirical study, which tests the hypothesis that study-abroad experiences are advantageous specifically in terms of accessing universal linguistic properties (Isabelli 2004).

4. SIGNIFICANCE OF PRESENT STUDY

Like Isabelli (2004) and Rothman and Iverson (2007a, 2007b), the present study investigates the role of increased positive input provided by study-abroad experience in regards to its beneficial effects on triggering universals via the acquisition of NSP properties. Isabelli tested this hypothesis by examining the acquisition of null-subjects (referential and expletive), subject-verb inversion in declaratives, and lack of *that*-trace effects by intermediate English learners of L2 Spanish through the course of a nine-month study-abroad program in Barcelona, Spain. Her data indicate that the L2 learners had already acquired null-subjects (referential and expletive) prior to their arrival in Spain and that they improved in terms of their knowledge of subject-verb inversion only, although they never achieved native-like accuracy. In line with our view of the NSP, we believe her data is consistent with the cluster of NSP properties we assume. Although she contends that her data provide evidence in support of the notion that increased exposure to native input of study-abroad experiences is beneficial, if not required, for the accessing of NSP properties, we do not interpret her data as demonstrating that such native exposure is particularly gainful nor necessary to reset the NSP specifically. In theory, we agree with many of her assumptions. Most importantly, we agree that UG constrains L2 acquisition in general, that parameter resetting is possible, that access to high-quality triggering data is crucial and that naturalistic learning contexts provide increased amounts of native input and are thus extremely beneficial. However, as previously alluded to, it is not clear that this input

serves to trigger UG any more than limited target input received in the classroom or other non-study abroad contexts. Although the learning of the target lexicon and morphology is crucial for the acquisition of new L2 features, we join Rothman and Iverson's (2007a, 2007b) contention that copious amounts of relevant input are not needed to reset particular parameters. As it applies to adult L2 learners in a tutored context, this implies that parameter resetting should occur as long as the ambient input contains the proper data, whether or not the input is native or overly abundant and irrespective of where it occurs.

Rothman and Iverson (2007a, 2007b) replicated Isabelli (2002, 2004) study employing a modified methodology, which included various tests for OPC restrictions. They demonstrated that NSP parameter could be reset, inclusive of *poverty-of-the-stimulus* OPC knowledge, by the intermediate level of proficiency, although there was variation in this regard at the individual level. Nevertheless, their data revealed that NSP resetting occurred in most cases prior to the study-abroad experience and that the increase in native input did not prove gainful by the end of 5 months in Spain for those who had not previously reset the NSP. Interestingly, Rothman and Iverson's conclusions were different from Isabelli's despite the fact that both data sets were similar on the measures that were comparable. The difference in conclusions between the two studies has to do with theoretical differences in what properties they contend constitute the NSP cluster of properties. Notwithstanding, both make claims with respect to advantages (or not) of added naturalistic input provided by study-abroad by comparing them to native controls only. We contend that another comparison is needed to support either Isabelli's or Rothman and Iverson's conclusions. In this study, we do just that by comparing the Rothman and Iverson groups (native control and study-abroad learners) to a group of intermediate L2 learners using the same battery of tests who differentiate from the study-abroad group by the fact that they have not had the study abroad experience. If there are significant differences between these groups then Isabelli's conclusion that study-abroad is particularly gainful for NSP resetting are confirmed and Rothman and Iverson's challenge of her conclusions are disconfirmed. If, however, the groups perform more or less the same, then the opposite will be confirmed.

5. METHODOLOGY

5.1. *Participants*

There are three groups of participants: the native control (n=8) and the study-abroad intermediate L2 learners (SAL2, n=30) are the same populations from Iverson and Rothman (2007a, 2007b). The third group is comprised of 24 L2 learners who did not study abroad, which we will call the classroom only intermediate L2 learner group (CLL2). The CLL2 group tested at the same levels of proficiency as the SAL2 learners (e.g. prior to their 5 months in Spain). Importantly, the CLL2 learners were enrolled in

Spanish major level courses during the semester after taking the proficiency test, that is, at the same time period and for the same length of time that the SAL2 learners were in Spain. Accordingly, the study abroad experience (i.e., access to naturalistic input) is the main variable that differentiates these two learner groups. The CLL2 learners were selected for participation if: (1) their L1 was English, (2) they were not bilinguals of [+null subject] languages nor was a [+null subject] language spoken in their home, (3) they completed two sets of tests: the first at the time of proficiency testing and another after their first semester of major level courses.

As reported in Rothman and Iverson (2007a, 2007b), the SAL2 learners were selected using the same criteria as the CLL2 learners except for the fact that criterion 3 took place in Madrid, Spain. These participants were enrolled in an intensive language program provided by the Centro de California at the *Universidad de Madrid, la Complutense* during the first month of residency. The intensive language program consisted of three daily courses corresponding to grammar, conversation and culture. During the academic year, the participants were obliged to enroll in mainstream courses taught for Spaniards at *la Complutense*.

The control group consisted of eight monolingual native Spanish speakers from Madrid. Spanish control participants were eliminated from the original pool if their first language was not Castilian or if they were proficient in English.

5.2. Procedure

Employing some of Rothman and Iverson's tests, we report data on two types of empirical tasks in an effort to best gauge the status of the NSP for the L2 subjects. The first task, a grammaticality judgment/correction (GJCT) was designed specifically to test for the same properties Isabelli examined, as seen in (1a-d). Although we have taken the position that the NSP cluster of properties consists maximally of null referential subjects, null expletive subjects and the OPC, we test for knowledge of subject-verb inversion in declaratives and Spanish *that*-trace sequences in an effort to be comparable to other studies as well as provide further evidence for our assertion that the NSP cluster does not contain these properties. The GJCT, examples which can be seen in (6)³, tested for all the properties (and counterbalances) associated with the NSP, as in (1a-d), except for the OPC (as in (1e) and (3)), which was tested separately in the second test. The GJCT required correction of sentences deemed ungrammatical. Additionally, if the L2 learner could not correct the sentence but believed it to be ungrammatical, there was an option to indicate this.

- (6) a. Null expletive subject
 *I think that *pro* is cold outside today. *pro* *Creo que pro* hace frío hoy.
 b. Null referential subject

Robert is very friendly. *We often say that *pro* is too nice for his own good.
Robert es muy simpático. A menudo pro decimos que pro es demasiado simpático.

c. Inverted subject

*Nobody knows that said it I. *Nadie sabe que lo dije yo.*

d. *Wh*-extraction (subject)

*Who_i did you say that t_i left early?/¿*Quién_i dijiste que t_i había salido temprano?*

The second test was designed to independently test for knowledge of the Overt Pronoun Constraint (OPC), as seen in (3). This test was a co-reference judgment-matching test modified from Kanno's (1998) OPC test for L2 Japanese. After reading sentences with QDP/or *wh*-matrix clause subjects with overt and null embedded subjects, the participants were asked to indicate immediately whether they derived a bound variable or disjoint referential interpretation for the embedded subject pronoun. Irrespective of the context, the OPC precludes co-reference interpretations in these sentence types only if the embedded subject is overt. Examples are provided in (7)⁴.

(7) Overt embedded pronoun (OPC forces (b) as the only answer)

¿*Quién ha dicho que él nunca se enfada?*

Who do you suppose never gets angry?

a) the same persona as *Quién*

b) otra persona

Null embedded pronoun with quantified/*wh* matrix subject (No OPC restriction; a and b are possible)

¿*Quién no sabe que pro tiene derecho a votar a los 18 años?*

Who do you suppose does not know that he has the right to vote at 18?

a) the same as *Quién*

b) someone else

5.3. Assessment

Native-like performance on these tasks entailed the ability to judge correctly the (un)grammaticality of null subject pronouns (expletives obligatorily and referential pronouns as regulated pragmatically), subject-verb inversion in declaratives, violating English *that*-trace effects, and adherence to the OPC in judging co-reference in relevant sentences. However, as it relates to the resetting of the NSP, it is not clear that the L2 learner would need to demonstrate target-like knowledge of all these properties or target-like knowledge of the distribution of null and overt pronoun use for one to claim that the parameter has been reset. This is true for two reasons. First, as we have discussed in detail, it is possible that the NSP does not include all of these properties. Moreover, since overt vs. null subject distribution is regulated by language specific pragmatic knowledge (i.e., not syntactically) language-specific discursive constraints must be learned separately. Second, it has been argued that parameter clustering does not hold in adult L2 acquisition (e.g. Ayoun 1999; Isabelli 2004). In either case, demonstrating native-like

knowledge of even some of these properties provides evidence in favor of the possibility of parameter resetting. A coupling of the data of both tests should bring much to bear on all of these possibilities, as we will discuss. Moreover, comparing and contrasting both L2 learner groups performance on these two tests enables us to comment more precisely on any possible effects that naturalistic learning environments has on syntactic competence specifically.

6. RESULTS AND DISCUSSION

In this section, the empirical results are presented. Here we report results from the second interval, which is to say, the tasks completed by the L2 groups after taking 5 months of major level classes in Spain or the US immediately after the initial proficiency testing. The results are divided into two parts, each one corresponding to one of the two tasks. Each section is further divided into three subsections, one giving a descriptive analysis of the data, another provides a statistical analysis and finally the third provides a discussion of the significance of the results of each test. For the statistical analyses, ANOVAs were used as initial measures, comparing the native speaker (NS), L2 study abroad (SAL2) and L2 classroom (CLL2) groups simultaneously. Follow-up tests were performed as needed. Two-sample t-tests were used for any intergroup comparisons, while paired t-tests were used for intragroup comparisons. For all statistical analyses, the alpha was set at 0.05 for a 95% confidence level. Any case where there was no variation in the two groups compared (and subsequently no statistical comparison was possible) is noted; however, the reader should keep in mind that in these cases, the two groups in question may have exhibited identical behavior and should consult the figure for the respective task to see the group averages.

6.1. Task 1 Results: The GJCT task

6.1.1. Descriptive Analysis

Task 1 tested for knowledge of particular properties traditionally associated/ clustered with the so-called pro-drop value of NSP. Figure 1 below presents the group averages of number of correct responses (out of 8, where 8 equals 100%) for a given category. A response was deemed correct if it was in line with the Spanish grammar, which permits both null (NSb) and overt (OS) referential subject pronouns, obligatory null expletive (NE) subjects (i.e., rejecting overt expletive (OE) subjects), canonical verb-subject (CSP) and subject-verb (SVI) word order in declaratives and lack of *that*-trace effects for *wh*-subject (Wh-sub) and *wh*-object (Wh-obj) extraction.

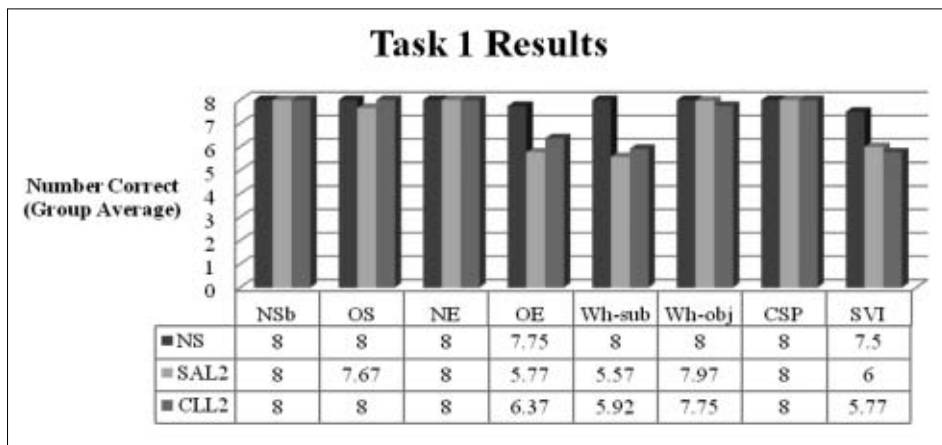


Figure 1. *Experiment 1: Grammaticality Judgment Correction Task*

NSb = Null Subject; OS = Overt Subject; NE = Null Expletive; OE = Overt Expletive; Wh-sub = *Wh*-Subject Extraction over a filled Comp; Wh-obj = *Wh*-Object Extraction over a filled Comp; CSP = Canonical Subject Position; SVI = Subject-Verb Inversion.

As can be seen from Figure 1, all three groups performed identically with respect to null referential subjects, null expletive subjects and subjects in canonical subject position. Additionally, the CLL2 group performs identically to native group in judging overt subjects, while the SAL2 group performs slightly below the native level. In the remaining categories, the CLL2 group approximates somewhat more closely the native control (compared to the SAL2 group) with overt expletives and *wh*-subject extraction; the SAL2 group approximates slightly greater target performance with *wh*-object extraction and subject-verb inversion. However, as can be seen in Figure 1, both L2 groups diverge from the control in the same three categories: OE, *Wh*-sub and SVI.

6.1.2. Statistical Analysis

Analyzing these results allow us to infer if either of the non-native groups actually performs in a native-like manner. In three of the categories (NSb, NE and CSP) all groups performed identically; so, while no statistical analysis is possible, one can confidently say that both the CLL2 and SAL2 groups exhibited native-like performances. Furthermore, the same situation arose between the CLL2 group and the NS group with respect to overt subjects, while despite slight variation by the SAL2 group, the difference did not yield any statistical distinction from either the NS group or the CLL2 group. ANOVAs indicated significant differences in all the remaining categories. The SAL2 group showed statistical deviation from the NS group when judging overt expletives, *wh*-subject extraction and subject-verb inversion. The CLL2

and the SAL2 performed statistically different from natives with respect to overt expletives, *wh*-subject extraction and subject-verb inversion. Additionally, the SAL2 and CLL2 groups statistically differed from each other only in the case of *wh*-object extraction, which was also true of the CLL2 and the natives. It is worth pointing out however, that this significant difference is more a reflection of the lack of any variability with *wh*-object extraction in the SAL2 and native groups. That is, the CLL2 performed quite well, which is not surprising since this is a property that is possible in L1 English. These statistical results are summarized in Tables 1a and 1b below.

	NSb			OS			NE			OE		
	<i>t</i>	<i>p</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>df</i>
ANOVA	*	*	61	0.53	0.6	61	*	*	61	3.37	0.04	61
NS vs. SAL2	*	*	*	1.00	0.33	35	*	*	*	4.56	<0.001	35
NS vs. CLL2	*	*	*	*	*	*	*	*	*	3.32	0.002	29
SAL2 vs. CLL2	*	*	*	1.00	0.33	51	*	*	*	1.1	0.28	51

Table 1a. *Single-category intergroup comparisons from Task 1*

* = incomparable (due to lack of variation on both groups' part); NSb = Null Subject; OS = Overt Subject; NE = Null Expletive; OE = Overt Expletive.

	Wh-sub			Wh-obj			CSP			SVI		
	<i>t</i>	<i>p</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>df</i>
ANOVA	4.55	0.02	61	4.01	0.023	61	*	*	61	3.56	0.04	61
NS vs. SAL2	5.65	<0.001	35	1.00	0.326	35	*	*	*	4.28	<0.001	34
NS vs. CLL2	5.35	<0.001	29	2.77	0.011	29	*	*	*	4.09	<0.001	29
SAL2 vs. CLL2	0.60	0.549	51	2.25	0.032	29	*	*	*	0.66	0.51	43

Table 1b. *Single-category intergroup comparisons from Task 1*

* = incomparable (due to lack of variation on both groups' part); Wh-sub = *Wh*-Subject Extraction over a filled Comp; Wh-obj = *Wh*-Object Extraction over a filled Comp; CSP = Canonical Subject Position; SVI = Subject-Verb Inversion

6.1.3. Discussion

The performances of both L2 groups are strikingly similar, which is confirmed by the statistical analysis we applied. Crucially, there are no significant differences across any categories between the two L2 groups. That is, both L2 groups performed either target-like or untarget-like in the same domains. Interestingly, both groups performed in an untarget-like manner on *wh*-subject extraction and subject-verb inversion in declaratives. Although we do not focus on differences across time here, it is interesting

to point out that for all categories there was no significant change in performance from interval 1 (pre-study) and interval 2 (after 5 months) for the SAL2 learners (see Rothman and Iverson 2007a, 2007b). This means that for both L2 groups, they already had determinate knowledge of null-subjects prior to the onset of this study and that the increase in naturalistic input exposure for the SAL2 did not prove gainful for the acquisition of these other properties. Since there is no quantifiable improved performance on the part of the SAL2 learners as compared to the CLL2, this supports the claims of Rothman and Iverson (2007a, 2007b), which question Isabelli's conclusion that increases in naturalistic input are particularly beneficial for NSP resetting.

So why do both groups perform in an untarget-like manner in the domains they do and what does this tell us about both the status of the NSP in their Spanish interlanguage and the cluster of properties? Importantly, most of the untarget-like performance is not unanticipated by our assumption of what the NSP cluster comprises. That is, the fact that both L2 groups have indeterminate knowledge of verb-subject word order in declaratives and lack of *that*-trace effects can follow from the fact that they are merely co-occurring properties in Spanish and are not related to null-subject licensing, which they seemingly have acquired straightforwardly. These are intermediate learners and so there is no reason *a priori* to believe that they will not come to acquire these properties throughout interlanguage development. The fact that they have not acquired these properties thus far merely indicates that the parameters with which these properties are associated have yet to be revalued at this point in the interlanguage continuum. We cannot, however, rule out the possibility that these are NSP properties, but they simply fail to cluster together after the critical period. Details aside, arguing that clustering does not hold in adult acquisition is problematic and theoretically undesirable for several reasons, least of which is not the fact that it essentially renders parametric learning indistinguishable from item learning (see Rothman and Iverson 2007b for detailed discussion). Data from Test 2, the OPC test, will enable us to rule this possibility out completely. For now, we can confidently say that the data from Test 1 is consistent with the minimal version of the NSP cluster of properties we have argued throughout and supports the claim that naturalistic exposure is not needed nor particularly helpful for NSP resetting.

There is, however, a lingering concern in the data. That is, what do the data suggest with respect to obligatory null expletive subjects as being part of the NSP? At first glance, the data are a bit contradictory in this regard. On the one hand, both L2 groups overwhelmingly accept null expletive subjects, which is impossible in their L1. However, they do not always reject overt expletive subjects, which is not acceptable in the Spanish dialects to which they are exposed. In section 3.1, we saw that not all null-subject grammars disallow completely overt expletives. We also saw that some non null-subject languages allow null expletives in certain position. It is not possible, however, that these L2 learners allow null expletives with a mental representation of topic-drop (in the sense of German or Swedish) since the expletives in the test sentences were not always in such environments, which would still indicate parameter resetting, albeit a wrong resetting. Since both groups of L2 learners crucially accept all instances of null

expletives and simply allow for some overt ones, we adopt Rothman and Iverson’s (2007b) analysis for this phenomenon, explaining this behavior as an extension of the well-known L1/L2 differences in discourse pragmatic knowledge with respect to constraints on the distribution of overt vs. null subject pronouns (see Montrul and Rodríguez-Louro 2004; Sorace and Filiaci 2006; Rothman 2007).

6.2. Task 2 Results: The OPC Experiment

6.2.1. Descriptive Analysis

Task 2 tested for knowledge of OPC restrictions on coreference/bound variable (BV) interpretations with a quantified determiner phrase or *wh*-matrix subject and an overt embedded pronominal subject. Figure 2 below presents the group averages of BV interpretations for three sentence types (n=10): 1) a QDP/*wh*-matrix subject with an overt embedded subject, 2) a QDP/*wh*-matrix subject with a null embedded subject and 3) a DP/NP matrix subject with an overt embedded subject.

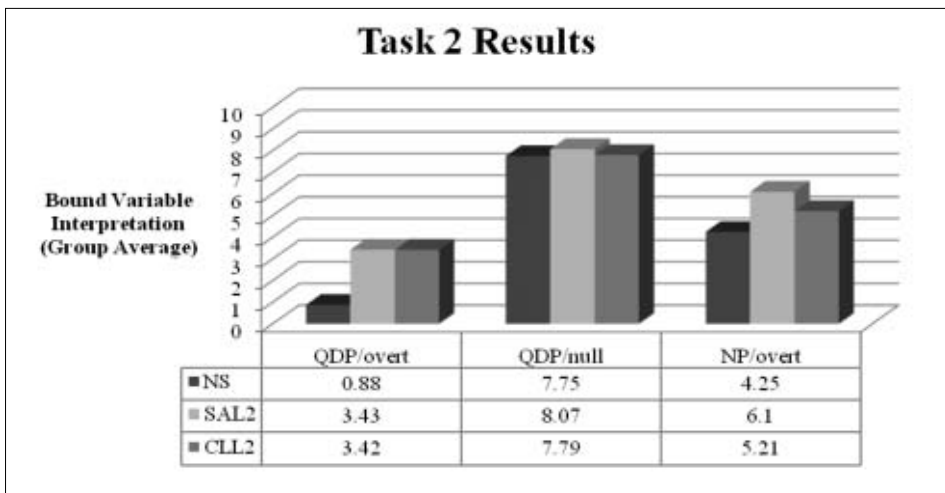


Figure 2. Results for the OPC Context Matching Task

QDP/overt = Quantified Determiner Phrase or *wh*-element (variable expression) matrix subject with an overt embedded-clause subject; QDP/null = Quantified Determiner Phrase or *wh*-element matrix subject with a null embedded-clause subject; NP/overt = Noun Phrase matrix subject with an overt embedded-clause subject

As seen from Figure 2, the NS group generally does not get a BV interpretation with a QDP/*wh*-matrix subject when the embedded subject is overt. Conversely, this reading becomes available, and even preferred, when the embedded subject is null or the matrix

subject is an NP. Both the SAL2 and CLL2 groups show this tendency, with the QDP/*wh*-matrix subject/overt embedded subject combination yielding the fewest co-reference interpretations. These interpretations become much more frequent when the embedded subject is null or the matrix subject is a DP/NP. These results are in line with previous research on the OPC at the intermediate level (e.g. Kanno 1998, Pérez-Leroux and Glass 1999; Rothman 2007).

6.2.2. Statistical Analysis

A series of statistical analyses were done to analyze the results from Task 2. First, a single-category intergroup comparison was performed, then an intragroup comparison and finally a differential intergroup comparison.

The first statistical analysis performed compared each group's performance to the other's in only a single category. That is to say, each group's rate of BV interpretations for the QDP/overt combination was compared to the other two groups; this same comparison was also done for the other two categories. An initial ANOVA showed differences in both sentences that had a QDP matrix subject with an overt embedded subject and those that had an NP matrix subject with an overt embedded pronoun. Follow-up tests were performed to see where these significant differences were found. In each case, both the SAL2 group and CLL2 group performance was statistically different from that of the natives. However, when the SAL2 group and CLL2 group were compared to each other, there were no statistical differences, indicating that they performed similarly. This information is summarized in Table 2 below.

	QDP/overt			QDP/null			NP/overt		
	<i>t</i>	<i>p</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>df</i>
ANOVA	3.39	0.04	61	0.27	0.77	61	3.14	0.05	61
NS vs. SAL2	4.6	<0.001	34	0.64	0.53	19	3.76	0.001	27
NS vs. CLL2	3.82	0.001	29	0.09	0.93	14	1.77	0.09	28
SAL2 vs. CLL2	0.02	0.98	46	0.65	0.52	51	1.53	0.13	48

Table 2. *Single-category intergroup comparisons from Task 2*

QDP/overt = Quantified Determiner Phrase or *wh*-element (variable expression) matrix subject with an overt embedded-clause subject; QDP/null = Quantified Determiner Phrase or *wh*-element matrix subject with a null embedded-clause subject; NP/overt = Noun Phrase matrix subject with an overt embedded-clause subject.

The second comparison performed was an intragroup comparison, comparing each group against itself. These comparisons tested for each group's distinction between categories, crucially examining if they made differentiations between cases

when co-reference interpretations were available and those when it was grammatically restricted by the OPC. Looking first at sentences with QDP/*wh*-matrix subjects, we analyzed whether distinctions in co-reference interpretations were made when the embedded subject was overt and when it was null. In this case, all groups made highly polarized statistically significant distinctions, indicating that they did indeed yield the expected contrast between overt and null subjects when the matrix subject was a QDP/*wh*-element. Next, looking at sentences in which the embedded subject was overt, we found that each group statistically differentiated between the possibility of a co-reference interpretation depending on whether the matrix subject was a QDP/*wh*-element or a DP/NP. Coupling these results together signifies that all groups do distinguish between contexts in which BV readings are blocked by OPC restrictions and those in which they are not. These results are presented in Table 3 below.

	QDP/overt vs. QDP/null		QDP/overt vs. NP/overt	
	<i>t</i>	<i>p</i>	<i>t</i>	<i>p</i>
NS	15.60	<0.001	8.04	<0.001
SAL2	7.98	<0.001	6.32	<0.001
CLL2	5.38	<0.001	2.26	0.034

Table 3. *Intragroup comparisons from Task 2*

QDP/overt = Quantified Determiner Phrase or *wh*-element (variable expression) matrix subject with an overt embedded-clause subject; QDP/null = Quantified Determiner Phrase or *wh*-element matrix subject with a null embedded-clause subject; NP/overt = Noun Phrase matrix subject with an overt embedded-clause subject.

The last statistical comparison done was an intergroup differential comparison. This examined the distinctions seen in Table 3 to see if they were comparable across groups. To do this, the average numerical difference between the two categories compared in Table 3 of one group was compared to that of another group. For example, the average numerical difference in co-reference interpretations yielded by the NS group between sentences with QDP matrix subjects and overt embedded subjects and sentences with QDP matrix subjects and null embedded subjects was compared against that same difference yielded by the SAL2 group. These comparisons were done for both pairs seen in the previous statistical analysis, namely between sentences with QDP matrix subjects when the embedded subject was either overt or null and between sentences with overt embedded subjects when the matrix subject was a either QDP or NP. An initial ANOVA indicated statistical differences in both instances, so follow-up tests were done. Results of these t-tests showed that there were significant differences between both the SAL2 and CLL2 groups and the NS group in distinguishing between sentences with QDP matrix subjects when the embedded subject was overt or null. However, the SAL2 group and CLL2 group were not significantly different from each other in this respect. Looking at distinctions between sentences with overt embedded subjects when the matrix subject

was either a QDP/*wh*- or NP revealed no significant differences between any groups. This signifies that all groups made this distinction similarly. These results are given in Table 4 below.

	QDP/overt - QDP/null			QDP/overt - NP/overt		
	<i>t</i>	<i>p</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>df</i>
ANOVA	1.74	0.18	61	1.7	0.35	61
NS vs. SAL2	3.08	0.004	30	1.19	0.25	22
NS vs. CLL2	2.7	0.011	29	1.76	0.09	29
SAL2 vs. CLL2	0.26	0.80	43	0.97	0.34	35

Table 4. *Differential intergroup comparisons from Task 2*

QDP/overt = Quantified Determiner Phrase or *wh*-element (variable expression) matrix subject with an overt embedded-clause subject; QDP/null = Quantified Determiner Phrase or *wh*-element matrix subject with a null embedded-clause subject; NP/overt = Noun Phrase matrix subject with an overt embedded-clause subject.

6.2.3. Discussion

As groups, the SAL2 and CLL2 perform differently than the native controls, which really amount to the fact that their distinctions were less polarized. Importantly, however, the groups clearly make the proper distinction in line with the OPC. Space limitations here do not allow us to explore what the individual data reveal in this regard in any great detail. However, it has already been reported by Rothman and Iverson (2007a, 2007b) that the tendency for the SAL2 group is not really a tendency, but a reflection of two subgroups: the majority of L2 learners which demonstrated native-like knowledge of the OPC and the minority which had tendency in line with English, that is a clear preference for BV interpretations where they are blocked by the OPC. We note in passing that this is also true of the CLL2 group we report on here and in a very similar breakdown (17 CLL2 learners make native-like OPC distinction while 7 do not at all).

Thus, we are able to confidently claim that L2 learners do acquire the OPC relatively early in interlanguage development despite its POS status. This is true of learners whether or not they have experienced significant time in a naturalistic target language environment. We conclude that L2 knowledge of the OPC confirms that the NSP has truly been reset and that clustering must take place in adult acquisition. The fact that many SAL2 and CLL2 learners have native-like knowledge of the OPC while they have indeterminate knowledge of subject-verb inversion in declaratives and lack of *that*-trace effects provides robust evidence that these properties do not cluster with null-subject licensing. Moreover, the fact that both groups perform indistinguishably at the group and individual levels supports the claim that study-abroad exposure, at least only one semester of it, does not confer an advantage at the level of grammatical competence, at least for the NSP.

7. CONCLUSIONS

In this article, we set out to accomplish two goals. First, we coupled a review of L2 NSP literature with evidence from a wide sampling of pro-drop and non-pro-drop languages to argue, in accord with other researchers, that the NSP consists of a maximum of three clustering properties, which exclude subject-verb inversion and restrictions relating to *that*-trace sequences. Moreover, the data we presented in the empirical portion of this article are consistent with both previous research on NSP resetting and the assertion that the NSP cluster is more limited than originally proposed. Second, we coupled together the L2 learners in a study-abroad context from Rothman and Iverson (2007a, 2007b) and compared them to a proficiency level-matched L2 learners who took a similar amount of courses during comparable time period in an effort to determine if increased exposure to native input is needed or particularly gainful with respect to the acquisition of new L2 features needed to reset parameters.

Overall, the findings of our research demonstrate that NSP resetting is possible; however, it demonstrated that NSP resetting can take place without increased exposure to naturalistic input. That is, NSP resetting is possible based solely on classroom type input. Although the SAL2 participants were tested before and after 5 months of residency in Spain, the data do not demonstrate any significant improvement in any of the properties tested during that time further indicating that increase in exposure is neither a sufficient nor necessary variable in the accessing of linguistic universal properties. In earnest, we believe that increased exposure to native input must be beneficial to L2 learners for many linguistic and cultural reasons; however, we are unconvinced that such exposure must result in increased accessibility to universal properties, at least in terms of the NSP. Since classroom input provides ample positive evidence to learn null-subject and expletive subjects either via some type of frequency learning (e.g. null-subjects, null expletive sentences) or via a naturalistic way (via the acquisition of verbal morphology that encodes particular functional features), we thought it crucial to demonstrate L2 knowledge of the OPC. While domain-general learning procedures could arrive at an L2 grammar that has null referential and expletive subjects, this seems very unlikely for either group. If these properties were to be learned in such a way, it is not clear how or why domain-general learning mechanisms would discriminate between structures available from the input since subject-verb inversion and *that*-trace sequences are exemplified in the input as well. In any case, only domain-specific (UG) mechanisms can arrive at a grammar that respects the OPC. Thus, the whole of the data discussed is only consistent with UG-constrained L2 acquisition in which UG is readily available, scanning the input, even when it is not native or particularly bountiful, for the features needed to restructure the target grammar. The data are also consistent with a NSP cluster that contains null referential and expletive subjects and OPC restrictions only.

We should keep in mind that if current analyses with respect to how the positive value for the NSP is reset in Spanish are on the right track (that is, via the rich overt

verbal morphology), then it is clear that this parameter value has a very salient and frequent trigger from the input. It is perhaps for this reason that this parameter is seemingly reset so straightforwardly. Future research pursuing the logical idea that study-abroad experience do come to bear positively of syntactic competence would likely benefit from investigating other parameters, whose triggering data are extremely less frequent in classroom input.

NOTES

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1. Alexiadou and Agnostopoulou maintain that “EPP-checking is D-feature checking in a non-substantive category by a [nominal] lexical category (1998: 157).” In Spanish, head-to head movement of the verb to T in and of itself is able to check the EPP-feature since the agreement morpheme of the inflected verb checks the EPP requirement of T. Conversely, languages such as English, with ‘weak’ verbal morphology, have [- person, - interpretable ϕ -features]. Within more recent minimalist terminology, the EPP requirement is taken to involve an uninterpretable feature [- person] on T (Chomsky, 2000, 2001, 2005). In Spanish, the [- person] feature of T is checked via v to T movement, via [+ person] verbal agreement morphology (Ordóñez and Treviño 1999; Kato, 2000). That is to say, the [- person] feature of T is checked by head-movement, similar to Alexiadou and Agnostopoulou’s (1998) X^0 -movement criteria, and therefore does not require (XP) merge to Spec, TP as in English. In order for English speakers of L2 Spanish to reset the NSP they must acquire interpretable features as detailed above.
 2. This correlates to the position taken in previous related work (Rothman and Iverson 2007a, 2007b), but is much more developed and supported here.
 3. We have not provided examples of the counter balance properties (canonical subjects, overt subjects, overt expletives, null and overt object pronouns, *wh*-object extraction).
 4. Examples of the counter balance sentences (null embedded pronoun sentences with simple DP matrix subject and overt embedded pronoun sentences with a simple DP matrix subject) are not provided in the text, but were tested for.

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